

# **Analysis on the Optimization Approach of Regional Development of Higher Education in China**

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**Abstract:** After entering the 21st century, China's higher education has made great achievements, but also faces the dilemma of scale and quality, efficiency, and fairness. How to make the regional development of higher education to be efficient and optimized under the condition of existing higher education resources, so as to improve the quality of regional higher education, is not only the realistic requirement of unbalanced development of higher education in China, but also a strategic choice of our country's building an innovative country. This paper analyzes the reasons and contents of regional optimization of higher education and puts forward some thoughts on the development of regional higher education in China.

## **1. Introduction**

After entering the 21st century, with the development of China's economy and society, the higher education has made considerable progress. However, in the context of the era of building a moderately prosperous society and an innovation-oriented country in an all-round way, it is urgent to construct a higher education system that can match the reform and development. Higher education is the core force of building an innovation-oriented country because it undertakes various social missions such as cultivating senior talents and advanced scientific research. For the moment, China's higher education has generally formed a more stable structure, with a complete range of disciplines and various forms and levels tending to be reasonable that can meet the needs of society. However, with the continuous adjustment and reform in the political and economic fields and the acceleration of the pace of modernization higher education is faced with the historic task of continuing to expand the scale, adjust the structure reasonably, improve the quality and efficiency, and actively explore and innovate to fill the bill of speeding up reform and opening up and modernization.

## **2. Overall development of Higher education in China**

### **2.1 It has realized the goal of higher education from mass development to popularization development**

In 2003, the gross enrollment rate of China's higher education reached 17%. According to Martin Turow's three-stage theory, China's higher education had entered the development stage of mass education since 2003. With the gross enrollment rate of higher education increasing from 17% in 2003 to 51.6% in 2019, China has officially entered the popularization stage of higher education from the mass stage of development.

### **2.2 Reform of the management system for higher education was further deepened**

In terms of management system, the central and provincial governments have basically formed a joint management system, with provincial governments as the main management system. In terms of

the types of colleges and universities, higher vocational schools, private colleges, independent colleges and private non-academic higher education have also achieved rapid development under the strong support and promotion of the state. In addition, college financial management reform, internal management reform, logistics reform have also made significant progress.

### **2.3 The strength of higher education has been further enhanced**

In 2020, there were 2,738 institutions of higher learning in China, with a total of 41.83 million students in all types of higher education, and a gross enrollment rate of 54.4 percent. There were 2,668,700 faculty and staff in regular institutions of higher education, and the student-teacher ratio reached 18.37 to 1. The floor space of regular institutions of higher education is 920.3413 million square meters. In addition, 13.6079 million square meters of non-university-owned buildings are used independently by the university. The average building area of ordinary university students is 28.77 square meters, and the average occupied area is 58.32 square meters. The value of teaching and scientific research equipment is 16,522.36 yuan per student. In addition, the basic teaching and living facilities such as books, dormitories and canteens have also been greatly improved.

### **2.4 The teaching quality and academic level of higher education have been improved**

After the founding of the People's Republic of China, in order to promote the reform of higher school education quality, the state has successively issued policy documents on the 985 Project and 211 Project, the construction project of double first-class universities, the undergraduate teaching quality and teaching project of colleges and universities, the reform of teaching content and curriculum system for the 21st century, the adjustment of professional catalogue, and the construction of excellent courses and excellent teaching materials. The implementation of these policies has made the level of Higher education in China get rapid and universal improvement.

## **3. Region and regional optimization of higher education**

### **3.1 Definition of regional optimization**

"Region" first exists as a commonly used concept in geography. Region mainly refers to terrain morphological, a geographical space category with typical characteristics divided by factors such as climate. In our country, according to the definition of the word "area" in the perspective of different disciplines, as well as the type of research question, this article adopts the related understanding of economics: area is of the people of the country in accordance with the spatial distribution of economic activities of a distinctive region in terms of economy, generally in the provinces. Optimization is to make the structure and function more perfect through selection, transformation, integration and adjustment. Therefore, regional optimization refers to the process in which various regional economic structures and overall economic development level tend to be optimal in order to meet the requirements of certain economic development or social development in a certain region under the conditions of existing resources, social economy and technology.

### **3.2 Higher education region and regional optimization**

Higher education region is a composite concept, specifically based on the purpose of serving regional economy. Higher education has local characteristics. On the basis of the actual conditions of China's economic development and higher education development, the higher education regions are roughly divided into east, middle and west. From the perspective of the scope of regional structure optimization of higher education, the macro-level includes the overall optimization of the structure of regional higher education, and the micro-level includes the optimization of various elements of educational subsystems that constitute the regional overall structure.

## **4. Problems in regional development of higher education in China**

### **4.1 Unreasonable regional structure of higher education**

In terms of the distribution structure of higher education nationwide, the development level of higher education in the eastern, central and western regions has a large gap, and the structural differences are obvious.

In a provincial region, it also shows the phenomenon of agglomeration to the provincial capital city and the economically developed city. In the hierarchy structure, there is a certain imbalance between different regions. Even in the same region or province, the hierarchy structure and discipline structure of higher education often cannot well adapt to the actual needs of local economic development, and there is a blind tendency of "seeking perfection and seeking greatness". There are also some unreasonable aspects in the quality structure of regional talent and curriculum structure.

### **4.2 Unbalanced regional resource allocation in higher education**

Influenced by many factors, development foundation of higher education in different regions of eastern, central and western is strong or weak. After the reform and opening up, China has implemented the economic development strategy of "priority to efficiency and due consideration to fairness" to save the limited domestic resources to realize the development in our country. And, after the decentralization of higher education management power to local areas after the reform of higher education management system, local governments in different regions have different degrees of attention and investment in higher education in their own regions, which results in uneven development of higher education in different regions, especially widening the gap in the allocation of higher education resources between the central and western regions and the eastern regions. In addition, there are some problems such as low level of duplication and waste, low degree of sharing and inefficient use.

### **4.3 Unknown service direction of local colleges and universities**

Local colleges and universities are carriers of higher education that are closely related to regional economic development, society, politics and culture. Thus, local colleges and universities should not only provide services for local examinees to receive higher education, but also provide qualified graduates for local economic construction. However, many local colleges and universities in China have not positioned themselves to train applied talents with solid skills for their regions, but to establish research universities or teaching and research universities and other academically strong universities, ignoring the actual needs and potential development of talents in their regions to a certain extent.

## **5. Influencing factors of unbalanced regional development of Higher education in China**

### **5.1 Historical factors.**

In the long history of China's development, the east has always been the political, economic and cultural center of the country. From ancient times to modern times, the east has always been the leader of education. Beiyang School, the earliest university in modern China, was also born in the eastern city of Tianjin. Therefore, either the birth or initial development of higher education is mainly in the east. So far, although local colleges and universities have also made great progress through departmental reforms, some international renowned and comprehensive universities such as Peking University, Tsinghua university and Fudan university remain in the east overall. Universities in the eastern region are also more capable of scientific research and social services than in the central and western regions. By contrast, there is an obvious gap between the development of higher education in central and western China and that in eastern China.

### **5.2 Administrative factors.**

Administrative factors are mainly the macro-control policies formulated by the national and central governments, supplemented by policies and regulations issued by local governments. After the reform

and opening up, the strategy of "giving priority to efficiency and giving consideration to fairness" recognized the imbalance in natural conditions, resources, regional economic and social development level between the east, the middle and the west, and changed from emphasizing the balanced development of the whole country to emphasizing the development of regional economic efficiency. Under this policy, higher education in the east has received a lot of preferential treatment and support, and achieved rapid development. So far, this unbalanced development strategy is still exerting an important influence on higher education in the east, central and western regions.

### **5.3 Economic factors.**

Nationally, the eastern region has long been a national economic development region. On the basis of good natural conditions, it has formed the situation of high economic development level. So the local government also attaches great importance to education and can invest the money for the development of local higher education, which provides a strong material basis for the development of higher education; From the perspective of provincial regions, provincial capitals are generally both administrative centers and economic centers of provinces. While some provincial economy are generally developed, forming multiple heartlands of economic development. Generally speaking, regions with better economic development are also places where higher education is concentrated. Therefore, each region tends to put forward requirements on the overall structure of higher education, personal training objectives and professional setting. Colleges and universities in provincial capitals or economically developed cities often get more support from local governments.

## **6. Regional optimization of higher education**

The promotion of regional development of higher education can help the local government better integrate higher education with local economic development, and even form the local characteristics of higher education development, thus contributing to the construction of an innovative country. Since the 1980s, China has promulgated some policies and regulations, such as the *Outline of Education Reform and Development in China* promulgated by The State Council in 1983 and a series of subsequent policy documents, which have gradually promoted the regional development of education. Regional optimization of higher education includes:

### **6.1 Optimization of regional higher education structure**

The structure of higher education refers to the relatively stable proportion relationship formed among various elements in the higher education system, including the educational hierarchy, energy level structure, discipline, specialty structure, curriculum structure, talent quality structure, layout structure and so on. In fact, these aspects are interrelated and influence each other. For example, the imbalance of higher education personnel quality structure is often caused by the imbalance of hierarchical structure, disciplinary structure, professional structure and curriculum structure. Only by optimizing the various structures of higher education in the region and improving the overall efficiency of regional higher education structure, can the overall goal of regional optimization of higher education be achieved.

### **6.2 Optimization of regional higher education resources**

(1) Hardware resource optimization. Hardware resource optimization is the material basis of regional optimization of higher education. In some areas where colleges and universities are concentrated and the economy is relatively developed, the hardware equipment should be open to each other among universities, colleges research institutions, and other enterprises, to improve the efficiency of equipment use and avoid redundant construction. Efforts should be made to remove the institutional obstacles hindering the free flow of educational resources and promote the mobility of educational hardware resources in the regional market.

(2) Investment optimization. Considering the change of higher education management system from centralization to decentralization, China is still dominated by public education, supplemented by social

education. In order to optimize the investment, the government should increase the investment for the public schools on the one hand, and on the other hand, the government should exert pressure to encourage colleges and universities to expand multiple sources of funds. As private colleges and universities are playing an increasingly important role in higher education, the government should give more support in terms of capital input, or tilt the policy to protect the "hematopoietic" function of private colleges and universities. Colleges and universities should closely keep up with the regional economic development situation, better intergrate with the market, take the road of combining production, learning and research, create material benefits and values for themselves, and promote the common development of regional economic society, colleges and universities.

(3) Student source optimization. Student source optimization is mainly aimed at higher vocational colleges, private colleges and independent colleges in the region, because ordinary colleges and universities in the region often occupy a relatively good source of students, and the source of students, namely the quality of students, is often the final reference standard of a school's education and teaching level. Therefore, in order to balance the overall quality of students in colleges and universities at all levels, the government should formulate corresponding policies to comprehensively balance the reasonable proportion of students at different levels and types of colleges and universities in the region. Of course, the most important thing is that colleges and universities themselves need to work together to improve the teaching quality and level of the school. Only when colleges and universities can cultivate better students can they improve the overall level of education in the region, so that students can achieve their own development and improvement through higher education, maximize their own potential and achieve comprehensive development.

(4) Teacher optimization. Faculty is an important resource of colleges and universities, representing the social status and development level of universities. Teachers' academic spirit, working attitude, teaching methods and scientific research ability will exert an important influence on study atmosphere construction and cultural construction of a school. In order to strengthen regional colleges and universities faculty, attention should be first paid to the construction of teachers from the two aspects of cultivating and training, and then form a comprehensive system of pre-occupational cultivation and post-professional training. Secondly, the teacher management system should be optimized. For example, the current college teacher qualification certification system and contract appointment system are widely implemented in colleges and universities. For the central and western regions or some regions with underdeveloped higher education, measures such as establishing joint professors can be taken to promote the flow of teachers between different schools. Teacher training and teacher exchange can improve the quality of regional teachers to a certain extent.

(5) Optimization of cultural resources and information. Cultural resources and information are intangible resources such as a school's culture, brand, concept and ability to access information. Local colleges and universities can improve the compatibility of cultural atmosphere, management system, school running style or research style of different schools on the premise of ensuring excellent cultural radiation. In addition, information optimization should be strengthened. In order to keep pace with the development of the times, regional higher education must be able to fully acquire, sort out, analyze, coordinate and exchange information, learn from each other and strengthen regional information sharing.

### **6.3 Optimization of regional higher education system**

(1) School-running system in higher education. With the transformation of China's economic system from socialist planned economy to market economy, the school-running system of higher education has also gradually changed from complete centralization to decentralization of central, local and social powers. Accordingly, the school-running expenses are also borne by the school-running subjects. The process of reform or optimization of higher education system is actually the process of redistribution and transformation of higher education rights among different subjects., which can also be regarded as the process of adjusting and straightening out the relations between the subjects holding higher education.

(2) Management system. The management system of higher education includes two aspects: external management system and internal management system. These two aspects show the division of authority and their mutual relations among the educational management subjects at all levels, the organizers and the university subjects in the management of higher education management of higher education. According to different positioning and right distribution, different management modes will be formed. In recent years, China's management of higher education is trying to promote universities running according to law, and gradually change to expand the autonomy of higher education institutions.

## **7. Basic approaches to regional optimization of higher education**

### **7.1 Discipline structure Optimization**

In terms of the optimization of discipline structure, the overall path of strengthening macro management and controlling the total amount of college majors can be adopted. The measures of stopping, integrating, reforming and constructing are taken to adjust and transform the existing majors, broaden the caliber of majors, increase add majors that are in great social demand based on the disciplinary advantages of the school. According to the trend of informatization, science and technology, integration and complexity of the development of contemporary social science, cross disciplines, comprehensive disciplines and emerging professional disciplines are added.

### **7.2 Hierarchical structure optimization**

To formulate the classification standards of colleges and universities in line with the actual situation of regional economic and social development, so that all types and levels of colleges and universities can be correctly positioned, rationally divided and featured

The classification standard of colleges and universities in line with the actual regional economic and social development is worked out, so that all types and levels of colleges and universities can be correctly positioned, rationally divided and featured. Position the educational objectives of colleges and universities at all levels accurately. Specialized higher education should be mainly positioned at higher vocational education, and cultivate applied talents with solid basic theoretical knowledge and strong practical ability to get employed in front-line jobs such as production, management, service. Undergraduate education mainly cultivates innovative talents with solid theoretical knowledge, strong application ability and practical ability. Graduate education should focus on high-level professional education and scientific research activities. Reasonable adjustment of the proportion, so that schools at all levels in the region have space for development and can contribute to local economic development.

### **7.3 Form structure optimization**

We should actively expand the different forms of running a school and promote the formation of a reasonable structure of higher education. For private education, adult education and vocational education that can supplement public education, the government should strengthen policy and investment support. It is hoped to form a higher education system with the joint development of pre-service and post-service training, and academic education and non-academic education equal.

### **7.4 Layout structure optimization**

The development of higher education must be adapted to the national strategic layout of regional economy and society, regional development status and development trend. At present, there is still a big gap between the development of higher education in central and western China and that in eastern China. The central government should continue to increase investment in education in central and western China. And the local governments should attach importance to the development of higher education at all levels in the region, provide financial and policy support, and give guidance in talent training objectives, disciplines and professional development direction. They should balance the distribution of universities in provincial capitals or key cities. On the basis of sufficient research and

demonstration of talent demand, speciality structure, subject structure, school Scale, training specifications, form of running a school and school-running system of undergraduate education are comprehensively considered., trying to make a reasonable layout of undergraduate education in a variety of combinations.

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