

REVIEW

**by Candidate of Economic Sciences, Senior Lecturer of the Department of
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on the dissertation work

Yang Yu

**performed for the Doctor of Philosophy degree in Speciality 073 Management
in the field of study 07 Management and Administration on the topic “The
management of state financial resources in China’s higher education:
Enhancing regional equity, efficiency, and adequacy of financial provision”**

1. Relevance of research topic

The global focus on higher education is centred on resource allocation, particularly on equity, efficiency, and adequacy. This is crucial for ensuring equal opportunities for all students, regardless of their geographical location. The study highlights the importance of market forces in enhancing resource allocation, as institutions increasingly rely on a mix of public and private funding. Diversifying funding sources is also a significant challenge for management of higher education system.

The quality of higher education system directly impacts a country’s competitiveness, influencing international student mobility and academic collaboration. The emphasis on regional equity in resource allocation is particularly relevant in the context of regional development strategies, aiming to reduce economic disparities and promote balanced growth. The study is also correlated with urgent issue of human capital development, as higher education is a key driver of economic growth and social progress.

The findings can inform policies related to cross-border education and the internationalisation of higher education. The dissertation’s empirical analysis and policy recommendations apply to policymakers, providing a global context for understanding and improving China’s higher education resource management. The all above confirms the relevance of the chosen research topic.

2. Relationship of the dissertation to scientific plans, programmes, basic and applied research

This dissertation corresponds to the tasks of China Education Modernization 2035, the Circular on the Implementation Plan for the Project to Promote a Stronger Education in the 14th Five-Year Plan Period, and the Notice on the Opinions on Further Improving the Level of Per-Pupil Allocation for Local General

Undergraduate Colleges and Universities.

The thesis aligns with scientific programs, fundamental research, and applied research that were conducted within the framework of four research projects at Sumy State University. The project entitled “Socio-Economic Challenges in the Conditions of Digitalization of Social Relations” (project number 0121U114364) tackled the author’s findings about socio-economic issues stemming from the digitalisation of social relations and their effects on the administration of state financial resources in higher education. In the research “Convergence of Economic and Educational Transformations in the Context of Digitalisation” (project number 0121U114570) the author investigated the optimisation of regional resource distribution in higher education. The study entitled “The Innovative Drivers of the Growth of the Country’s Macroeconomic Stability” (project number 0121U114396) examined the correlation between the efficacy of governmental financial resource management in higher education and macroeconomic stability. In the research “Transformation of the Financial System and Strategic Priorities of its Development” (project number 0121U114477) the author analysed the factors influencing higher education investment in regional economic development.

3. Reliability of the scientific positions, conclusions and recommendations presented in the dissertation

The scientific provisions, conclusions, and recommendations in the thesis are reliable, as all stages of the study are detailed, grounded in reliable statistical data, and supported by appropriate explanatory material and accurate bibliographical sources.

Yang Yu’s dissertation comprises theoretically grounded and empirically validated scientific results that are coherent with one another and align with the overarching logical framework of the thesis. The dissertation employs data from 2007 to 2018 for its empirical analyses. This extensive dataset facilitates a thorough analysis of trends and patterns in higher education financial expenditures spanning more than ten years, offering a solid foundation for evaluating regional disparities, convergence tendencies, and resource allocation efficiency. The dissertation utilises quantitative and qualitative methodologies, encompassing literature research, empirical analysis using Gini coefficients and convergence models, and data envelope analysis (DEA) for efficiency assessment, panel regression, structural decomposition, and comparative analysis. These methodologies offer a thorough and resilient framework for examining the administration of state financial resources in higher education in China, examining how it might enhance regional equity, efficiency, and the sufficiency of financial resources. The study’s delineated aims are bolstered by the practical selection of various implementation methods, enabling

the presentation of robust scientific and practical conclusions. Every phase of the thesis concludes with a concise and unambiguous explanation of the results pertinent to that stage.

4. Novelty of the research and results achieved

The research focuses on improving existing methods and proposing new scientific and methodological approaches for managing China's state financial resources in higher education to enhance regional equity, efficiency, and financial provision adequacy. Key findings include a systematic approach to evaluate the effectiveness of managing state financial resources in higher education regarding financial support equalisation, which combines calculations of σ -convergence, absolute β -convergence, and conditional β -convergence of per capita general public budget funding for higher education.

The methodological foundations for ensuring regional equality within the management of state financial resources in higher education are improved based on analysing disparity in allocating higher education financial resources among regions using Dagum's Gini coefficient measurement. This approach allows mapping China's regions by the level of higher education funding, describing the nature and dynamics of intra-regional and inter-regional disparities in higher education funding, identifying evolutionary trends in the transformation of the gap in the allocation of higher education financial resources among regions, and developing proposals to ensure regional equality within the management of China's state financial resources in higher education.

The methodological foundations for evaluating the efficiency of the existing distribution of financial expenditures on higher education within the framework of the management of state financial resources in higher education differ from existing methods through the application of a modified three-stage DEA model based on the input-oriented BCC efficiency prompt model, the combination of the BCC model with the SFA (stochastic frontier analysis) method, the use of financial expenditures on higher education as input efficiency indicators, and the use of per capita GDP of each region, the environment of university clusters, and the degree of government decentralisation as external environmental indicators.

The scientific basis for investigating regional imbalances in the management of state financial resources in higher education is developed, which systematically combines elements of correlation and regression analyses, as well as coherence analysis, allowing clustering regions depending on the level of coordination between economic and educational development and designing regional management strategies to ensure coherence between the needs for highly qualified professionals and the scale of economic growth in the region.

The scientific basis for optimising the system of horizontal transfer payments for the balanced inter-regional distribution of state resources within the framework of the management of state financial resources in higher education in China is based on the calculation of the coefficient of financial sufficiency of higher education for all provinces in China.

5. Theoretical and practical significance of the dissertation research results

The study provides a comprehensive analysis of the complexities and multi-dimensionality of higher education financial resource management, enhancing the theoretical foundation of education finance. It introduces new analytical methods, such as the combined convergence model and the regional equality analysis method, which provide new perspectives on understanding the complexities of higher education financial resource management. The research also expands the regional balanced development theory by revealing the interactive relationship between the allocation of higher education resources and regional economic growth.

The study emphasises the importance of education equity in higher education financial resource management, highlighting its role in achieving regional balanced development and effective allocation of educational resources. This research offers new ideas and methods for developing education equity theory, helping to build a more fair and rational system for allocating higher education financial resources.

The findings also offer practical guidance for governments and education management departments in optimising financial resource allocation, enhancing education quality and benefits, promoting regional economic coordinated development, and driving education policy reforms. By identifying resource gaps and convergence trends between regions, governments can more effectively adjust financial inputs, increasing support for underdeveloped areas and promoting balanced regional development.

In conclusion, the study is significant both theoretically and practically, enriching the theories of education finance, regionally balanced development, and education equity, and offering scientific references for optimising higher education financial resource management, enhancing education quality and benefits, promoting regional economic coordinated development, and driving education policy reforms.

6. The completeness of the presentation of the dissertation material in the published work, the applicant's contributions

The research findings are thoroughly documented in scientific publications. The thesis research indicates that Yang Yu has published 11 scientific works, amounting to 6.62 printed pages, among which the author has personally 4.85 pages.

The contributions include one article published in a scientific journal indexed by the Web of Science, six articles in specialised scientific journals of Ukraine classified as the “B” category, and four conference proceedings.

All published scientific works derived from the dissertation comply with the stipulations of Article 8.9 of the Procedure for the conferral of the Doctor of Philosophy (PhD) degree, and the annulment of the decision regarding the granting of the Doctor of Philosophy (PhD) degree by specialised academic committees of higher education institutions and scientific research institutes, as established by Resolution No. 44 of the Cabinet of Ministers of Ukraine dated 12 January 2022.

7. Approbation of the obtained research results

The theoretical provisions and statistically substantiated scientific findings of Yang Yu’s PhD dissertation were presented and discussed at international scientific and practical conferences. These conferences included the International Scientific and Practical Conference “Digital transformations and innovative technologies in the economy: challenges, realities, strategies” (Sumy, Ukraine, 2023), the International Scientific and Practical Conference “Socio-Economic Challenges” (Sumy, Ukraine, 2022), the International Scientific and Practical Online-Conference “Financial Markets, Institutions and Risks” (Sumy, Ukraine, 2021), and the 8th International Scientific and Practical Conference “Problems and prospects for the development of the financial and credit system of Ukraine” (Sumy, Ukraine, 2023). The dissertation’s primary provisions were subjected to rigorous evaluation, and favourable feedback was received during these conferences.

8. Structure and content of the dissertation

Yang Yu’s PhD dissertation is a completed scientific work consisting of 260 pages, including 213 pages of the main text. By the regulatory requirements, which were fully adhered to by the author, the structure of the work includes the following elements: an abstract, introduction, three chapters, general and intermediate conclusions for each chapter, a list of references with 240 entries, and five appendices.

The dissertation focuses on managing state financial resources in China’s higher education system, emphasising regional equity, efficiency, and adequacy. The study aims to provide theoretical and practical insights for better resource management, using a combination of literature review, empirical analysis, and international comparisons to develop a comprehensive resource management paradigm.

Chapter 1, “The Management of State Financial Resources in Higher Education: Theoretical Basis, China’s and International Experience in The Context

of Regional Equity, Efficiency, and Adequacy of Financial Provision” (Total 67 pages), examines the significance of equity, efficiency, and appropriateness in resource management to comprehend the difficulties and opportunities in higher education. The author analyses China’s resource distribution techniques compared to the United States, the United Kingdom, and Japan, emphasising disparities and their effects on regional equilibrium and educational standards. The chapter recognises substantial regional inequality in China and the necessity for a balanced strategy that utilises both governmental and market mechanisms.

Chapter 2, “Regional Differences, Convergence and Efficiency in the Allocation of Financial Resources for Higher Education in China: Findings for the Management of State Financial Resources in Higher Education” (Total 87 pages), examines regional inequalities and convergence patterns in higher education financial expenditures utilising the Gini coefficient and convergence models (σ -convergence, absolute β -convergence, and conditional β -convergence). The author employs a three-stage DEA model to evaluate the effectiveness of financial expenditures in higher education, considering external environmental factors and stochastic disturbances. It observes a gradual decrease in regional disparities, although notable efficiency discrepancies throughout provinces, highlighting the necessity for focused resource distribution and enhancements in efficiency.

Chapter 3, “Regional Equity and the Adequacy of Financial Provision in Management of State Financial Resources of Higher Education in China” (Total 44 pages), analyses the impact of educational investment on economic growth, encompassing human and intellectual capital contributions. It evaluates expected financial expenditures, considering regional natural, economic, and social development disparities. The author proposes dynamic allocation models and monitoring methods to equilibrate inter-regional resource distribution. This Chapter's equitable educational development necessitates enhanced investment in underfunded areas, improved transfer payment mechanisms, and tailored educational initiatives for individual regions.

Conclusions (Total 3 pages) highlight the importance of regional equity, efficiency, and adequacy in higher education finance management, provide policymakers with proposals to improve the equity, efficiency, and effectiveness of financial resource management, and suggest the need for more robust causal inference methodologies, qualitative insights, and long-term effect studies.

The dissertation provides a well-structured analysis of higher education resource management in China, offering valuable theoretical and practical insights. Its strong theoretical framework, rigorous empirical methodologies, and practical recommendations distinguish the study. Addressing the suggested areas for improvement will enhance the study's depth, rigour, and practical applicability,

making it an even more valuable resource for researchers, policymakers, and educators.

9. Evaluate the language and style of the dissertation. No (yes) violations of academic integrity

The applicant's dissertation, Yang Yu, was composed in a scientific format in English. Clarity, coherence, and logic are the hallmarks of the research material's presentation. The veracity of the references to primary sources borrowed for the text and illustrations was determined by the results of the academic plagiarism check conducted on Yang Yu's dissertation work. The research did not reveal any deliberate distortions. Consequently, it is possible to infer that academic integrity has not been violated.

10. Comments on the design and content of the dissertation

Yang Yu's dissertation found no fundamental flaws and generally made a positive impression that deserves a favourable review. However, there are some noteworthy points, improvements, and suggestions:

1. It is recommended to provide a detailed discussion and clearly identify the gaps in the existing literature and scientific work on the research topic. This will strengthen the study's rationale and highlight the research's unique contributions.

2. Conducting sensitivity analyses to test the robustness of the findings under different assumptions or model specifications, and incorporating more rigorous causal inference methods, such as instrumental variables, difference-in-differences, etc., would help enhance the findings' validity.

3. The absence of qualitative data, such as case studies or stakeholder interviews, didn't allow for a deeper context and understanding of the challenges and successes in resource management. This would have enhanced the relevance and practical value of the research.

In addition, there are the following questions for Yang Yu, the answers to which I would like to hear:

1. The author should address and explain potential limitations in the data, such as missing or outdated information, etc. How did these limitations affect the results?

2. Deeper exploration of the specific mechanisms through which different countries achieve regional equity and efficiency, or detailed examples from the countries compared in the study could give more practical information, especially for improving public policies. Please provide some examples / practical cases and explain how the results of international comparisons can be specifically adapted to China's unique context?

3. Why do the proposed recommendations for increasing efficiency and equity

target mainly state and local authorities and fail to consider institutional autonomy and stakeholder engagement, such as students and faculty?

The well-structured dissertation provides valuable insights into managing financial resources in higher education. However, addressing the suggested areas for improvement will enhance the study's depth, rigour, and practical applicability. These enhancements will make the dissertation even more robust and impactful. The above observations and shortcomings are like discussions and recommendations and do not detract from the high scientific and methodological level of the scientific results of the thesis research.

11. Dissertation meets established requirements

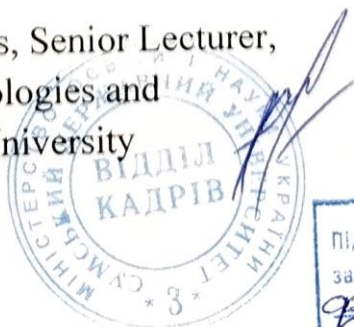
Yang Yu's PhD dissertation, "The Management of State Financial Resources in China's Higher Education: Enhancing Regional Equity, Efficiency, and Adequacy of Financial Provision", which was conducted at Sumy State University, is a comprehensive, logically structured, and completed scientific work. It introduces fundamentally new scientific-methodological approaches and instruments for evaluating the impact of state financial resource management in higher education on regional equity, efficiency, and the adequacy of financial provision. Yang Yu's dissertation satisfies the criteria for the speciality 073 "Management" (in the field of study 07 "Management and Administration"), as well as the novelty of the scientific results and the scope and level of substantiation.

Therefore, the dissertation titled "The Management of State Financial Resources in Higher Education: Enhancing Regional Equity, Efficiency, and Adequacy of Financial Provision" is by the requirements of the Order of the Cabinet of Ministers of Ukraine No. 44 dated January 12, 2022, "On Approval of the Procedure for the Award of the Degree of Doctor of Philosophy and Cancellation of the Decision of the Once-Established Specialised Academic Council of the Higher Education Institution, Scientific Institution on the Award of the Degree of Doctor of Philosophy". The author of the dissertation Yang Yu deserves to be merited the scientific degree of Doctor of Philosophy in the speciality 073 "Management" (in the field of study 07 "Management and Administration").

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