Research on the Balance of Per-Pupil Education Expenditure in High Schools in China

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Abstract. Educational equity is not only an attractive social ideal, but it also serves to advance social equality. This article examines the current situation of balanced per-pupil education expenditure in high schools in China and the quality equity at the high school education level in China and investigates the causes of the uneven per-pupil expenditure problem. This paper is based on the education expenditure per student of urban and rural high schools in 31 provinces, cities, and districts of mainland China from 2012 to 2019, excluding inflation. The results show that China's overall investment in per-pupil education funding for high schools has grown steadily over the past eight years. The gap between urban and rural per-pupil education expenditures for high schools within provinces widens. Between provinces, the difference in per-pupil education funding for high schools varies significantly with the level of economic development of the region, and the gap continues to grow. In addition to developmental disparity factors, the fundamental institutional causes of education equity are government public policies' various orientations or deviations. This paper offers some references for the research on China's per-pupil education.

Keywords: Education Equity · Per-pupil Education Expenditure · Secondary Education · Public Policy

1 Introduction

Educational fairness is strongly dependent on educational resources, particularly the investment in education expenditures. More expenditures result in more advanced teaching facilities, a better teaching atmosphere, and more qualified teachers [1]. Inequalities in education expenditure will result in inequalities in student performance. Consequently, the per-pupil education expenditure indicates the average education resources accessible to a student and eventually determines education equity quality [2].

Currently, China has universalized a 9-year compulsory education and instituted student loans at the college level. High school is the most burdensome stage for low-income families. In recent years, most research on educational equity in China has focused on compulsory education in rural areas, education for girls, and education for migrant children. In comparison, high school education is more unclear [3]. This paper

This paper is independently completed by Yihong Gan.

G. Ali et al. (Eds.): ISEMSS 2022, ASSEHR 687, pp. 3039–3046, 2022.
https://doi.org/10.2991/978-2-494069-31-2_357

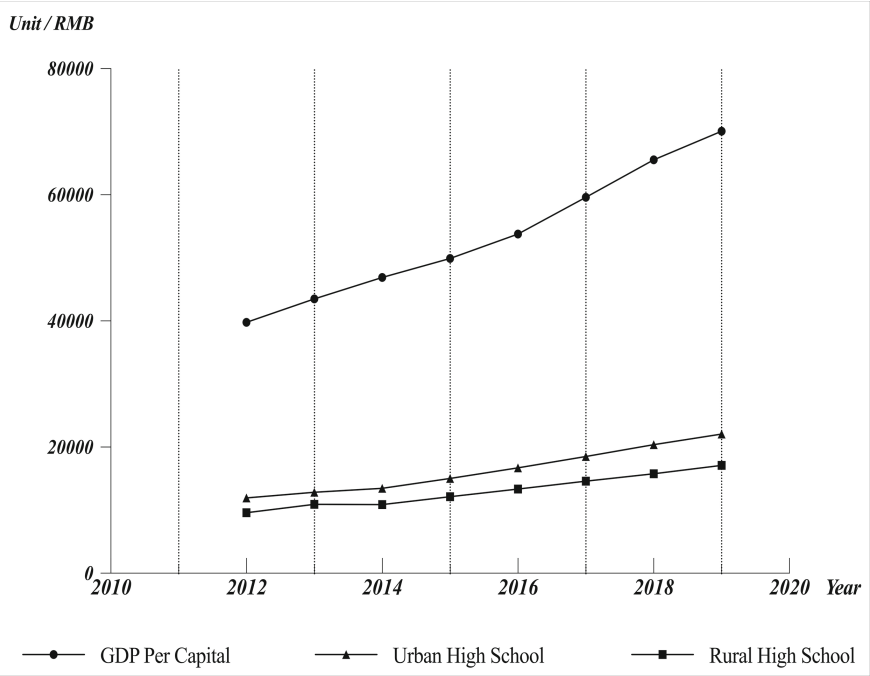

Fig. 1. Rural and Urban High School Per-pupil Education Expenditure and GDP Per Capita

analyzes the average education expenditure per student in urban and rural high schools in 31 mainland China provinces, autonomous regions, and municipalities to investigate China's high school education quality equity. In addition, to determine the elements that affect educational fairness and give the most up-to-date data and relevant references for creating public education policies and increasing educational equity [4].

The data in this paper are from the 2012–2019 "China Education Expenditure Statistical Yearbook"' "National Education Expenditure Implementation", and "Statistical Bulletin and China Education Statistical Yearbook", compiled by the authors. All statistical analyses by GraphPad Prism.

2 Analysis of the Per Pupil Education Expenditure in High School in China

2.1 Overall Per Pupil Education Expenditure in High School

In 2019, China had 24,400 schools with 3,949,900 students enrolled in high school education, with a gross enrollment percentage of 89.5% [5].

In the Fig. 1, this paper compares the average education expenditure in rural high schools and the average expenditure in urban high schools for the average education expenditure per student in China and China's GDP per capita from 2012 to 2019.

Figure 1 shows that during the eight years, the average education expenditure per student in rural and urban high schools in China and China's GDP per capita continued

to climb, demonstrating an apparent positive connection distribution. In particular, GDP per capita growth rate is higher than per-pupil education expenditure in high school. The average education expenditure per student in rural high schools is much lower than in urban high schools. The disparity between rural and urban high school per-pupil education expenditure increases. Specifically, the gap between rural and urban high school per-pupil education spending achieved a minimum value of RMB 1933.3 in 2012, and then the gap continued to rise, reaching a peak of RMB 4953.5 in 2019.

3 China's Urban, Rural, and Regional Per-Pupil Education Expenditure

By comparing the urban-rural gap and the regional gap in high school education funding inputs, we can represent the unstable situation of high school education funding and better investigate the topic of quality equity at the high school education level in China. Considering that China's price level has significantly changed during the eight years, it is crucial to treat the per capita education spending input at constant prices [6]. We determined the relative indices of the Consumer Price Index during the eight years as 1, 1.026, 1.0465, 1.0612, 1.0824, 1.0997, 1.1228, and 1.1554. By calculating the ratio between the input of per-student education spending in high school and the CPI index, we acquired the per-pupil education expenditure in high school during the eight years as input data [7].

3.1 Urban and Rural

After comparing the statistics for urban high school per pupil education expenditure minus rural high school per-pupil education expenditure from 2012 to 2019, it reveals the gap between urban and rural high school per-pupil education expenditure in 31 provinces across the nation, as presented in Fig. 2.

When the number is equal to zero, the gap between urban and rural per-pupil education expenditure is the smallest, indicating that the quality of urban and rural high school education stages in that province are comparable. When the number is more than zero, the urban average per-pupil education spending is greater than the rural average per-pupil education expenditure investment, indicating that the high school education quality in urban and rural sections of the province is not comparable.

Most of provinces have higher per-pupil high school education expenditures in urban areas than in rural areas, and this gap is growing. The urban-rural gap fluctuates the most in Beijing, which cannot consistently keep it within an acceptable range. The highest disparity between urban and rural per capita education funding is in Shanghai, where urban per capita education expenditure was much greater than rural per capita education funding from 2012 to 2019, reaching a peak of RMB 22,409 in 2018.

3.2 Regions

By comparing the mean value of the per-pupil education expenditure between 31 provinces from China in 2012 to 2019, Fig. 3 illustrates the disparity between regions of the average investment in high school education per student.

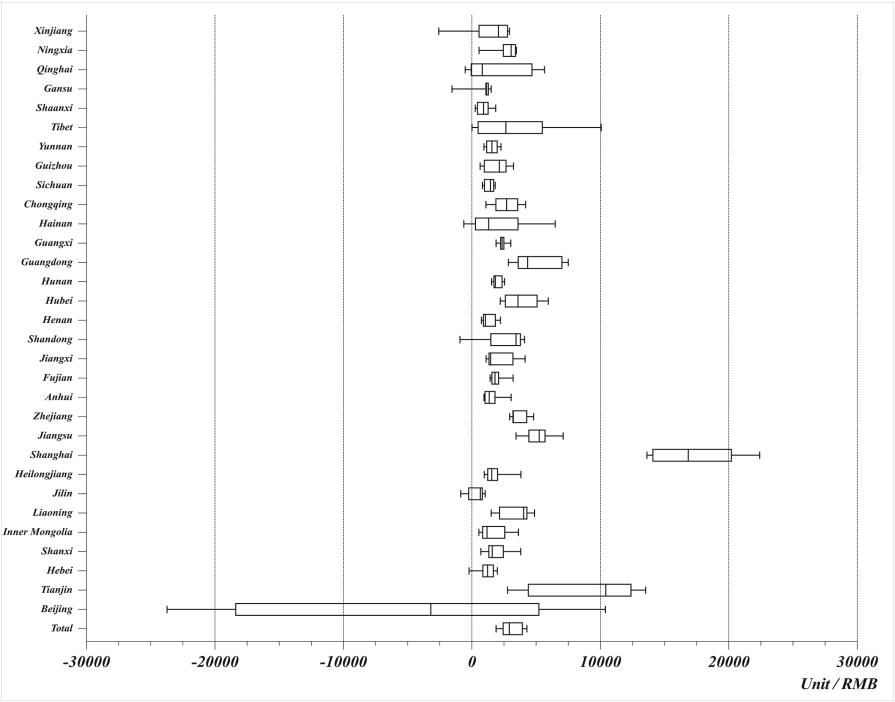

Fig. 2. Urban-rural Gap in Per-Pupil Education Expenditure in High School

When the value is more significant, the average investment in high school education in that province is more significant than in other provinces, indicating a higher quality of high school education.

As shown in Fig. 3, the average investment in high school education per student in all 31 provinces shows an upward trend from 2012 to 2019, indicating that the quality of high school education has gradually increased. In particular, (1) China's average high school education cost per student has a substantial edge. Beijing, for instance, has been consistently ranked #1, with a 2017 peak of RMB 89,530. It is RMB 79,583 ahead of the last place, Henan Province, with RMB 9,947. The high school education cost per kid in Beijing is seven to eight times greater than in the lowest city, and the disparity is widening. (2) China's eastern and western provinces differ in high school per-pupil education expenditure. The per-pupil education expenditure for high school in economically underdeveloped western provinces is generally lower than that in economically developed eastern provinces. (3) There is a positive association between the economic development of each province in China and the high school education spending per-pupil. Thus, the higher the level of economic growth in a province, the greater the expenditure on secondary education. However, some medium-developed regions have higher per-pupil education spending than developed regions. Some economically developed regions have lower per-pupil education spending than the national average, demonstrating the complex relationship between education spending and economic development.

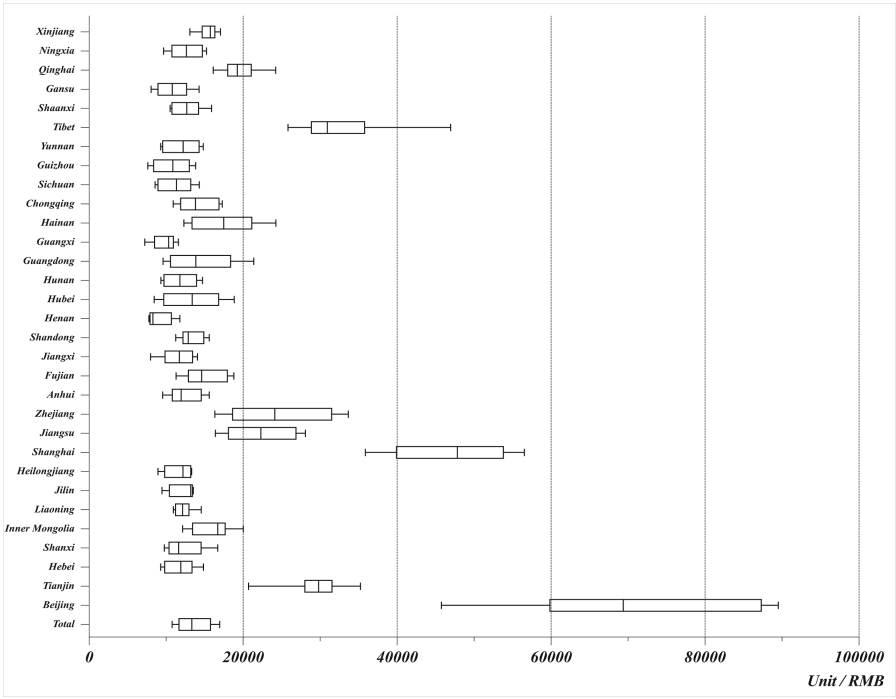

Fig. 3. Regional Gap in Per-Pupil Education Expenditure in High School

4 Analysis of the Reasons for the Unbalanced Per-Pupil Education Expenditure in High School in China

China's educational gaps are primarily the result of historically unequal economic, social, and cultural development between urban and rural regions and areas. Such disparities are deeply rooted in the cultural practices and traditions of various regions and ethnic groups, which can only be gradually improved and reduced through economic and social progress [8]. In contrast to the developmental factors contributing to educational inequity due to historically formed developmental gaps, what merits attention and impacts educational equity are the various orientations or deviations of government public policies, which frequently exacerbate educational inequity in practice. In addition, it is easier to improve social equity through institutional reforms and policy adjustments than to close historically formed developmental gaps. Therefore, this institutional factor is the focus of our attention [3].

In May 1953, Mao Zedong presided over a meeting of the Political Bureau of the Central Committee of the Communist Party of China, where they decided to run key high schools. The objective was to operate several key schools to rapidly advance the development of Chinese science and culture and train higher-quality specialists. The key high schools identified were as follows: 20 in Beijing, 14 in Jiangsu, 10 in Tianjin, Shanghai, Sichuan, Anhui, and Fujian, and 1 to 9 in each of the other provinces and autonomous regions, for a total of 194 key high schools representing 4.4% of the nation's

high schools. Most of these schools were in urban areas, which were more conducive to the success of urban students. Unfortunately, the leading schools did not serve as a model or an experiment. The competition among key schools for university education rates degraded the primary education environment. Frequent examinations and competitions increase students' workload and negatively impact their physical and mental health. The atmosphere of primary education has deteriorated due to the competition among key high schools for higher graduation rates [3].

In 1957, China established a stringent household registration system to meet the country's modernizing aims and developed a dual structure of urban and rural areas, a highly centralized and planned resource allocation model, and a dual model of urban-rural management division. This has led to establishing an urban-centric institutional setup that ignores regional distinctions and urban-rural differences and takes urban society and citizens as the starting point. With the adoption of a closed household registration system, the emphasis of the state's public policy is to meet methods expressing and embodying the interests of urban people.

The education sector has set various criteria for urban and rural locations regarding schooling conditions, finance, teacher deployment, and other resources. Most educational spending is centered in metropolitan regions, whereas rural education, which is in greater need of help, receives significantly fewer resources. The policies of most nations around the globe are biased toward underprivileged areas and people. However, due to China's goal for rapid development, resources are expressly biased toward urban areas. This exacerbates the historically rooted urban-rural gap and has a cumulative impact of making the poor poorer and the privileged richer.

This dual structure of urban and rural, key, and non-key high school duality is China's most fundamental institutional framework that influences educational equity. This system's long-term implementation has produced an "urban-centric" value orientation that disregards regional and rural-urban disparities and prioritizes the demands and interests of urbanites. As a cultural institution, this ideal affects educational public policy today. Regional disparities in the college entrance examination admissions and the development of curriculum standards and teaching materials based primarily on urban children's educational resources and learning abilities are examples. This pattern persists as a significant policy issue impacting educational equity in China. This dichotomous structure of the urban-rural split has become the fundamental mechanism that reinforces and expands the education gap between urban, rural, and regional areas [9].

5 Conclusion

At this stage, China has a significant disparity in per-pupil expenditure between urban and rural areas within regions and between regions, implying inequity in Chinese high school education quality. Of course, pursuing absolute equity in education is an unrealistic goal; this study advocates minimizing the gap and providing a ladder of upward mobility for the disadvantaged. In China's educational reality, effectively closing the gap also remains a rather tricky long-term goal [10].

In the reality of multiple interest patterns, China should establish a new mechanism for public policy decision-making. Through mechanisms and institutional innovations,

such as public participation, multiple interest expressions, and interest games, you can achieve a balance of values and interests to ensure the fairness of public education policies that not only reflects and protects the interests of the majority but also follows the laws of education and academics themselves to avoid the blunders of public education policies that are only swayed by the officialdom and the market. We should handle the relationship between government, market, and schools correctly and establish the values of public welfare, publicness, and justice of education. Furthermore, we should establish the responsibility of government to provide public services and products, maintain fair and competitive market order, and regulate the government's behavior in the market economy environment.

In the future, this study will evaluate educational equity by class gap [3]. The data of this study are based on towns and villages. However, due to the process of urbanization and the political reform of the household registration system, a prominent mobile population, and many rural students going to school in the county after the adjustment of the layout of primary and secondary schools, it will be more challenging to identify the attributes of urban and rural populations. It is more reasonable and practical to evaluate educational equity by the indicators of parents' occupation and family socio-economic background, highlighting the importance of class gap evaluation.

Acknowledgements. I would like to thank professors, teachers who assisted me with the composition of this paper.

My heartfelt thanks to my adviser at Cornell University, Professor Parfait Eloundou-Enyegu, for his continual support and guidance. I was able to create a solid academic foundation in education, public policy, and sociology due to his energetic and responsible educational approach. Also, I chose education as my major due to him, for which I am quite grateful. This dissertation would not exist in its current shape if not for his constant and illuminating mentoring.

Secondly, I would like to thank Professor Chen Zhiwei at the Minzu University of China for his tremendous assistance and direction in determining my dissertation topic and for assisting me in settling on the title of this dissertation.

Lastly, I would want to thank my high school teachers, parents, and friends for their unwavering support and encouragement.

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