The Impact of Financial Investment in Compulsory Education on Regional Educational Equity: A Case Study of Beijing

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Abstract. Balanced education is a core goal of compulsory education and also a component of the national strategy. To promote the balanced development of compulsory education in Beijing from a financial perspective and provide a reference for other domestic cities, this article analyzes the financial reasons for the regional imbalance in Beijing's compulsory education. The analysis concludes that between urban and suburban areas, the finance input system dominated by districts and counties further amplifies economic disparities, resulting in the concentration of educational resources in developed urban areas. Within urban areas, the differences in district-level expenditure structures also play a role. Districts that prioritize educational reform and innovation, as well as teacher incentives and compensation, fare better, and weaker districts adjusting their education financial structure based on their financial capacity help improve compulsory education levels. Based on this, the article proposes the following recommendations: The municipal government should increase its educational financial responsibilities and provide subsidies to economically lagging areas. Each district and county should optimize their financial investment structure, with financially weak districts increasing their project expenditure proportion, focusing on investments in teachers, educational reform, and innovation, and improving their own weak areas.

Keywords: Balanced Education, Primary and Secondary Education, Education Finance.

1. Introduction

Balanced education is the core goal of compulsory education and an important part of the national strategy, relating to the modernization of education and people's aspirations for a better life. Finance is closely related to education, and financial investment is an important means of allocating educational resources. Research shows that financial investment is one of the factors affecting rural education in China [1]. The level of balanced compulsory education in China is constrained by the adequacy, fairness, and fiscal neutrality of educational financial investments [2]. National educational financial investment can also alleviate the educational outcome inequality caused by shadow education (extracurricular education) intermediaries [3].

As the capital of China and a megacity, Beijing has a leading position in basic education nationally, with a concentration of esteemed teachers and key schools, a strong demand for education, and enormous educational potential. However, there are significant disparities in educational resources and levels within the city, such as uneven regional distribution of enrollment demand and quality teaching resources, with high-quality educational resources concentrated in the central urban areas [4-5]. To meet the people's demand for a better life, serve the country's strategy for educational modernization, and provide experience for the development of compulsory education in other cities, it is particularly important to explore the financial reasons for the regional imbalances in compulsory education in Beijing and propose solutions.

2. Current Status of Balanced Development in Educational Financial Investment

2.1. Core Concept - Standards for Balanced Development in Education

The existing theories on the definition of educational equity are rich and multilayered. In 2006, Zhai Bo defined basic education equity as 'the issue of equitable development of education between different regions in China, between urban and rural areas, among different schools in the same region, and among different groups within the same school'; he proposed indicators and calculation formulas to measure the level of basic education equity based on the allocation of educational resources, the educational process, and educational outcomes [6]. In 2008, Wang Shanmai categorized public educational resources into human, material, and financial resources, a framework that has been referenced and utilized by several researchers subsequently [7].

With the realization of basic balance in various provinces and cities in China, developed provinces and cities such as Beijing have started to make "achieving high-quality and balanced development of compulsory education" a new reform and development strategy [5]. The connotation of educational balance has been expanded, and "high-quality balance" has become a new research subject. Yin Yuling believes that high-quality and balanced compulsory education has four characteristics: advanced, holistic, distinctive, and comprehensive [5]. Based on previous research on the indicators set for the high-quality and distinctive development of compulsory education, Zhang Wunong proposed suggestions for new indicators, such as educational philosophy, educational informatization, and public satisfaction indicators [8].

Based on the above description, the connotation and indicator framework of educational equity are diverse and continuously enriched with the development of the times. The currently popular judgment standard is the 'human resources - material resources - financial resources' indicator framework, with quality indicators in education beginning to be introduced.

2.2. National Education Financial Policy and Its Development

According to the research conducted by Chen Xiaoyun and others in 2021, the development trends of educational fiscal policy in China since the reform and opening-up are as follows: the financial and economic powers within national education policy have been continuously strengthened since 1987. The focus of educational fiscal policy has shifted from funding procurement to the allocation of educational funds; the sources of funding have transitioned from a dual channel involving both government and market to a predominantly government-led model; among these developments, compulsory education has become the focal point of educational fiscal policy [9].

In terms of the vertical responsibility structure of education finance, after experiencing two phases of 'unified collection and expenditure' and 'financial package', China's fiscal system has entered the 'public finance' stage. The fiscal system for compulsory education has moved towards relative centralization, whereby the financial departments of district and county governments bear the main responsibilities for financial input into compulsory education. The provincial and municipal governments are responsible for formulating unified standards related to compulsory education and implementing special transfer payments, thereby promoting a balanced supply of compulsory education within provinces and municipalities [10]. In terms of the content of financial input into education, recent years have seen an increased emphasis on comprehensive social practices such as science and art, group-based schooling, and inter-school cooperation in compulsory education funding in China [11].

In summary, compulsory education in China is highly valued by the national finance, with an increased government financial participation in education. The primary implementation is a vertical financial system centered on counties, and the scope of investment has become more diversified.

3. Case Study on Beijing

3.1. Positive Measures in Educational Finance

In terms of the total amount of financial investment, the funding for basic education in Beijing has seen steady growth in recent years, with total expenditures increasing by approximately 30% from 2016 to 2023. This has contributed to the overall improvement of teaching facilities, the teaching staff, and the quality of education [12].

At the level of basic balanced compulsory education, Beijing has actively implemented standardized construction, developed a high-quality and specialized teaching workforce, and deepened educational reforms, achieving remarkable results [13]. From 2006 to 2015, the disparity in education funding per student between primary and secondary schools in different districts of Beijing has narrowed, with the funding per primary student in remote districts gradually surpassing that of urban areas [14]. In 2015, the public satisfaction survey results across 16 districts reached over 85% [13]. In the same year, all districts in Beijing had achieved the goal of basic balanced development in compulsory education [15].

On this basis, in 2017, the Beijing Municipal Government began systematically promoting the high-quality and balanced development of compulsory education. It advanced the optimization of compulsory education resources through both horizontal and vertical approaches, established and improved relevant standards and guarantee mechanisms, and achieved certain accomplishments [16].

In summary, the financial support for basic education in Beijing has been continuously strengthening, with compulsory education progressing from basic balance to quality balance, reflecting the positive trend of development in education finance in Beijing.

3.2. Existing Issues in Education Finance

Despite achieving significant accomplishments, the current Beijing municipality still faces issues such as the concentration of educational resources in the central urban areas during the process of realizing high-quality and balanced compulsory education. The following content will specifically explore the details of this problem.

This article will draw on the human-materials-financial resources framework summarized by previous scholars to examine the issue of regional balance in compulsory education development in various districts of Beijing since 2020. The specific indicators include human resources (number of full-time teachers in primary and secondary schools), material resources (number of primary and secondary schools), and financial resources (total education fiscal investment).

3.2.1 The issue of financial resource allocation and the division of fiscal responsibilities

The differences in total educational financial investment among various districts in Beijing are quite significant, with financial resources mainly concentrated in districts such as Haidian, Chaoyang, and Xicheng. For example, in 2023, Haidian District had the highest educational financial investment, reaching 15,507,250,000 yuan, followed by Chaoyang and Xicheng, both exceeding 6,000,000,000 yuan; the districts of Dongcheng, Fengtai, Fangshan, Tongzhou, Shunyi, Changping, and Daxing were similar, ranging from 4,000,000,000 to 6,000,000,000 yuan; other districts were around 2,000,000,000 yuan [17].

From the data, it can be observed that the level of educational financial investment in urban areas of Beijing is overall higher than in the far and near suburban areas, which shows a positive correlation with the regional economic development level. In 2023, the average per district GDP in urban areas (Dongcheng, Xicheng, Haidian, Chaoyang, Fengtai, and Shijingshan) was 325,001.74 yuan, while in suburban areas, it was 83,531.46 yuan [17]. The significant discrepancy in economic development levels is likely a key reason for the unequal distribution of financial resources between urban and suburban areas. This may be related to the educational financial system in Beijing. Currently, the vertical structure of educational finance for compulsory education in Beijing conforms to the framework of the national 'public finance' compulsory education financial system, where district counties bear the main responsibility for educational finance, and the municipal government provides subsidies. Johanna Schnabel has found that when local autonomy is combined with relevant factors (such as regional disparities in educational expenditure), it can become an influencing factor in educational regional inequality [18]. Specifically, the excessive responsibility of district county governments in the financial aspect of compulsory education may amplify the impact of regional economic levels and governmental financial disparities on education, thus restricting the balance of regional education; this may be a deeper reason for the imbalance of compulsory education in urban and suburban areas of Beijing.

3.2.2 The allocation of human and material resources and the differences in the educational financing structure across various districts

There are also significant differences in the allocation of human and material resources for primary and secondary education across the districts of Beijing. Among these, Haidian District and Chaoyang District stand out in terms of resource allocation levels.

In 2023, the number of full-time teachers in ordinary secondary schools in Haidian District was 15,484, while in Chaoyang District it was 13,944, with other districts having fewer than 8,000 teachers, and some suburban areas having fewer than 2,000. For primary schools, Haidian District had 10,016 full-time teachers; the numbers in Dongcheng, Xicheng, and Chaoyang Districts ranged from 4,500 to 7,500, while other districts had fewer than 4,500 teachers, with some suburban areas below 2,000. In the same year, Chaoyang District had 97 ordinary secondary schools, ranking first in the city, followed by Haidian District with 88 schools; other districts had fewer than 60, with some suburban areas having fewer than 20 schools. Haidian District had 90 primary schools, while Chaoyang and Fengtai Districts had between 60 and 80 schools, and Dongcheng and Xicheng, as well as some nearby suburban areas (Fangshan, Tongzhou, Shunyi, Changping, and Daxing) each had more than 40 schools, whereas the remaining areas had fewer than 30 schools [17].

From the data, it can be seen that although the distribution of human and material resources for compulsory education in Beijing's districts is similar to that of financial resources, being relatively concentrated in urban areas, there is no obvious correlation between the distribution of these resources among various urban districts and the total educational financial input of each district. This suggests that other factors are influencing the configuration of educational resources among urban districts. Among these, the structure of each district's allocation of educational financial resources is the focus of this study.

In the urban area, Haidian District and Chaoyang District stand out in terms of the allocation of compulsory education resources. This study examines them as exemplary cases. In 2023, the basic expenditures (including personnel costs and operational expenses) of Haidian District and Chaoyang District were relatively high, accounting for 68.8% and 71.7% respectively. Among these, as shown in Fig. 1 and Fig. 2, wage and welfare expenditures constituted 75% and 88%, representing the highest proportion within basic expenditures, followed by goods and services expenditures at 20% and 9% respectively. Regarding project expenditures, the education committee of Haidian District focuses on reforms in compulsory education, innovations in general high school group courses, teacher workforce development, expanding the supply of quality degrees, and enhancing educational support capabilities. In contrast, the education committee of Chaoyang District concentrates on ensuring campus safety, textbook fee exemptions and subsidies, and maintaining basic educational quality [19,20].

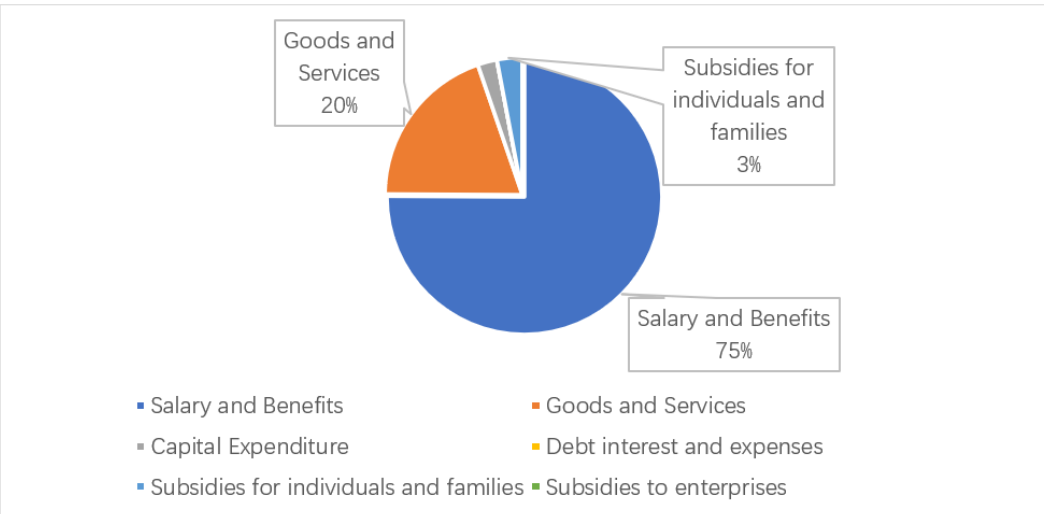

Fig 1. Composition of Basic Educational Financial Expenditure, Haidian, 2023 [19,20].

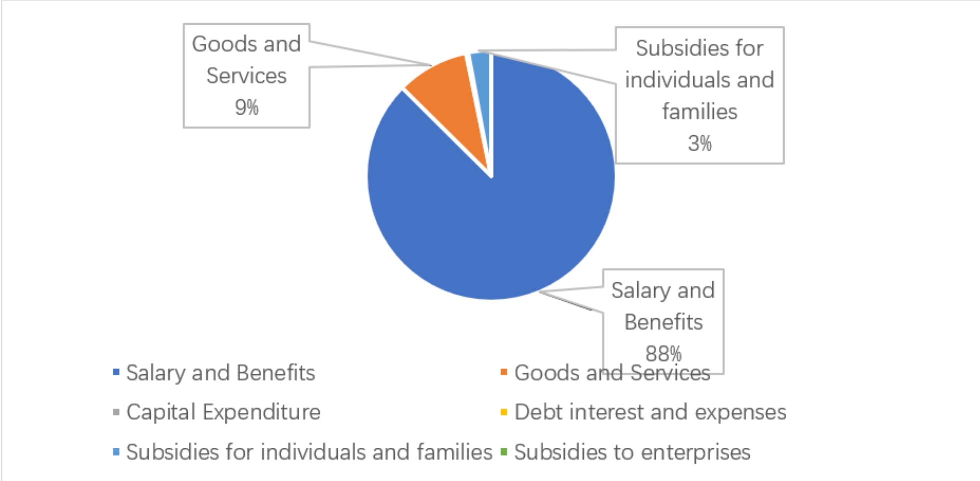

Fig 2. Composition of Basic Educational Financial Expenditure, Chaoyang, 2023 [19,20].

It is evident that both Haidian and Chaoyang Districts place significant emphasis on the fundamental guarantees of education (such as teacher resources and teaching conditions), focusing on the enhancement of salaries and welfare for educational staff, which may be an important reason for their rich human resources in compulsory education. Compared to Chaoyang District, Haidian District's project expenditures place greater emphasis on educational reform and innovation, which may positively impact the improvement of teaching quality and promote educational reforms and innovations.

In the urban districts, although Fengtai District has a relatively low level of financial resource allocation, its allocation of physical resources, particularly the number of primary schools, is comparatively advanced. This may indicate that its district-level educational financial structure has characteristics that align with local conditions. Unlike Haidian and Chaoyang Districts, in 2023, the basic educational expenditure in Fengtai District accounted for only 6%, with project expenditures making up a staggering 94%. Within basic expenditures, as shown in Fig. 3, the expenditure on goods and services accounted for the highest proportion at 54%, followed by salaries and welfare at 44%. In terms of project expenditures, Fengtai District prioritizes school construction and facility improvements, actively investing in projects such as the integrated construction project of Beijing Shizhong Xiaoyueyuan Campus, the integrated construction project of Beijing Eleven School Fengtai Campus, the construction project of the experimental school of Beijing Education Institute Fengtai Branch, and the major municipal engineering project of Beijing Eleven School Zhongtang Experimental School, among others [21].

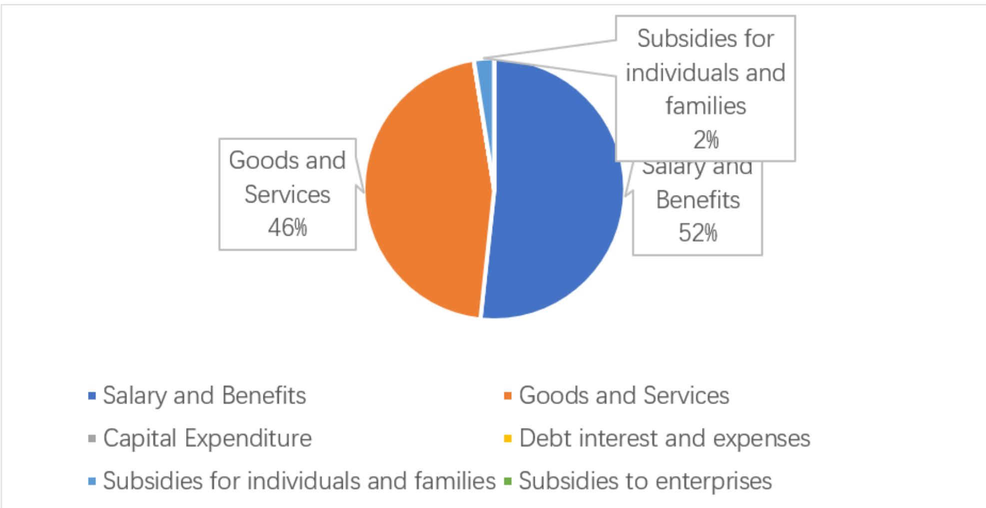

Fig 3. Composition of Basic Educational Financial Expenditure, Fengtai, 2023 [21].

According to the educational financial data from Fengtai District, it is evident that Fengtai District places a relatively greater emphasis on school construction and the improvement of educational facilities, both in terms of basic expenditures and project expenditures. The high proportion of project expenditures partially compensates for the inadequacy of total educational financial input, ensuring the achievement of educational goals and special tasks. This may be one of the reasons why its material resource allocation does not align with the high level of financial resource allocation.

Based on the above analysis, districts with advantages in the allocation of compulsory education resources (such as Haidian and Chaoyang) tend to fully leverage their financial resource advantages, ensuring robust basic expenditures to support teacher salaries and educational facility construction, while applying project expenditures to areas with higher returns on investment, thereby driving leaps in the quality of compulsory education through educational reform and innovation projects. In contrast, districts with relatively disadvantaged allocations of compulsory education resources (such as Fengtai) tend to expand project expenditures to compensate for insufficient financial resources, placing more emphasis on investments in basic educational conditions. The fiscal strategies for compulsory education in regions with varying financial conditions also exhibit distinct characteristics, with a focus on maximizing the value of financial inputs in line with the unique conditions of each district, thereby achieving the greatest possible development of compulsory education across districts.

4. Recommendations and Insights

Based on the study of the case of Beijing, the primary factor restricting the improvement of compulsory education levels in economically underdeveloped districts is the regional economic level, whereas the factor limiting the enhancement of compulsory education in economically developed districts is the structure of educational financial investment by the district governments. Therefore, this article proposes the following recommendations for Beijing and other large cities with regional disparities in compulsory education.

4.1. Appropriately Increase the Financial Responsibility of the Municipal Government Towards Compulsory Education in Each District

Regarding the disparities in compulsory education levels between urban and suburban areas, this study suggests that priority should be given to strengthening the compensatory role of education finance for economically underdeveloped counties in compulsory education. This implies that the Beijing municipal government should appropriately expand its responsibilities within the education finance system, which is primarily county-based, by increasing fiscal input and strategically planning the allocation of educational resources from a higher administrative level. Additionally, it should increase the number of municipal primary and secondary schools in disadvantaged counties and enhance special fiscal transfer payments at the municipal level to promote the flow of educational resources to both nearby and remote suburban areas.

4.2. Optimize the Structure and Content of Educational Financial Investment in Various Districts and Counties

Through the study of the educational fiscal expenditure structure in Haidian District, Chaoyang District, and Fengtai District, this paper finds that, compared to other urban areas, greater attention to teacher incentives, teacher remuneration, and education reform innovation is more conducive to the improvement of compulsory education standards. For districts and counties with inadequate financial resources, appropriately increasing the proportion of project expenditures helps maintain a high level of compulsory education. Therefore, the following recommendations are proposed:

In terms of basic expenditures, all districts and counties should prioritize spending on wages and allowances for primary and secondary school teachers, improving teacher remuneration to attract high-quality talent, while also increasing investments in educational facilities and teaching conditions, thereby laying a solid foundation of human and material resources for compulsory education in their respective areas.

Regarding project expenditures, all districts and counties should rationally increase special expenditures conducive to the reform and innovation of compulsory education based on their financial status and economic development conditions. For instance, establishing innovation-specific scholarships for students and increasing investments in smart education and group teaching can collectively enhance the quality of compulsory education. Financially weaker districts and counties can increase the proportion of project expenditures, prioritizing targeted special expenditures in areas where compulsory education is lacking, thereby compensating for the shortcomings in compulsory education due to financial constraints.

5. Conclusion

Balanced compulsory education is the cornerstone of achieving social equity, playing a crucial role in safeguarding the right to education, promoting the equitable distribution of social resources, and advancing the high-quality development of education. Urban compulsory education resources are influenced by historical planning and population density, typically concentrated in specific regions and schools, which highlights the importance of collaboration among various levels of urban government in financial regulation. Through studying the relationship between educational finance and regional balance of compulsory education in Beijing, the author believes that city-level governments should increase their financial responsibilities, providing greater educational financial support to economically disadvantaged areas. Governments in economically developed areas that are relatively lagging in education should also optimize the structure of educational finance, focusing on enhancing teacher benefits and innovating education in key areas. All levels of government should coordinate their financial efforts to jointly promote the balanced regional development of compulsory education.

This research aims to use Beijing as a case study to provide theoretical support and practical guidance for achieving balanced development of compulsory education on a broader scale. Future research could focus on the differences in the status of regional balance in compulsory education across different types of cities, exploring specific educational financial solutions applicable to various urban characteristics.

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