

Research on the Balanced Development of Compulsory Education Resources

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Abstract. The development of compulsory education in China has shifted from popularizing 9-year compulsory education to optimizing the allocation of resources for compulsory education. In this process, problems such as the disparity of teachers between urban and rural areas, the shortage of funds in remote areas and weak schools, and the shortage of teaching equipment have arisen. The difference in policy orientation and economic level leads to school-choosing fees which further exacerbates the gap in the development of compulsory education between schools. This paper studies the situation of the allocation of educational resources between urban and rural areas, analyze the reasons from the perspectives of government policies, traditional concepts, and economic levels, and puts forward suggestions for optimizing the allocation of compulsory education resources, aiming to reduce the gap between urban and rural areas and between schools and achieve compulsory education in China. Balanced development.

Keywords: Compulsory Education; Educational Resources; Educational Balance.

1. Introduction

The "Compulsory Education Law of the People's Republic of China" promulgated by China in April 1986 stipulates that children and adolescents of school age must receive 9 years of compulsory education [1]. Compulsory education is to ensure that school-age children and adolescents must receive public welfare education provided using laws and regulations. It is mandatory, free, and universal. Compulsory education is the embodiment of a country's social fairness and an important guarantee for the improvement of the national quality of the country. The quality of compulsory education is directly related to the quality of future social workers and ultimately affects social and economic development. The compulsory education stage includes primary education and junior high school education [2]. At present, there are 207,000 schools, 158 million students, and 10.57 million teachers in China's compulsory education stage. From 2012 to 2021, the net enrollment rate of China's primary schools increased from 99.85% to 99.9%, and the gross enrollment rate of junior high schools will be 100% [3]. However, the enrollment rate is only a quantitative indicator to measure the development of compulsory education, and the development of compulsory education should not only pay attention to quantity but also pay attention to quality. At present, China's compulsory education enrolls students by the principal of entering school nearby and without exams, but parents' anxiety about education has led to the emergence of the action of school choice in junior high schools and primary schools. Schools with high-quality resources are in short supply, and more parents are eager to buy apartments located near key schools for children. This phenomenon shows that there is an imbalance in the allocation of resources in compulsory education. Educational resources, also known as educational economic conditions, refer to the human, material and financial resources occupied, used, and consumed by the educational process [4]. For example, teachers, teaching places, teaching supplies, education funds, etc. Teachers include the number of teachers, teachers' educational background, teaching experience, and teaching level. Teaching places include schools, classrooms, gymnasiums, libraries, etc. Teaching supplies include computers, experimental instruments, etc. Educational funds are expenditures that provide basic security [5]. The limitation of educational resources determines the reasonable allocation in the process of implementing education. The allocation of educational resources refers to the allocation of limited educational resources among different regions and schools, to achieve the effect of optimal use of various resources [6]. This paper studies the distribution of educational resources in the compulsory education stage among different areas and different schools.

At present, the cognition of educational balance in academic circles is divided into "level theory", "condition theory" and "stage theory". The level theory believes that the first is to ensure that everyone has the right and obligation to receive education, and the second is to provide relatively equal opportunities and conditions for education, this view expressed that compulsory education is universality. The conditional theory holds that educational equilibrium is the equilibrium of school-running conditions, teacher resources, and student quality [8]. This view provides a dimension to studying the equilibrium of educational resources. The stage theory believes that the development of educational equilibrium includes a low-level stage with equal educational opportunities, an intermediate stage with the equal educational process and educational conditions, and a high-level equilibrium stage with equal educational quality and educational outcomes [9]. This point of view discusses that educational equilibrium is a dynamic process of development, from the low-level stage of equal opportunities to the high-level stage of balanced outcomes. The development of China's compulsory education follows this objective law. In addition, it is believed that the educational equilibrium includes regional equilibrium, urban-rural equilibrium, and inter-school equilibrium. The "high-level" equilibrium of compulsory education means that under the condition of achieving general equilibrium, compulsory education promotes the high-level and sustainable development of compulsory education by focusing on the quality and fairness of education and teaching [10]. Satisfy the reasonable distribution of high-quality educational resources in areas and realize the harmonious development of education [11]. These are the educational equilibrium viewpoints put forward from different dimensions. This paper refers to the definition of equilibrium in economics and believes that the equilibrium of compulsory education is the social demand for compulsory education. It is in a state of relative balance with the government's supply of compulsory education, the supply and demand of compulsory education are matched, and the needs of both supply and demand are met. Of course, balanced development does not mean absolute average development, and its goal is to balance education supply and demand. Relatively balanced, as far as China is concerned, the balanced allocation of educational resources refers to supporting and assisting the development of areas with weak educational foundations and weak schools, to realize the coordinated development of educational opportunities, educational resources, and educational quality in developed and underdeveloped areas. Improve the quality of education in an all-around way. However, in reality, various factors will lead to an imbalance between the supply and demand of compulsory education.

There are regional and ethnic differences in the allocation of China's compulsory education resources. In terms of teachers, taking 2020 as an example, there are 3.86 million junior high school teachers and 6.43 million primary school teachers in China, and 89% of junior high school teachers and 66% of primary school teachers have bachelor's degrees [12]. However, there is a big difference in the number of teachers between urban and rural areas in developed and underdeveloped areas. As shown in Figure 1, the proportion of undergraduate and postgraduate teachers in primary schools in Beijing, Jiangsu, Shanghai, and Zhejiang developed areas has reached 84.4%, 88.6%, 78.7%, and 83.7%, respectively, but primary schools in Henan, Hunan, Hubei, and economically less-developed areas have the proportion of teachers with undergraduate and postgraduate degrees is 60%.

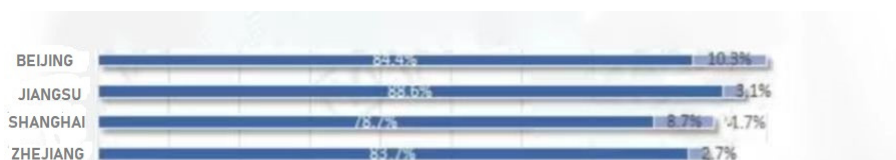


Fig 1. Number of undergraduate and postgraduate teachers in primary schools in China in 2020



Fig 2. Number of undergraduate and postgraduate teachers in primary schools in economically less-developed areas in 2020

In addition, there is an imbalance in teachers' quality in urban and rural areas. There are excellent teachers concentrated in urban schools, while the level of teachers in rural schools is relatively weak. Taking Ji'an City as an example, from 2016 to 2021, the number of teachers in Ji'an's compulsory education period has nearly tripled [13]. Teachers have flowed from rural schools to urban schools, and high-quality teachers have flowed from ordinary schools to model schools. This unilateral flow exacerbates the uneven development of teachers among compulsory education schools in Ji'an. At the same time, the age structure of teachers also shows differences between urban and rural areas. Among rural primary school teachers, the number of teachers aged 55-59 accounts for 9%, and the number of teachers aged 55-59 among urban primary school teachers is only 2%. It can be seen that the reserve of young teachers in rural primary schools is insufficient.

In remote areas of China, especially in areas where ethnic minorities gather, the structure of teachers is unreasonable, and there is a lack of professional teachers in music, physical education, art, English, information technology, and bilingualism. There is a phenomenon where one teacher teaches several courses. For example, many ethnic secondary schools in Qinghai generally lack "Tibetan and English (bilingual instruction) teachers". A large number of liberal arts teachers and few science teachers is a manifestation of the unreasonable structure of teachers in remote areas of China. For example, there are no Mongolian chemistry teachers in Haixi. In addition, the age structure of teachers is unreasonable, and some teachers are older and more difficult to adapt to the teaching of new courses. In addition, there are still unreasonable gender structures, educational background structures, and professional title structures.

In terms of educational places, the per capita share of students in remote areas and underdeveloped areas is relatively large, while the per capita share of students in Beijing, Tianjin, Hebei, and other places is relatively small. This paper believes that the reasons for this phenomenon are as follows, 1. Because the state has increased the expenditure on education funds in remote and underdeveloped areas to support the construction of schools in remote areas and improve student accommodation conditions [14]. At the same time, the number of students in remote areas and underdeveloped areas is small. The second reason is that the population density in developed areas is higher, the number of students is larger, and the available land resources are less.

In terms of teaching supplies, compared with developed areas, there is a shortage of teaching equipment in remote areas, and the use efficiency is low. For example, Qinghai lacks physics, chemistry, biology experimental equipment and music, sports, art, computer, and other modern teaching facilities [15]. At the same time, due to the lack of professional teachers in some schools, even if there is professional equipment, no teachers will use this educational equipment. It can be seen that the equipment does not play its due role, resulting in idle equipment. In addition, it also reflects the lack of after-sales service, bilingual teaching software, and materials matched with educational equipment and instruments. For ethnic minority areas, in addition to providing teaching equipment, it is also necessary to teach them how to use the equipment and provide after-sales services such as equipment repair, otherwise just providing teaching equipment becomes a "image project".

In terms of education expenditure, the fiscal compulsory education expenditure from 2012 to 2021 has increased from 1.17 trillion yuan to 2.29 trillion yuan, the per capita expenditure of primary school students has increased from 7,447 yuan to 14,458 yuan per pupil per year, and the per capita

expenditure of junior high school students has increased from 10,218 yuan increased to 20,717 yuan per pupil per year [16]. Taking Shanghai, Zhejiang Province, Jiangsu Province, and Anhui Province as examples, as shown in Table 1, the average per capita investment of ordinary primary school students in Shanghai is more than 2.5 times the national average, and the scale of per capita investment of ordinary elementary school students in Shanghai is 20,000- 40,000 yuan. The scale of the per capita expenditure of ordinary primary school students in Zhejiang has grown rapidly, and the scale is about 10,000-20,000 yuan. In Jiangsu, it remains at 12,000-16,000 yuan. The per capita investment scale of primary school students in Anhui is 0.7-13,000 yuan, lower than the national average level. Nationally, primary school students in economically developed areas invest more in education per capita, such as Beijing, Shanghai, and Tianjin, but less in economically less-developed areas., such as Shanxi and Ningxia. In addition, because the education funds are mainly allocated by central finance and local finance, the method of raising education funds is relatively simple.

Table 1. The total expenditure on education per student in Shanghai, Zhejiang, Jiangsu, and Anhui provinces (yuan)

	2013	2014	2015	2016	2017	2018	2019
Shanghai	23239.26	24821.76	25466.96	31756.07	32324.94	34135.17	36325.81
Zhejiang	11484.62	12825.26	13786.95	15584.56	17426.82	18978.94	20667.02
Jiangsu	13493.54	13803.34	14119.44	14330.21	14907.52	14934.19	15590.09
Anhui	7798.17	8315.24	9490.90	10445.29	10843.56	11689.64	12421.30
National average value	8400.93	9431.65	10467.31	11397.25	12176.29	12737.00	13502.00

2. Factors Affecting the Balanced Development of Compulsory Education

This article analyzes the reasons for the imbalance in the allocation of compulsory education resources from the perspectives of economic development, parental concepts, and government policies.

China's economic development is unbalanced, and the gap between urban and rural development has led to a large gap in the resources students obtain from the government and families. Economically developed urban areas have high-quality resources, the government can obtain more taxes, more funds can be used, and the investment in education is also higher than that in economically less-developed areas. Therefore, schools and students in urban areas can obtain better educational resources. Parents in economically developed areas can pay more for education costs, but they ignore the actual situation of children. They tried every means to enter model schools through various relationships and joined elite education groups, which formed a school-choosing style and made it more difficult for the balanced development of compulsory education.

China has implemented the key school system for a long time. Key schools are an effective choice when social resources are scarce and talents are in short supply. It can concentrate limited and high-quality educational resources and quickly cultivate talents for the country. However, it has resulted in the concentration of students and the tendency of advantageous resources to key schools, etc. This phenomenon has led to uneven development among schools. The government invests limited funds, infrastructure construction, and teachers to focus on key schools, so that key schools monopolize advantageous educational resources within the area, while rural schools and urban weak schools invest less, resulting in differences in school-running conditions and education quality among schools. The policy orientation has exacerbated the unbalanced development among schools. At the same time, because key schools have more high-quality educational resources and policy support, they rely on resource advantages, brand effects, and policy protection in the process of development, making the school environment of ordinary schools and weak schools deteriorate, thereby further expanding the school-running gap between schools in the compulsory education stage has been reduced. Due to the accumulation of limited high-quality educational resources in key schools, Key schools have become

the target of the majority of students and parents, forming an unbalanced development model of compulsory education.

From 1998 to 2001, the state advocated the principle of facilitating students to enroll nearby and making full use of educational resources, adjusting the layout of primary and secondary schools. After the implementation of the county-based financial investment system and management system in 2001, the problem of weak financial capacity in remote areas and ethnic areas has become more prominent. To improve economies of scale, some county-level governments have focused on the adjustment of the layout of primary and secondary schools to increase the scale of running schools and the efficiency of the use of education funds. The number of primary schools has decreased dramatically, increasing hidden costs for students. At this stage, China is also adjusting relevant policies to solve the above-mentioned problems. For example, education policies and regulations stipulate that local governments and education administrative departments are not allowed to hold key schools, and schools are not allowed to set up key classes, but it is difficult to eliminate the impact of such policies on people. It can be seen that the orientation of government policies and the human factors of various regional governments, such as excessive interpretation of policies, the one-sided pursuit of economic benefits and scale of running schools, and excessive pursuit of evaluation indicators for the balanced development of compulsory education have hindered the balanced development of compulsory education in China.

3. Strategies for Optimizing the Allocation of Compulsory Education Resources

At this stage, the allocation of China's compulsory educational resources is dominated by the government. Therefore, this paper proposes relevant strategies to promote the balanced development of China's compulsory education from the perspectives of fiscal policy, teacher team construction, teaching equipment configuration, and supervision mechanism.

First of all, it is not only necessary to increase financial investment, but also to expand the channels for education funding. Relying on the government's financial investment can only meet the school's running needs, and it is necessary to encourage the investment of funds from society, enterprises, and social charitable groups. To balance the distribution of education funds at all levels, especially the distribution of county-level education funds, to maximize the utilization of funds. The government also needs to establish an education reserve fund project, strengthen the transfer payment ability of education funds, and form a variety of forms of compulsory education funds, to scientifically adjust the structure of education expenditure.

Second, deepen the reform of the teacher personnel system, optimize the teacher flow mechanism, and balance the allocation of teacher resources. First, the education department should establish a policy-oriented mechanism for the orderly flow of teachers, and guide teachers to flow from over-qualified schools to under-qualified schools, from strong schools to weak schools, and from cities to rural areas. Secondly, establish clear incentives. Teachers who can choose to teach in remote areas will be given honorary tilt, financial subsidies, and humane care. Expand the coverage of the "special post-program", which should be extended to rural areas in non-poor areas to alleviate the shortage of teachers. At the same time, older teachers, who have an aging knowledge structure, and are not suitable for modern teaching needs should be transferred to other positions, improve the structure of rural teachers, and promote the development of rural schools. Improving the targeted normal student enrollment and employment policies will strengthen the inclination of high-quality teachers to weak rural schools. So that rural schools can also hire outstanding normal students. Develop targeted talent attraction plans for some rural schools with a shortage of teacher resources, encourage local governments and normal colleges and universities to carry out localized enrollment according to the actual needs of local rural education, and allocate normal students to local schools by the territorial principle after the training plan ends. Optimize teachers' treatment, implement allowances and subsidies, and stimulate teachers' motivation for growth. Ultimately, the age structure and subject structure of teachers can be optimized, and the quality of teachers can be improved. Through inter-

school curriculum cooperation and cloud classrooms, students in rural schools can receive high-quality curriculum resources and lectures from famous teachers.

Thirdly, to optimize the spatial layout of primary and junior high schools, the government should rationally plan the scale of rural primary schools and boarding schools based on changes in population and structure, in combination with the existing stock of educational resources in urban and rural and regional levels, and light of the actual local conditions. The layout of schools should be controlled to solve the problem of students going to schools nearby, and the construction speed of junior high schools should be properly controlled. Pay attention to the optimal allocation of internal resources of the school, the exploration of the school's potential and characteristics, and give full play to the principal's subjective initiative. Students, teachers, and schools have different self-development willingness and development capabilities, which will also lead to differences in the quality of education and school-running levels among different schools. Therefore, the balanced development of compulsory education not only depends on the input of material resources but also needs to improve the teaching level and quality of teachers, which has an important impact on the construction and development of schools.

Then, perfect the procurement, maintenance, and service of educational equipment. As a government and a school, it is not only necessary to purchase teaching equipment, but also to supervise whether the institution regularly maintains the teaching equipment and whether it provides after-sales service for the school to ensure that the facilities and equipment play their due role. For schools with a low degree of educational informatization, carry out "courseware competition activities", and "network distance teaching activities" to improve the informatization teaching level of teachers.

Finally, improve the relevant mechanism for the balanced allocation of compulsory education resources, improve the responsibility mechanism, and avoid the phenomenon of blindly demanding political performance and ignoring public benefits because of private interests. Improve the supervision mechanism and optimize the work style of the education industry. Appropriate, timely, and effective disciplinary measures should be taken for violations of laws and disciplines to avoid the recurrence of such phenomena. Appropriate punishments should be given to the principal responsible persons of the relevant government and departments who perform poorly in the workplace assessment to prevent slack, violation of discipline, corruption, and other phenomena. Implement a reasonable and effective fault-tolerant mechanism, and appropriately deal with non-subjective errors in the process of education, to improve the enthusiasm and initiative of educators. Disclose relevant information on the allocation of compulsory education resources, broaden the channels and methods of public supervision, and solicit and listen to the public and practitioners' opinions and practical needs. Establish a public feedback platform and public response mechanism. Improve the enthusiasm of the public to participate in the allocation of educational resources, fully mobilize the power of new media, exert the supervision power of public opinion, and form a mechanism led by the government and the education department and supervised by multiple parties in the society.

4. Summary

The balanced development of compulsory education in China is divided into three stages. The first stage is the stage of universal nine-year compulsory education, which is a low-level balanced stage. In this stage, China ensures that students from different areas, ethnic groups, genders, and family backgrounds have equal rights to education. The second stage is the stage of optimizing the allocation of educational resources, which is a medium-balanced stage. The third stage is the high-level equilibrium stage, also known as the quality-balanced stage. At this stage, educational resources are sufficient, the gaps between areas, between urban and rural areas, and between schools are narrowed, and students' personalities and potentials are fully developed. At present, China's compulsory education is in the transitional stage of development from primary equilibrium to high equilibrium and is in the process of changing from quantity to quality. This paper believes that the key to solving

the balanced development of compulsory education in the future is not only the input of material resources but also the training of teachers in the compulsory education stage and how to promote the independent and characteristic development of schools.

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