

## Analysis on the Development of Compulsory Education of Four Municipalities in China

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**Keywords:** Compulsory education, Municipalities, Comparative analysis.

**Abstract.** Compulsory education has been universalized in China, but its development among different areas is unbalance. In this paper we compare the development situation of compulsory education among four municipalities in China and explore the development difference reasons among four municipalities by statistical data in recent years. At the same time we construct the relevant index system, that is, the number of students in school, the ratio of students to teachers, public finance expenditure on education, education industry funds per student, public education funds per student. The research shows that the development of compulsory education has strong relation with the scale of the resident population and the level of social and economic development. The larger the population is, the larger education scale is. The higher the development of social and economic is, the better the quality of compulsory education is.

### Introduction

Compulsory education includes primary education and secondary education in China. The compulsory education in China has already realized the comprehensive popularization. It has entered the new stage of improving the compulsory education quality and gradually realizing the balanced development of compulsory education. However, there is still serious unbalance about the development of compulsory education in China as a developing country. The unbalance is caused by a number of reasons. For example, the development of social and economic is imbalance in different regions, the urban-rural dual structure is too stubborn, and different areas have different education polices. Therefore it has a long way to go keeping the compulsory education balanced development.

Many scholars have made a research on the development of compulsory education. Some scholars research from the perspective of fair education opportunities. Professor Torsten Husen proposed that educational equity should be investigated from three aspects, the starting point, the process, the result, and the fair is relative, not absolute (Torsten Husen, 1991). Professor Harvey put forward the strategy of protecting compulsory education resources allocation balanced, that is to improve the related laws of compulsory education, strengthen the government responsibility, and carry out financial tilt for the less developed areas (Harvey, 1992). In 2002, Professor Feriedman pointed out that the best way to realize the educational equity is to adopt the method of market free distribution to allocate the educational resources and denied the monopoly mode of educational resources allocation.

There are a great many research results about compulsory education in China. The research content involves the connotation and standards of compulsory education, the performance, causes and countermeasures of the unbalanced development for compulsory education. Wu Xi studied the difference of compulsory education between the East and the West on the whole, and found that the quality of compulsory education in the west of China was far behind the eastern region, and analyzed the reasons of the phenomenon (2006); Sun Kuanning and Xu Jicun discussed the differences of the compulsory education between urban and rural, and put forward the way to promote the balanced development of compulsory education, that is, make reasonable policies to promote the development of compulsory education in urban and rural under the premise of accepting

their differences in order to make the development of compulsory education of urban and rural have its own distinguishing feature; Fang Changchun and Feng Xiaotian pointed out that the family economic capital and social capital would affect the level of children's compulsory education; Li Yuxiang pointed out that the fiscal gap between inter-school is still outstanding, though the gap of the development of compulsory education between the county is relatively narrow, therefore, it should be paid more attention to the gap among the schools, when promoting the balanced development of the compulsory education (2009).

However, the performances and the reasons of the unbalanced development of compulsory education are different from each other because of historical and realistic reasons. This paper will compare the development of compulsory education among China's four municipalities on the base of statistical data in recent years. In China municipalities which are directly under the central government, they are paid more attention to develop and have a higher level of development. In addition, their social and economic development speed is very fast, the level of urbanization is relatively higher than other areas in China. By comparing the development of compulsory education among the municipalities, the specific reasons for the imbalance of compulsory education can be analyzed.

## **Index Selection and Data Sources**

### **Index Selection**

In this paper, the following indicators are selected when discussing the development of compulsory education in the four municipalities.

(1) Student number in school. This index reflects the education scale to some extent. The larger education scale is, the greater the demand of education resources is.

(2) Student-teacher ratio. It refers to the ratio of the number of students and full-time teachers. This ratio can reflect the teachers' burden in a way. The higher the ratio is, the larger teachers' workload is. That may lead to teaching quality declined.

(3) Education funds. This index includes the following aspects, that is, the public financial expenditure on education, average public finance budget expenditure, average public budget public funds. Each index specific meaning is as follow.

A. Public financial expenditure on education is education expenses in finance budget, Including education industry funds (expenditure for the school staff and public expenditure), basic construction investment for education (cost for school building and large teaching equipment) and so on. It is the essential financial condition of running a school.

B. Education industry fund per student is the fund allocated for schools by central and local government, included in the subject of government revenue and expenditure, and used for developing education.

C. Public education funds per student are the funds of per student for educational business and management, including teacher training, laboratory practice, sports activities, water and electricity, heating, transportation, telecommunications, equipment, books, and the routine maintenance of houses, buildings equipment and so on.

### **Data Sources**

All data used in this paper are from the statistical yearbook, educational yearbook of the municipalities and statistics on the education funds by the Ministry of Education.

## **Comparative Analysis**

### **Student Number in School**

#### **(1) Primary school**

In Figure 1, student number of primary school in Chongqing had a special change of descend firstly then ascend from 2010 to 2014, and the number was least in 2012, while the student number

of other three municipalities showed a trend of increasing year by year. In quantity, the student number in Chongqing is the largest among the four municipalities; the student number in Beijing and Shanghai is very close; the student number in Tianjin is least. Take 2014 as an example, from more to less, the student number was 203.42 million in Chongqing, 82.12 million in Beijing, 80.3 million in Shanghai, 57.32 million in Tianjin. It increased 3.48 million, 16.79 million, 10.14 million, and 6.73 million than in 2010 respectively.

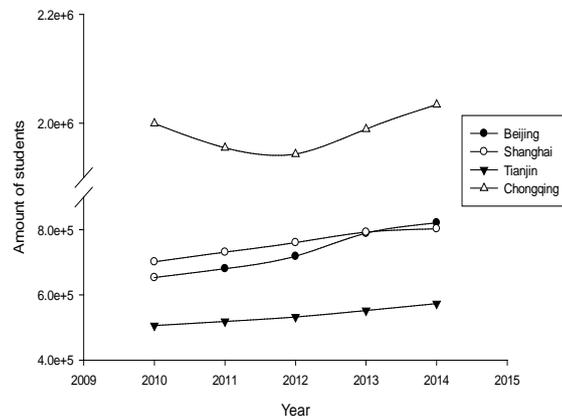


Fig.1 the amount of students in primary school of municipalities during 2010~2014

## (2) Junior high school

As shown in Figure 2, the student number of junior high school in Chongqing decreased year by year from 2010 to 2014, while other three municipalities had both reduced and increased, and their volatility is relatively smaller. The student number of junior high school in Chongqing is much higher than that of other three municipalities and is twice more than that of the Shanghai which ranked second. The student number of junior high school in Chongqing was 128.17 million in 2010, and the number was reduced to 97.94 million in 2014, which was a decrease of 30.23 million compared to 2010. The amount of other three municipalities was respectively 42.55 million in Shanghai, 31 million in Beijing, 27.34 million in Tianjin in accordance with the order from large to small in 2010, and it changed into 42.68 million, 30.68 million, 26.72 million respectively in 2014.

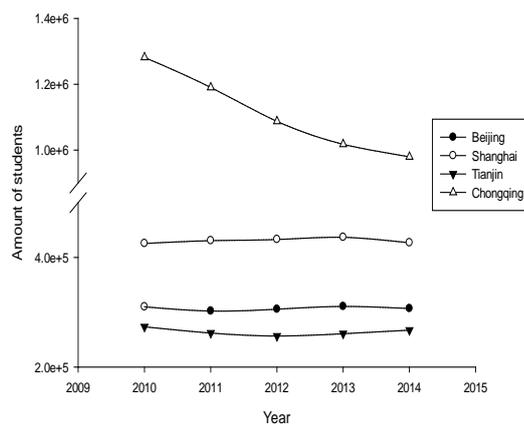


Fig.2 the amount of students in junior high school of municipalities during 2010~2014

## Student-Teacher Ratio

### (1) Primary school

As shown in Figure 3, the student-teacher ratio of primary school in Shanghai had a small rise firstly, and then decreased rapidly from 2011 to 2014. The ratio of other three municipalities increased year by year, furthermore the ratio of Beijing and Tianjin increased greatly. The ratio of

Tianjin was the least among four municipalities, and its ratio was 13.84 in 2011, while it was 14.71 in 2014, increased by 6.3% compared to 2011. The ratio of Tianjin was the minimum among four municipalities, and its ratio was 16.95 in 2011, while it increased to 17.48 in 2014. The ratio of Beijing was 14.89 in 2011, and it was 16.61 in 2014, increased by 11.5% compared to 2011. The ratio of Shanghai was 15.81 in 2011 and it changed into 15.6, just 0.21 less than that of 2011.

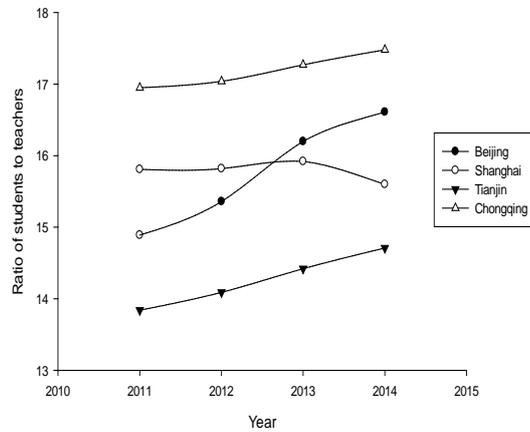


Fig.3 Student-teachers ratio in primary school of municipalities during 2011~2014

## (2) Junior high school

As shown in Figure 4, the ratio of junior high school in Tianjin decreased first and then increased from 2011 to 2014, while the ratio of other three municipalities showed a declining trend year by year, and the decline range of the ratio in Chongqing is the biggest, followed by Shanghai. As for quantity, generally, the ratio of Tianjin was lower than other three municipalities. The ratio of Shanghai was only higher than Tianjin. The highest one is Beijing. The ratio of Chongqing at the beginning of the same period was very high, but it was much less than Beijing subsequently due to the large decline range. In 2011, the ratio of each municipality was 15.51 in Chongqing, 15.32 in Beijing, 12.48 in Shanghai, 10.13 in Tianjin from large to small. The ratio of all municipalities turned into 12.94, 14.83, 11.49, 10.21 in 2014 respectively and accordingly.

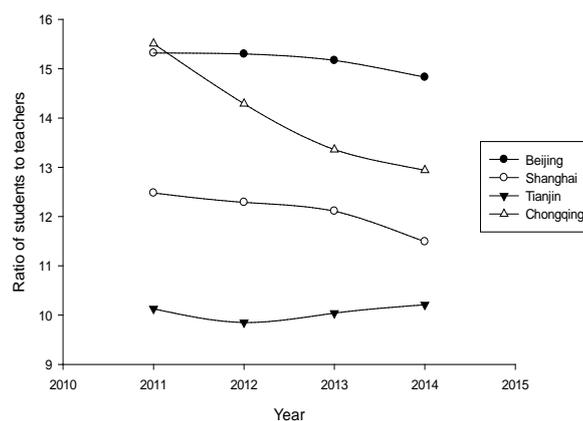


Fig.4 Student-teachers ratio in junior high school of municipalities during 2011~2014

## Funds on Education

### *Public Financial Expenditure on Education*

In Figure 5, the public financial expenditure on education of other three municipalities increased year by year in addition of Chongqing and that of Beijing was the most, followed by Shanghai. Tianjin's public financial expenditure on education was more than Chongqing in 2013 and 2014, but

Tianjin's public financial expenditure on education was less than Chongqing in 2012, and two cities were not much different in 2011. The public financial expenditure on education of four municipalities was 75.849 billion yuan in Beijing, 67.436 billion yuan in Shanghai, 51.701 billion yuan in Tianjin, 44.714 billion yuan in Chongqing in 2014 respectively.

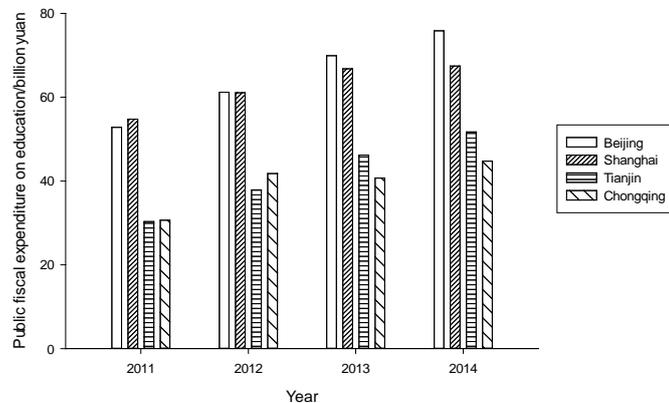


Fig.5 Public fiscal expenditure on education during 2011~2014

The magnitude of the public financial expenditure on education of four municipalities, that is, the proportion of public financial expenditure on education and the whole financial expenditure is different from each other. As shown in Figure 6, the proportion mentioned above in Beijing steadily increased steadily year by year among four municipalities from 2011 to 2014, and the proportion of other municipalities had different decrease. The proportion of four municipalities was Tianjin, Beijing, Shanghai, Chongqing in the order of amount. The proportion of Shanghai was almost the same as Chongqing in 2014.

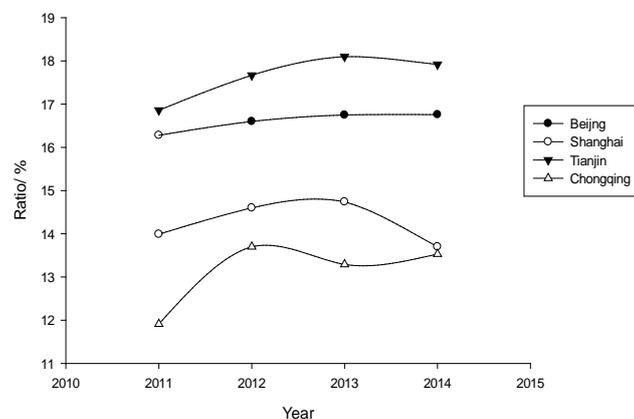


Fig.6 Ratio of public finance expenditure on education to the whole finance expenditure during 2011~2014

### ***Education Industry Funds of Per Student***

Figure 7 shows the educational industry cost for each primary school student of four municipalities during the period of 2011~2014. It can be seen the cost of four municipalities increased year by year from 2011 to 2014. The cost of Beijing and Shanghai were higher than other two municipalities. The cost of Tianjin ranked third. The cost of Chongqing was the lowest. In 2014, The cost of Beijing was 23441.78 yuan. The cost of Shanghai was 19519.88 yuan, 17233.85 yuan in Tianjin, only 7259.92 yuan in Chongqing.

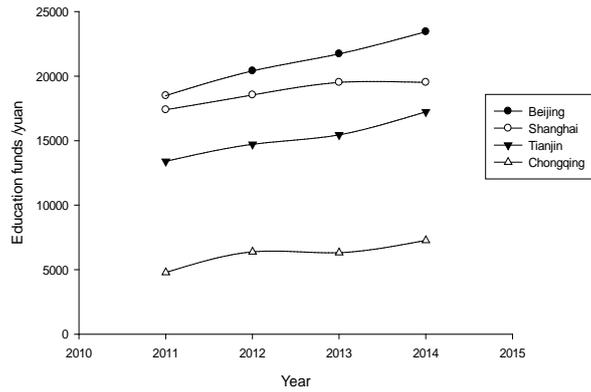


Fig.7 Education industry funds of per student of primary school in municipalities during 2011~2014

Figure 8 shows the educational industry cost for each junior high school student of four municipalities during the period of 2011~2014. The cost referred above of four municipalities increased year by year from 2011 to 2014, and the growth rate changed each year. The growth rate in Beijing was relatively stable, while it was relatively slow in Shanghai. The growth rate of the cost in Tianjin was slightly faster than that in Beijing, and the cost in Chongqing experienced from fast to slow and then fast. As for quantity in 2014, the education industry cost of Beijing junior high school was still the highest, up to 36507.21 yuan. The cost difference between Shanghai and Tianjin was not much, 25456.58 yuan and 26956.43 yuan respectively. The cost of Chongqing was the lowest, only 9224.77 yuan.

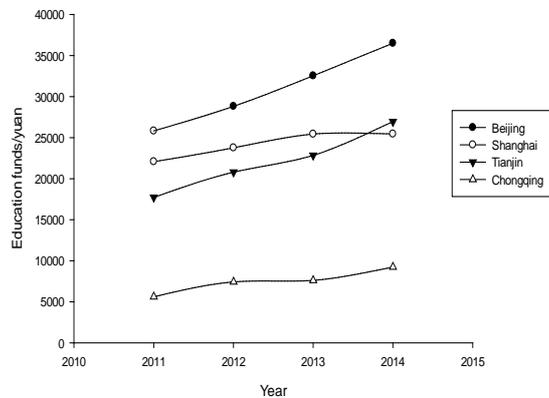


Fig.8 Education industry funds of per student of junior high school in municipalities during 2011~2014

### ***Public Education Funds of Per Student***

Figure 9 shows the public education funds for each primary school student of four municipalities during the period of 2011~2014. As can be seen, the funds referred above of four municipalities increased year by year from 2011 to 2014. The growth rate of each one was not identical. As for quantity, the funds of both Tianjin and Chongqing were significantly lower than that of Shanghai and Beijing. The public education funds for each primary school student of four municipalities in 2011 from more to less followed by Beijing 8719.44 yuan, Shanghai 5369.22 yuan, Tianjin 2272.5 yuan, and Chongqing 1501.87 yuan. It was correspondingly increased to 9950.95 yuan, 7383.61 yuan, 3968.87 yuan, and 2513.19 yuan in 2014, which had an increase of 1231.51 yuan, 2014.39 yuan, 1696.35 yuan, and 1011.32 yuan respectively.

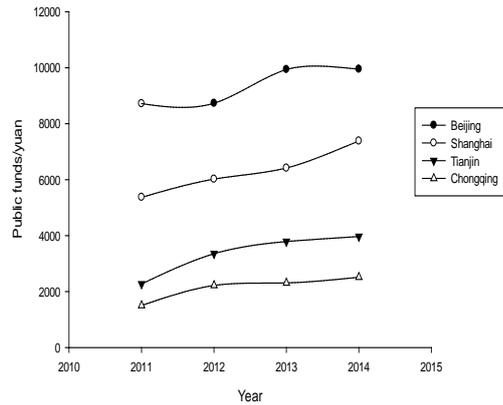


Fig.9 Public education funds of per student of primary school in municipalities during 2011~2014

Figure 10 shows the public education funds for each junior high school student of four municipalities during the period of 2011~2014. It can be seen, the funds referred above of four municipalities increased year by year from 2011 to 2014. The growth rate of each one was not identical, just like that of the primary school. As for quantity, the fund of Beijing was much higher than other municipalities. The fund of Beijing was almost five times as that of Chongqing. The fund of four municipalities from more to less followed by Beijing 11241.78 yuan, Shanghai 6837.76yuan, Tianjin 2983.13yuan, and Chongqing 1966.78 yuan in 2011. It was correspondingly increased to 14127.64yuan, 9278.78yuan, 6134.37yuan, and 3050.43yuan in 2014, which had an increase of 2885.86yuan, 2441.02yuan, 3151.24yuan, and 1083.65 yuan respectively.

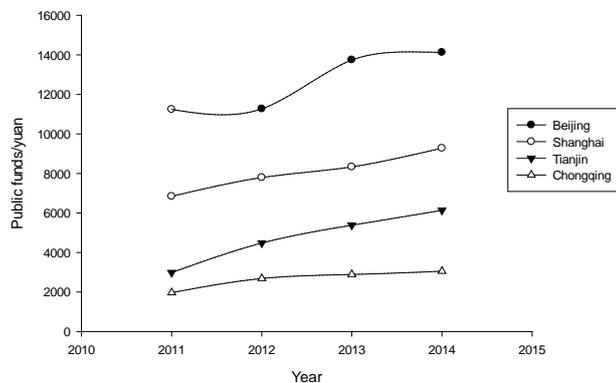


Fig.10 Public education funds of per student of junior high school in municipalities during 2011~2014

## Conclusions

Through the comparative analysis above, it can be seen that the development of compulsory education in the four municipalities directly under the central government is different from each other.

(1) Student number in school. Chongqing had the largest number of students in compulsory education because of the largest population (29.91 million of resident population in 2014). Tianjin had the least number of students in compulsory education because of the smallest population (15.17 million of resident population in 2014). There is not much difference between Beijing's and Shanghai's student number in school, because the difference of their population size is not much.

(2) Student-teacher ratio. Tianjin's ratio is the lowest, so its allocation of teacher sources in four municipalities is relatively the best to some extent. Chongqing's ratio is the highest, so its allocation of teacher resources is relatively poor. Beijing's and Shanghai's ratio is relatively better.

(3)Public financial expenditure on education. It is the highest in Beijing as the capital and political center in China. Shanghai ranks second as it is China's economic center and has a high level of economic development. The least is Chongqing because Chongqing is an emerging municipality with a relatively lower level of economic development. In terms of education industry funds per student and public education funds per student, Beijing's and Shanghai's are relatively more, and Chongqing's is the least.

To sum up, compulsory education development of municipalities has strong relationships with resident population scale and the level of social economy development. Namely, the larger population is, the greater scale of education is and the higher level of social economy development is, the better quality of compulsory education is. Local government should accelerate their economic development and promote the education development for weak education development of municipalities in order to balance the development of compulsory education in the municipalities. At the same time, the government can take appropriate measures to increase investment in compulsory education, and improve the teaching level.

### **Acknowledgement**

This paper is sponsored by Beijing Education Science Program (Project No. AAA13003), Graduate science and technology innovation project in Capital University of Economics and Business.

### **References**

- [1]Torsten Husen, Albert C. Hyde, Jay M. Shafritz. The Essential Readings.Chicago. Lyceum Books/Nelson Hall[J]. Public Management, 1991:16.
- [2]Friedman. Information technologies and the training of teachers[J].Education media international, 2002(3):114.
- [3] Harvey, L., Burrows, A. and Green, D. Criteria of Quality: summary, quality in higher education project University of Central England[D]. London:Univ. of mingham,1992.
- [4]Wu Xi. Study on the Difference of the Compulsory Education between Eastern and Western Regions in Recent Years [D]. Sichuan Normal University, 2006
- [5] Sun Kuanning, Xu Jicun. The status and reflection of the difference between urban and rural areas in Compulsory Education -- Based on the investigation of the status of compulsory education in Shandong province [J]. Journal of Hebei Normal University (EDUCATION SCIENCE EDITION),2015,02:67-73.
- [6]Fang Changchun, Feng Xiaotian. Family back ground and academic achievement: Study on the stratum differences in compulsory education [J]. Zhejiang social science,2008,08:47-55+126-127.
- [7] Li Yuxiang, Strategy to promote the intercollegiate fiscal balance of compulsory education[J].China Education Journal,2009,12:11-14