

# Analysis of Regional Differences in Financial Input of Local General Undergraduate Colleges and Universities in China

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Local general undergraduate colleges and universities are the main force of China's higher education development, and the gap in financial resource allocation constrains the development of local higher education. The article studied the differences in financial investment and per capita financial investment of local general undergraduate colleges and universities from 2007 to 2022, and found that development planning and policy support play an important strategic orientation role in narrowing the regional gap; the regional gap has shown a rebound trend in the last decade, and the gap in financial investment should be controlled in a reasonable interval. It is suggested that priority development should be implemented and the forward-looking allocation of financial inputs matching the development of local higher education should be strengthened; vertical decentralization should be clarified, and a central and local financial relationship with clear powers and responsibilities, coordinated financial resources, and regional balance should be established; horizontal cooperation should be strengthened, and the mechanism of East-West collaboration in education and the mechanism of regional collaborative support should be improved.

*Keywords:* higher education, financial resource allocation, regional differences

## Introduction

Local general undergraduate colleges and universities are the main force of China's higher education development, the number of their college schools and the scale of students are more than 90% of the national total, and financial education funding is the main source of higher education funding; however, by the influence of differences in economic development and the degree of financial support in different regions, the disparity of funding for local general colleges and universities in each province restricts the coordinated development of local general undergraduate colleges and universities. In this context, strengthening the research on the allocation of financial resources for local colleges and universities is of great practical significance and long-term impact for promoting the deep integration of higher education and regional development and enhancing the quality of higher education development.

In recent years, many scholars have conducted systematic and in-depth research on higher education fiscal inputs. Scholars have reviewed and sorted out the introduction of major fiscal reforms in the past 40 years, pointing out that public finance has become the target mode of budgetary reform based on marketization, and the

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growing public needs of the society require the adjustment and optimization of the structure of fiscal expenditures, and the government has solved the problem of “overstepping” by withdrawing from the competitive fields, and also has to solve the problem of “missing” fiscal functions by increasing the support for the fields of education, science and technology, and culture. At the same time, the government should solve the problem of “overstepping” by withdrawing from competitive fields, and also by increasing support for education, science and technology, culture and other fields to solve the problem of “lack of position” of fiscal functions (Lou, 2019). From the perspective of fiscal decentralization, scholars use provincial data from 2010-2016 to analyze the possible competitive effects of local government higher education inputs and explore the output efficiency of local higher education inputs. The study shows that in order to guide local governments to compete reasonably, the performance assessment of higher education financial expenditures should be strengthened; the construction of local government education financial governance capacity should be accelerated; and the central government’s responsibility for inputs in higher education should be emphasized, etc. (Z. Y. Li & T. Li, 2020). By analyzing the game strategy between the central and local governments, scholars have studied the logic of the evolution of higher education fiscal policy, pointing out that China’s higher education fiscal policy has experienced significant changes, which are manifested in the main body of university management from the central ministries and commissions to the decentralization of local governments, the gradual transformation of the financing channels from a single financing method dominated by the treasury to a diversified financing method, and the gradual transformation of the focus of the fiscal investment from emphasizing the investment in key universities/disciplines to gradually increasing the investment in general higher education institutions. The shift from focusing on key colleges/disciplines to increasing investment in general colleges and universities is closely related to the game around higher education between the central and local governments (Zhang & Wang, 2021). Based on provincial panel data, scholars empirically study the impact of economic growth on financial investment in higher education, identify the differences in financial investment in higher education in regions with different levels of growth, and explore the corresponding incentive policies. It is found that guaranteeing the financial investment in higher education requires local governments to promote sustained economic growth as well as to play the role of mutual drive between economically neighboring provinces, promote industrial structure upgrading, and improve the human capital market (Wu, 2021). By analyzing the inter-provincial panel data from 2004-2018, scholars describe the evolutionary logic of local governments’ higher education behavior with the degree of fiscal decentralization as the core variable. When the degree of fiscal imbalance is below the threshold, it indicates that local governments have more adequate ability to deploy higher education resources and may tend to increase the level of higher education fiscal expenditure. On the other hand, if the local government is a survivalist local government that is constrained by the “eating finance”, it tends to maintain the current level of higher education development. The study points out that there is an urgent need for the central government to improve the promotion appraisal system, increase special transfers to regulate the behavior of local governments in higher education, and promote institutional innovation in local higher education governance in the evolution of the spatial pattern of urban agglomerations (Ma & Liu, 2022). Scholars review the development of the tax system reform over the past 30 years, focus on the financial difficulties of the grassroots, the hidden liabilities of local governments, and the short-term behavior of “land finance”, and emphasize the importance of adhering to the general direction of the tax system, as well as the need to prescribe the right medication to address both the symptoms and the root causes of the problem (Jia & Liu, 2024).

Existing academic discussions from the perspective of theoretical and empirical research reveal the current situation and causes of the financial input of local universities in different regions, but also from different dimensions of the optimization of the financial input of local universities to put forward proposals and countermeasures. However, the current research is limited to short-term data and rough layout categorization study, and lacks long-term trend and detailed categorization study, which still has room for exploration. Therefore, on the basis of existing research, there is an urgent need to broaden the research horizons, comprehensively use multi-timescale and cross-geographical data resources, and explore the development path of financial resource allocation in local general undergraduate colleges and universities from a more systematic and comprehensive perspective. In this paper, we will assess and analyze the regional and structural differences in the financial input and per capita per pupil of local general undergraduate colleges and universities as well as the driving factors of the differences with the aim of contributing to the development of China's local general undergraduate colleges and universities in China, aiming to provide valuable insights and policy references for the optimization of financial inputs.

## **Research Design**

### **Research Variables and Data Sources**

Financial Input of Local General Undergraduate Colleges and Universities, reflecting the total financial input of local general undergraduate colleges and universities in each province, which is a better reference for analyzing the gap in financial resource allocation, adopts "Revenue of Educational Funds (Local General Higher Education Undergraduate Colleges and Universities)" in the "Statistical Yearbook of China's Educational Funds". The "national financial education expenditure" in the "China Education Expenditure Statistical Yearbook" is used. The average per capita financial input of local general undergraduate colleges and universities reflects the gap between the average per capita financial input of each province, including general public budget education utility fees and capital construction fees. Since capital construction fees do not account for a high proportion of the average per capita financial education expenditure and do not have continuous stability, we consider using the average per capita general public budget education utility fees to represent the average per capita financial input, and adopt the "China Yearbook of Statistics on Education Expenditure" in the "Income From General Public Budget for Education (Local General Undergraduate Higher Education Schools)". Here, we consider using the per capita general public budget education program fee to represent the per capita financial input, and adopt the "program fee expenditure" in the "China Education Expenditure Statistical Yearbook". Since the "China Education Expenditure Statistical Yearbook" did not list "education expenditure revenue of local general higher education undergraduate schools by region" before 2007, this study selects the data of 31 provinces (municipalities directly under the central government and autonomous regions) in the period of 2007-2022 for 16 years as the sample for the study.

### **Indicator Description**

The difference in the level of financial input is measured by using Dagum's Gini Coefficient and its decomposition method to analyze the overall difference in the financial input of local general higher undergraduate colleges and universities from 2007-2022; the difference in the per-student financial input is measured by using the absolute gap indicator, the extreme difference rate; and the measurement of the relative relationship between the level of funding and the degree of financial support is expressed by using the average

per-student education expenditure. The relative relationship between funding level and financial support is measured by using per capita education expenditure to indicate the “funding level”, and the ratio of per capita general public budget for education to per capita education expenditure to indicate the “degree of financial support”.

### Results Analysis

#### Financial Investment Continues to Increase, the Proportion of the Growth Rate Slows Down, the Inter-provincial Gap Presents a “First Significantly Narrowed, and Then Slightly Widened” Trend

Financial education funding is the main source of funding for colleges and universities, from 2007 to 2022, the total amount of local general undergraduate colleges and universities of financial education funding from 77.32 billion yuan to 504.37 billion yuan, and its proportion of total funding increased from 41.05% to a peak of 60.39% in 2012, and then experienced a brief correction and then leveled off 504 million yuan, and its proportion of total funding increased from 41.05% to the peak of 60.39% in 2012, after which it experienced a short retracement and then leveled off, accounting for 57.94% in 2022. Measuring interprovincial differences through the Dagum Gini Coefficient, it was found that the Gini Coefficient declined from 0.39 to 0.30 from 2007 to 2012, and then showed a fluctuating upward trend to 0.34 in 2022, reflecting a significant narrowing of interprovincial disparities followed by a widening of the gap.

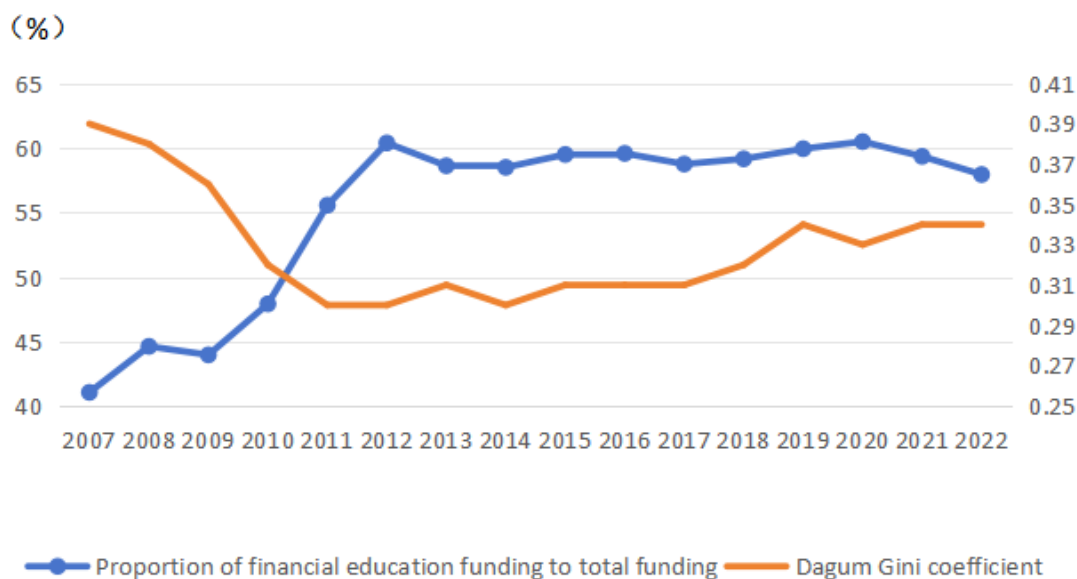


Figure 1. Fiscal education expenditures as a percentage of total expenditures, fiscal input Dagum Gini Coefficient, 2007-2022.

#### Per Capita Financial Investment Is Constantly Improving, the Proportion of the First Increase and Then Decline, Inter-provincial Per Capita Disparity Presents a “First Rapid Narrowing, and Then Fluctuations Stabilized” Trend

Per capita financial investment is an important indicator to measure the level of allocation of resources to colleges and universities, 2007-2022, the average per capita general public budget for education of local general undergraduate colleges and universities from 6,139.00 yuan to 22,428.25 yuan, and its proportion of total funding grew from 41.87% to a peak of 67.13% in 2012, after which there was a relatively stable decline, and the

proportion was 60.41% in 2022. From the inter-provincial differences in per-pupil financial input, the extreme difference rate is the ratio of the maximum value and the minimum value, which can reflect the gap between provinces, and the larger the value, the more unfair it is. From 2007 to 2022, the extreme difference rate of per-pupil general public budget for education declined from 7.82 to 3.75 in 2012, reaching the lowest, and then kept relatively stable fluctuation around 4.50 in the following 10 years. In 2022, Beijing's per capita general public budget expenditure on education is as high as 59,710.57 yuan, while Guangxi's is only 14,667.53 yuan, with the former being 4.07 times that of the latter, and the data show that although the gap in per capita financial investment has narrowed, there is still a large disparity in the distribution of educational resources between provinces.

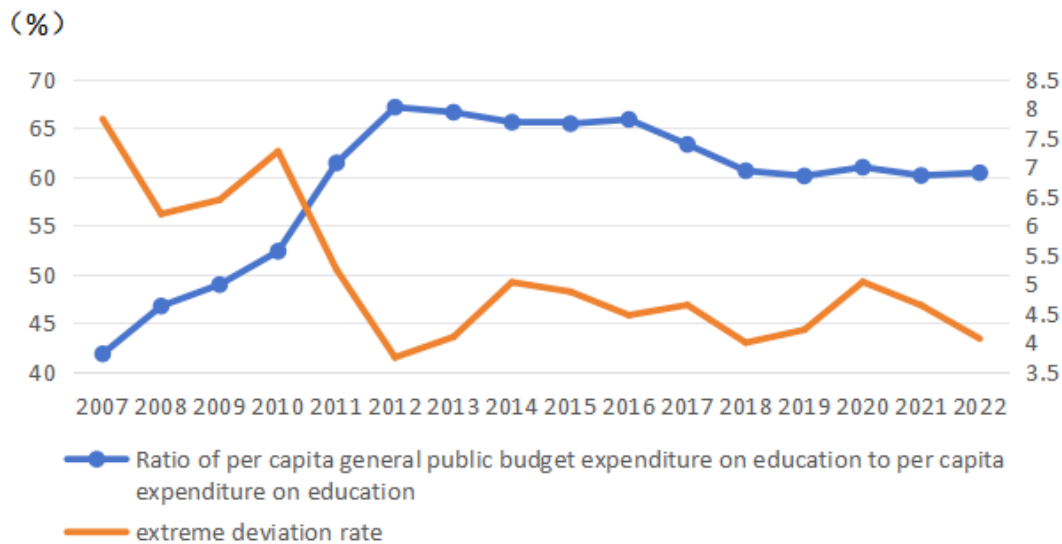


Figure 2. Ratio of per capita general public budget expenditure on education to per capita education expenditure, extreme variance rate, 2007-2022.

### More Than Half of the Provinces Have Not Experienced Any Major Changes in the Pattern of Funding Levels and Financial Support

In order to better compare the financial security situation of each province, we analyze the “level of funding and degree of financial support”, i.e., the “level of funding” is measured by the average per capita education expenditure, and the ratio of per capita general public budget expenditure on education to the average per capita education expenditure is measured by the “degree of financial support”, and then divide each province into four quadrants. The study analyzes the “financial support level” by the per capita education expenditure, and the “financial support degree” by the ratio of per capita general public budget expenditure on education to per capita education expenditure, and then divides provinces into four quadrants. The study found that, compared with 2007, the change in the level of financial support in 2022 can be divided into four categories. First, 17 provinces remain stable, of which Beijing and Tibet are always in the “high level of funding, high degree of financial support”; Gansu, Jilin, Xinjiang, Heilongjiang, and Inner Mongolia are in the “low level of funding, high degree of financial support”; Gansu, Jilin, Xinjiang, Heilongjiang, and Inner Mongolia are in the “low level of funding, high degree of financial support”; Anhui, Henan, Chongqing, Liaoning, Hunan, Shaanxi, and Yunnan are at “low level of funding and low degree of financial support”; Jiangsu, Zhejiang, and Fujian are at “high level of funding and low

degree of financial support”. Secondly, three provinces have significantly improved from “low funding level” to “high funding level”, among which, Qinghai and Guizhou have changed from “low funding level and high financial support” to “high funding level and high financial support”. Among them, Qinghai and Guizhou shifted from “low funding level and high financial support” to “high funding level and low financial support”, and Ningxia shifted from “low funding level and high financial support” to “high funding level and low financial support”; thirdly, there was a significant deterioration in the number of provinces, Tianjin from “high funding level, high degree of financial support” to “low funding level, low degree of financial support”; fourth, the change is not significant in 10 provinces, including Shanxi, Hebei, Jiangxi, Guangxi, Sichuan, Shandong, Hubei which are in the “low funding level”, “low funding level”, “low financial support”, “low funding level”, “low financial support”. Among them, Shanxi, Hebei, Jiangxi, Guangxi, Sichuan, Shandong, and Hubei all fluctuate in the two quadrants adjacent to the “low funding level”, while Shanghai, Hainan, and Guangdong all fluctuate in the two quadrants adjacent to the “high funding level”. Overall, this pattern of funding security is relatively stable and has not undergone a fundamental shift in many years, and in order to achieve a substantial breakthrough in coordinated regional development, further resource allocation reforms are needed.

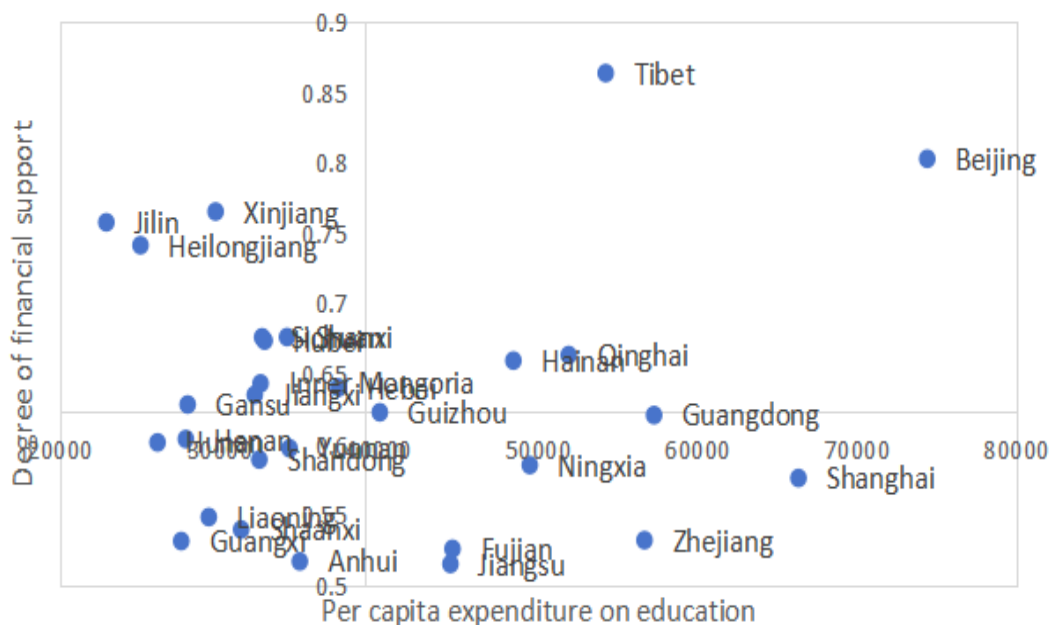


Figure 3. Per-pupil education funding and financial support for local general undergraduate colleges and universities, 2022.

## Main Conclusions and Countermeasures Suggestions

### Main Conclusions

**Development planning and policy support play an important strategic orientation role in narrowing regional gaps.** From the analysis of the aforementioned data, whether it is the total financial input by province or the average per capita financial input, 2012 is an important time point, basically showing that the gap between the financial input in education in different regions before 2012 has narrowed significantly, especially the decline from 2010 to 2012 is more pronounced, and after 2012 there is a slow upward trend, but by 2022 the indicators are still better than that in 2022. However, the indicators will still be better than the 2010 level. This change is closely related to major reforms in the field of education. Looking back at the development over the past decade

or so, in 2010, China promulgated the “Outline of the National Medium- and Long-Term Educational Reform and Development Plan (2010-2020)”, which proposed to “set up a special fund to support local higher education, and implement a plan to revitalize higher education in the central and western regions”; in the same year, the Ministry of Finance issued the “Measures for the Administration of Special Funds for Supporting the Development of Local Colleges and Universities From the Central Government”, and the Ministry of Finance and the Ministry of Education jointly issued the “Opinions on Further Improving the Level of Per-Pupil Allocation for Local Ordinary Undergraduate Colleges and Universities”, which in principle requires that the level of per-pupil allocation for local colleges and universities in various places should not be less than 12,000 yuan by the end of 2012. The introduction of major national policies and changes in the logic of local government behavior have greatly increased the financial input of local general undergraduate colleges and universities, effectively narrowing the gap between regions and promoting the development of local colleges and universities.

**The regional gap has rebounded in the past decade, and the gap in education funding should be controlled in a reasonable range.** Inter-regional disparities are inevitable, and the construction of high-quality higher education system cannot go hand in hand (Hu, 2022); however, based on the discussion of the coordinated development of higher education in the academic and practical circles, some scholars believe that the pattern of development from higher education has a great impact on access (Yang, 2014), some scholars analyze the perspective of fairness should be the equal distribution and use of educational resources, in order to achieve educational fairness (Zhao, 2008), some scholars analyze how to realize the coordinated development of regional higher education from the perspective of higher education’s support for regional talents and intelligence (Zhang & Jia, 2022), and some scholars study the development pattern of high-quality regional higher education from the perspective of the consistency of regional higher education development goals and national development goals (Zhang, 2020); in summary, it is generally agreed that the development gap between the regions should be controlled, and it is necessary to avoid the gap is too large.

### **Countermeasures Suggestions**

Reform is an arduous, complex, long-term process, and should grasp the reform of the education sector and other areas of the reform of the unity of the relationship between the local and the overall situation, in the future of the reform decision-making to improve the strategic thinking and systemic thinking, the education reform and the level of economic development, the reform of the fiscal and taxation system, demographic changes, and other relevant aspects of the reform of the integrated promotion. Considering the characteristics of financial education funding in a comprehensive manner, countermeasures are proposed in the following aspects.

**Implementing priority development: Strengthening the forward-looking allocation of financial inputs that match the development of local higher education.** First, formulate strategic planning for the coordinated development of local colleges and universities and the region. Local general undergraduate colleges and universities are large in volume and wide in coverage, carrying the heavy responsibility of large-scale cultivation of human capital and serving regional economic and social development more directly, further optimizing the living environment and development space of local general undergraduate colleges and universities, and promoting the reform and development of local general undergraduate colleges and universities. Second, improve the financial investment guarantee mechanism that matches the development of local colleges and universities. Higher education will usher in the peak of the school-age population in 2032; compared with the gradual decrease in the population of other academic segments, the next 10 years is the expansion of the scale of the development

of higher education, but also a critical period of economic and social development, high-quality economic and social development of higher education talent demand is also more urgent; the importance of the status of higher education, the need to match the level of education funding to ensure that the level of education, and constantly improve the local colleges and universities, the average per capita allocation of funds level of standards, the establishment of institutionalized and operable financial allocation formula for higher education, the level of educational development will be included in the performance appraisal.

**Clarifying vertical decentralization: Establishing a central and local financial relationship with clear powers and responsibilities, coordinated financial resources, and regional balance.** First, assess the pressure of higher education development faced by different regions, further check whether the weak provinces have slowed down the development of higher education due to insufficient funding, and assess the difficulties and pressure of higher education development in each place in combination with the economic and social development situation and demographic changes in each place; second, rationalize the relationship between the central government and the local government's authority and responsibility in the development of local higher education, and based on the pressure of higher education development faced by different regions, further clarify the division of expenditure responsibilities between the central government and local governments in the common financial affairs of higher education, and strengthen the support of the central government to the weak provinces, so as to prevent the situation of "weaker and weaker provinces" from getting worse.

**Strengthening horizontal cooperation: Improving the mechanism of East-West cooperation in education and the mechanism of regional cooperation and support.** First, improve the mechanism of East-West cooperation in education, because different regions have different bases for economic and social development and different resource endowments; increase the horizontal transfer payments and counterpart support from the developed provinces of higher education in the first and fourth quadrants to the provinces in the second and third quadrants, and continue to improve the evaluation and supervision system of horizontal transfer payments and counterpart support, so as to maintain the continuity, stability, and sustainability of policies, and to promote the effectiveness of East-West cooperation. Second, promote the integrated development of education in major national regional strategies, use big data to strengthen the tracking of employment destinations of local general undergraduate colleges and universities, increase the collaborative support mechanism between the provinces where graduates are flowing in and the provinces where they are flowing out, and increase the support in terms of teachers' qualifications, education and teaching, and platform projects, so as to reduce the financial spillover phenomenon indirectly manifested by population spillover, reduce the disparity between regions, and promote the coordinated development of the region.

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