Research on the Measurement and Practical Paths of Common Prosperity in Zhejiang from the Perspective of Higher Education

Hongming Fu[1,a,*], Hua Zhang[1,b]

[1]School of Computer Science, Hangzhou Dianzi University, Hangzhou, China
[a]fuhongming@hdu.edu.cn, [b]zhanghua@hdu.edu.cn
[*]Corresponding author

Abstract: As China's first pilot zone for common prosperity, Zhejiang's progress towards achieving this goal necessitates the establishment of a comprehensive and scientific evaluation index system for measuring common prosperity. This study focuses on Zhejiang Province, grasping the connotation of common prosperity from the dimensions of "common wealth" and "shared prosperity." It constructs an evaluation index system for common prosperity in Zhejiang Province from three aspects: development, sharing, and sustainability. Using the entropy method, it measures the development of common prosperity in 11 cities in Zhejiang from 2013 to 2022. Additionally, higher education plays a significant role in advancing common prosperity. This paper deeply analyzes the current state of higher education development in Zhejiang and its relationship with common prosperity, proposing specific practical paths for higher education to promote common prosperity in Zhejiang.

1. Introduction

Since the Third Plenary Session of the 11th Central Committee of the Communist Party of China, Zhejiang Province has embarked on active exploration as a pioneer of reform and opening-up. At the beginning of 2021, the state put forward new requirements for Zhejiang to build a demonstration area of common prosperity, which has pointed out the direction and goals for the overall development of Zhejiang Province in the future. The key to achieving this goal lies in effective implementation, sustained efforts, and evaluation of outcomes. In June 2021, the "Opinions of the Central Committee of the Communist Party of China and the State Council on Supporting the High-Quality Development and Construction of a Common Prosperity Demonstration Zone in Zhejiang Province" explicitly stated the need to "accelerate the construction of a comprehensive evaluation system for promoting common prosperity, and establish an evaluation mechanism that can fully reflect the effectiveness of work, and the satisfaction and recognition of the people."

There is a close relationship between common prosperity and higher education. The report of the 20th National Congress of the Communist Party of China pointed out the need to "improve the basic public service system, enhance the level of public services, increase balance and accessibility,

and solidly promote common prosperity," and "accelerate the construction of a high-quality education system." Higher education, as a key element of the basic public service system, plays a crucial role in the process of solidly promoting common prosperity. The academic community generally believes that higher education can enhance individual income, serving as an important channel for college graduates, individual industrial and commercial households, and low-income farmers to achieve "raising the lower income and expanding the middle income," thereby promoting the goal of common prosperity[1]. UNESCO's research further confirms that there is a positive correlation between an individual's level of education and their labor productivity.

Since the 18th National Congress of the Communist Party of China, academic research on the related content of "common prosperity" has yielded numerous results, which can be summarized into five aspects: economic, political, cultural, social, and environmental. The focused keywords include "precision poverty alleviation through education," "high-quality development," "urban-rural differences," "rural revitalization," and "income distribution." Promoting common prosperity is a long-term and complex systematic project, and the ideological connotations of common prosperity will also change in different periods. This requires continuous exploration and enrichment in theoretical foundations and practical paths to inject more new achievements into the exploration of common prosperity.

Given this, this paper selects Zhejiang Province as the research object to measure the development level of common prosperity in Zhejiang from 2013 to 2022. Combined with the authors' professional background, it deeply explores the current development status of higher education in Zhejiang and the practical paths to promote common prosperity in Zhejiang. Through this research, we aim to contribute new insights to the theoretical framework of common prosperity in Zhejiang and explore more diversified directions in its practical paths.

2. Evaluation index system construction

The Chinese state leader mentioned that "China's common prosperity is the common prosperity of all people, not the prosperity of a few people, nor uniform egalitarianism." Therefore, when constructing the evaluation index system for common prosperity in China, we must consider both the aspect of "common wealth" and the aspect of "shared prosperity". Such an evaluation index system can comprehensively reflect the essence and progress of common prosperity.

Based on this, this paper, according to the specific requirements of the "Implementation Plan for the Construction of a High-Quality Development and Common Prosperity Demonstration Zone in Zhejiang Province (2021-2025)," references the research results of relevant scholars [2-4], and comprehensively considers the availability and continuity of data to attempt to construct an index system for the level of common prosperity in Zhejiang Province.

Table 1: Index system of common prosperity in Zhejiang Province

Primary index	Secondary index	Direction
Developmental index	Per capita GDP	+
	Proportion of tertiary industry	+
	Per capita household deposit balance at the end of the year	+
	Per capita disposable income of all residents	+
	Ratio of per capita disposable income of all residents to per capita GDP	+
	Per capita disposable income of urban residents	+
	Per capita disposable income of rural residents	+
	Per capita civilian automobile ownership	+

	Percentage of mobile phone users at the end of the year	+
	Proportion of fixed Internet broadband access users	+
	Ratio of per capita disposable income of all residents to per capita GDP	+
	Proportion of household expenditure on education, culture and entertainment consumption	+
	Per capita total retail sales of consumer goods	+
Sharing index	Intensity of educational input	+
	Public library stock per capita	+
	Number of hospitals per 1,000 people	+
	Number of beds in health facilities per 1,000 people	+
	Number of doctors per 1,000 people	+
	Number of elderly care service institutions per 1,000 people	+
	Number of beds in elderly care institutions per 1,000 people	+
	Participation rate of basic old-age insurance for urban and rural residents	+
	Participation rate of basic medical insurance for urban and rural residents	+
	Unemployment insurance participation rate	+
	Urbanization rate	+
Sustainability index	Per capita GDP growth	+
	Good air quality rate	+
	Urban and rural per capita disposable income difference	-
	Urban and rural per capita consumption expenditure difference	-
	Engel coefficient	-

2.1. Evaluation index calculation

The promotion of common prosperity involves multiple dimensions and indicators, and a single indicator evaluation method cannot adequately reflect the development status of common prosperity. Therefore, this paper uses the entropy method to measure the development level of common prosperity in Zhejiang Province. The entropy method determines weights based on the degree of dispersion of the indicators, ensuring objectivity. This method ensures the objectivity of the comprehensive evaluation results, thereby more scientifically reflecting the development level of common prosperity in Zhejiang Province.

Parameter Selection. This paper constructs the evaluation indicator system for common prosperity in Zhejiang Province from two dimensions: "common wealth" and "shared prosperity," and from three aspects: development, sharing, and sustainability. The detailed parameters of each indicator are shown in Table 1.

Standardization of Data. Since the parameters selected for constructing the Zhejiang Province Common Prosperity Index have different dimensions, it is necessary to standardize these data to ensure comparability among the parameters. Standardization - Positive Indicators: The larger the index, the better the performance. For example: Per capita GDP, per capita disposable income of all residents, etc. Standardization - Negative Indicators: The smaller the index, the better the performance. For example, Engel coefficient.

$$x'_{ij} = \frac{x_{ij} - Min_d}{Max_d - Min_d} \ / \ x'_{ij} = \frac{Max_d - x_{ij}}{Max_d - Min_d} \tag{1}$$

x'_{ij} denotes the standardized value of parameter i in region j, x_{ij} represents the original value of parameter i in region j, and Max_d and Min_d respectively denote the maximum and minimum values of each parameter across all regions.

Weight Calculation of Indicators:

Calculate the proportion of parameter i in region j within this parameter set:

$$P_{ij} = \frac{x'_{ij}}{\Sigma_i^n x'_{ij}} \tag{2}$$

Calculate the entropy value of parameter i:

$$e_i = -\frac{1}{\ln(n)} \times \Sigma_{j=1}^n \left(P_{ij} \times \ln P_{ij}\right) \tag{3}$$

Calculate the weight coefficient of parameter i:

$$w_i = \frac{1-e_i}{\Sigma_i^m (1-e_i)} \tag{4}$$

2.2. Common prosperity development comprehensive score

Using the above methods, this paper standardizes the collected statistical data and calculates the weight coefficients of each parameter using the entropy method. Based on this, the paper measures the common prosperity development levels of 11 cities in Zhejiang Province from 2013 to 2022 and summarizes the results in Table 2.

Table 2: Comprehensive scores of common prosperity and development of cities in Zhejiang Province

Region	2013	2015	2017	2019	2020	2021	2022
	Score	Score	Score	Score	Score	Score	Score
Hangzhou	0.6633	0.6793	0.7010	0.7433	0.6846	0.6899	0.6987
Ningbo	0.5229	0.5323	0.5176	0.5060	0.4923	0.5041	0.5025
Wenzhou	0.3587	0.3645	0.3280	0.3408	0.3688	0.3644	0.3585
Jiaxin	0.4149	0.4586	0.4557	0.4644	0.4353	0.4380	0.4277
Huzhou	0.3908	0.4046	0.4635	0.4988	0.4691	0.5212	0.4247
Shaoxin	0.4329	0.4575	0.4662	0.4824	0.4791	0.4748	0.4627
Jinhua	0.4230	0.3816	0.3981	0.4374	0.4294	0.4371	0.4282
Quzhou	0.2418	0.2798	0.3068	0.3190	0.4394	0.4570	0.4377
Zhoushan	0.5099	0.5223	0.5116	0.5062	0.5930	0.5732	0.5984
Taizhou	0.3052	0.3468	0.4009	0.3804	0.4267	0.4109	0.3843
Lishui	0.2336	0.2464	0.2604	0.3097	0.3371	0.3323	0.3281

From Table 2, it can be seen that from 2013 to 2019, the comprehensive development scores of common prosperity for the 11 cities in Zhejiang showed an overall upward trend. The comprehensive score increased from 0.4088 to 0.4535, and the overall gap between cities gradually narrowed, indicating significant progress in the development of common prosperity in Zhejiang Province. Additionally, Hangzhou and Ningbo, as the core cities of Zhejiang's economic development, have a clear advantage in resource allocation and a high level of common prosperity. In contrast, Taizhou, as a coastal and mountainous city, and Lishui, as a mountainous city, have relatively lower levels of common prosperity. Although Zhoushan is the least populated island city in Zhejiang, it has significant advantages in tourism and marine economy, leading to a correspondingly higher level of common prosperity. From 2020 to 2022, the overall economic

growth in Zhejiang slowed down, and the comprehensive development scores of common prosperity showed a downward trend, which in turn affected the progress of common prosperity development.

3. Practical Paths to Common Prosperity from the Perspective of Higher Education

Currently, the development of higher education in China still faces issues of imbalance and insufficiency, primarily manifested as significant differences in the scale of higher education institutions between regions, excessive disparities in per capita educational funding, and regional imbalances in educational resources. Fang et al. through a survey of public demands for common prosperity in Zhejiang Province that in terms of higher education, the public has concentrated demands for increasing university enrollment rates, enhancing financial investment in universities, and improving the quality and quantity of higher education[2]. Therefore, at the macro level, the government should adjust the allocation of external resources for higher education to solidify the educational foundation for common prosperity. At the micro level, universities should actively optimize their internal development systems to support talent for common prosperity.

3.1. Optimizing the Spatial Distribution of Educational Resources

Although Zhejiang Province has abundant educational resources overall, there are still inequities in educational resources and opportunities. Within Zhejiang Province, there is a severe imbalance in educational resources across different regions. According to the latest list of higher education institutions nationwide released by the Ministry of Education for 2024, Zhejiang Province has 109 regular higher education institutions. In terms of quantity, Hangzhou, as the provincial capital, has the most regular higher education institutions, totaling 47, accounting for 43% of the province's total. Ningbo ranks second with only 14 institutions, while Lishui and Quzhou have the fewest, with only 2 each. In terms of the student-to-school ratio, Hangzhou remains the highest (0.26 million students per school), while Quzhou (1.15 million students per school), Lishui (1.26 million students per school), and Taizhou (1.67 million students per school) have the largest ratios, ranking at the bottom. Nationally, Zhejiang Province has a relatively low admission rate to key universities. For example, in 2023, the special type admissions/first-batch undergraduate admission rates across various provinces, Beijing's special type admissions/first-batch undergraduate admission rate was about 44.05%, ranking first nationwide, followed by Chongqing, Shanghai, Jiangsu, etc., while Zhejiang, Guangxi, and Jiangxi ranked at the bottom.

The coordinated regional development of higher education plays an important role in enhancing the shared level of economic development. On the one hand, by optimizing the allocation of external educational resources, the government provides equitable and inclusive higher education opportunities for all groups, offers more upward mobility opportunities for low-income groups, and increases the proportion of the middle-income group, which helps narrow the income gap between urban and rural residents. On the other hand, balanced development of higher education resources allows more groups to benefit from higher education, breaks regional restrictions, provides more opportunities for groups in areas lacking educational resources to receive higher education, thereby improving regional development conditions, effectively enhancing the overall level of social development, promoting fair development, and ultimately achieving common prosperity.

3.2. Optimizing Inter-School Allocation of Educational Resources

Currently, there is an imbalance in resource allocation among universities in Zhejiang Province, resulting in significant differences in educational quality and school conditions. Taking the total

budget income of universities in Zhejiang Province as an example, the total budget income of Zhejiang University in recent 10 years has shown continuous and substantial growth year by year, especially in 2024, the total budget income reaches 31.35 billion yuan, followed by Zhejiang University of Technology (4.36 billion yuan), Ningbo University (3.92 billion yuan), etc. The budget scale far exceeds the total budget income of other provincial universities in Zhejiang Province. This significant disparity in educational budgets undoubtedly has a profound impact on these universities' educational quality, faculty strength, research conditions, and student development.

The disparity in educational resource investment among universities in Zhejiang Province directly affects the high-quality development of higher education. However, with limited overall educational resources, scientific educational resource planning is key. On one hand, it is essential to continue optimizing the regional structure of higher education, considering the levels of economic and social development and educational needs, to allocate resources reasonably. On the other hand, it is crucial to strengthen regional resource sharing among higher education institutions, improve resource utilization efficiency, meet the educational needs of different regions, and gradually establish cross-regional resource-sharing mechanisms.

3.3. Strengthening Targeted Poverty Alleviation in Higher Education

Educational poverty alleviation is the most direct and effective method of targeted poverty alleviation.

On one hand, universities should deepen "targeted enrollment." The imbalance in educational resources between urban and rural areas has always been a challenge for education. Universities need to further advance enrollment reforms, through various policy tilts, to increase the enrollment rate and provide quality educational opportunities for rural students and children from impoverished households. Universities in Zhejiang Province should increase enrollment plans for rural students and targeted enrollment plans for 26 mountainous impoverished areas in Zhejiang Province, ensuring that children in these areas have the opportunity to enter quality universities.

On the other hand, universities should strengthen "targeted financial aid." The state should continue to improve the comprehensive financial aid system for economically disadvantaged groups, including national grants, national student loans, work-study programs, and other forms of assistance, ensuring that students do not drop out due to economic difficulties. Universities should establish and improve a database of impoverished students, accurately identifying students in need of assistance through household economic status surveys, big data analysis of student on-campus consumption, and peer interviews. Additionally, universities should adjust financial aid measures in a timely manner based on changes in students' household economic conditions, ensuring the precision and effectiveness of aid.

3.4. Optimizing the Disciplinary Development Structure of Higher Education

Currently, the spatial layout and disciplinary structure of universities do not well meet the needs of local socio-economic development, and there are even instances where graduates of certain disciplines face immediate unemployment upon graduation.

On the one hand, universities should strengthen the development of advantageous and distinctive disciplines. Based on an in-depth analysis of the current socio-economic development and future industrial trends of the region, universities should accelerate the establishment of disciplines that align with the market, such as artificial intelligence, big data, cloud computing, the Internet of Things, and biomedical sciences in cutting-edge technology fields, as well as financial technology, intelligent manufacturing, new energy, and new materials in emerging industries, to cultivate

high-end talents that meet the needs of local high-tech enterprises and emerging industries.

On the other hand, universities should adjust their disciplinary structures and talent training models. By optimizing curriculum design, introducing practical teaching, and integrating industry-university-research projects, universities should ensure that students possess the innovative and practical abilities required by the market after graduation.For example, universities should set up innovation and entrepreneurship courses, increase teaching practice components, and establish cognitive internship bases to cultivate students' innovative and practical abilities, enabling them to quickly adapt to and contribute to local economic development.

4. Conclusions

This paper takes Zhejiang Province as the research object, constructing a common prosperity evaluation index system for Zhejiang from the two dimensions of "common prosperity" and "shared prosperity," focusing on development, sharing, and sustainability. The study found that from 2013 to 2019, the overall comprehensive score for common prosperity development across the 11 cities in Zhejiang Province showed an upward trend, increasing from 0.4088 to 0.4535. The overall gap between cities gradually narrowed, indicating significant progress in common prosperity development in Zhejiang Province. However, from 2020 to 2022, the overall economic growth in Zhejiang Province slowed down, and the comprehensive score for common prosperity development showed a downward trend, which affected the progress of common prosperity.

The healthy development of higher education is an important soft power in effectively achieving the goal of common prosperity in Zhejiang. Currently, higher education in Zhejiang faces issues such as significant differences in the scale of higher education institutions between regions, large disparities in per capita education funding, and uneven distribution of educational resources. Therefore, this paper proposes that at the macro level, the government should adjust the allocation of external resources for higher education, optimize the spatial distribution and inter-school allocation of educational resources, and provide equitable and inclusive higher education opportunities for all groups.At the micro level, universities should actively optimize their internal development systems by enhancing targeted poverty alleviation in higher education and optimizing the disciplinary development structure. This will improve the ability of higher education to cultivate talent and serve the socio-economic development of the region.

Acknowledgements

References

[1] Zhao, Z. Q. & CA, W. B. (2023). Research on the coupling and coordination of higher education, rural revitalization and common prosperity in China. Chongqing higher education research (04), 23 -37.

[2] Fang, W. & Huang, Y, K. (2022). The pursuit of common prosperity under the background of unbalanced development: Reflections based on public survey in Zhejiang Province. Journal of Zhejiang University of Technology (Social Science Edition) (02), 142-149.

[3] Feng, Y. & Nie, C. F. (2024). Construction and empirical measurement of common prosperity evaluation index system. Statistics and Decision, 40(02), 73-77.

[4] Qin, Y. & Jiang, H. Y. (2024). Measurement of common prosperity index, spatio-temporal evolution characteristics and identification of driving factors. Statistics and decision (13), 5-10.