

## Budget performance management in Chinese universities: A research summary

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### Abstract

Since 2005, with the increasing research enthusiasm of performance evaluation, the performance management evaluation of higher education in China has gradually become a hot research topic. Higher education performance evaluation is an important research method to reflect the quality of university education, and it can promote the high-quality development of higher education. With the method of literature analysis, this paper summarizes the connotation, necessity, evaluation methods and index system construction of higher education performance management at home and abroad, hoping to provide strategic direction and decision-making basis for universities to achieve high-quality development.

**Keywords:** Higher education; Budget performance management; Review of research; Evaluating indicator

### 1. Introduction

Performance management should achieve compliance and effectiveness of financial budget funds, emphasize standardization and effectiveness, and comprehensively improve the governance level and ability of public sector. Colleges and universities play an important role in social service. In the era of full implementation of budget performance management, the improvement of budget performance management level of colleges and universities will be the basis and premise of improving the performance of colleges and universities. At present, many colleges and universities in China have initially established performance evaluation system and carried out performance self-evaluation work, but these work is far from enough for the effective implementation of budget performance management. Due to the long-term lack of the concept of the efficiency effect of the use of budget funds in colleges and universities, the imperfect laws on the performance of colleges and universities, the lack of performance evaluation methods and many other reasons, although colleges and universities have carried out performance evaluation work, it is only superficial work, and the evaluation results and applications cannot be put into practice, thus improving the management mode of colleges and universities.

Therefore, this paper uses the literature analysis method to summarize the connotation, necessity, evaluation methods and index system construction of higher education performance management at home and abroad, hoping to provide strategic direction and decision-making basis for universities to achieve high-quality development.

### 2. The connotation of budget performance management in colleges and universities

Performance management is to add the concept of "performance" to budget management, or to combine the method of "budget" with performance management mode. At present, China is vigorously promoting and accelerating the comprehensive budget performance management, the whole process and all-round management. The two are

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interactive, closely related and perfectly combined, and at the same time, there are some differences and their own characteristics.

First of all, both budget performance management and budget management are managing financial budget funds, and the management objects are the same. Performance management is based on budget management, and emphasizes the efficiency and effect of using budget funds. For the traditional budget management, the concept of "performance" is added, which is efficiency and effect-oriented. Performance management is a comprehensive management, which perfects the budget management system and promotes the financial system to be more advanced. There are performance requirements in traditional budget management, but they are always ignored in application, so budget performance management and budget management are unified in terms of connotation scope.

Secondly, the concept of budget performance management is put forward on the basis of the implementation of budget management. In other words, it is the product of the financial system reform. It must be that the concept and application of budget performance management came into being when the budget management developed to a certain stage. In the process of budget management, from only the preparation of financial budget funds, to the compliance and legality of the use of financial funds and the scientific and normative use of financial funds, the budget management is undergoing a more perfect reform, thus the reform becomes budget performance management. The implementation and development of performance management is promoting the reform of budget management. They interact with each other and are based on each other.

Finally, the methods and modes of budget performance management are breakthrough and innovation based on the development of budget management mode. Performance management is a kind of management method that comes into being under the background of conforming to the development road of socialism with Chinese characteristics and comprehensively coordinating various social factors of politics, economy and so on. Budget management is the product of the development of the times, and will be deepened and reformed according to the changes of China's economy and society.

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### **3. Feasibility of budget performance in colleges and universities**

The research of university budget performance can be divided into three aspects: first, feasibility study, whether the performance evaluation results can be applied to the feasibility study of university budget allocation; Second, the research of management methods, how to apply the results of performance evaluation to all aspects of university budget management; The third is the performance evaluation system research, how to design the performance evaluation system can be better applied to the performance evaluation system research of university budget management.

The related research on university budget performance in developed countries can be traced back to 1980s, while in China, the management of university budget performance started late, and the exploration and research of related fields began gradually after 2000.

#### **3.1 Foreign related research**

In 1980s, western developed countries mainly applied performance evaluation to improve the education quality of colleges and universities, and to promote colleges and universities to better assume social public responsibilities. In 1980s, the United States launched a series of performance evaluation movements in colleges and universities. In this movement, colleges and universities were required to formulate their own performance evaluation standards and evaluate the quality of running colleges and universities accordingly. In the 1990s, the United States further launched the Accountability Movement in colleges and universities, which put forward higher requirements for the formulation of performance evaluation standards in colleges and universities. Performance indicators should not only be universally applicable, but also be comparable. This campaign of accountability for university performance is very effective. In 1996, more than half of the States in the United States have developed university performance reporting systems.

From the above series of movements, we can see that although the early performance evaluation is mainly used to evaluate the educational quality of colleges and universities, it can be seen that the performance evaluation is becoming more and more standardized and reasonable. The performance evaluation campaign mainly starts from the inside of colleges and universities, and colleges and universities independently formulate performance evaluation standards, which promotes the establishment of performance evaluation indicators in colleges and universities and belongs to the internal performance evaluation. The performance accountability campaign mainly starts from outside universities, emphasizes the comparability of performance evaluation indicators among different universities, promotes the further

development of standardization of performance evaluation indicators in universities, and belongs to external performance evaluation.

In 1990s, western countries began to study the application of performance evaluation results to budget allocation. Generally speaking, if the performance evaluation results are to be applied to the comparison of the same industry, then the performance evaluation indicators must be universal and can evaluate different types of institutions. The accountability system evaluation system of the United States establishes a unified institutional benefit index in each state, and through comprehensive quantitative analysis and qualitative evaluation, the evaluation results of various institutions can be compared (Wellman, 2001)[1]. Relevant research shows that the performance evaluation results of colleges and universities can be applied to college funding, that is, Performance Funding. In this way, policy makers are urged to study and pay attention to the application of performance evaluation in colleges and universities, thus promoting colleges and universities to improve their own performance and finally achieving the effect of optimizing the distribution of educational resources (Gaither et al., 1994) [2]. The organic combination of performance evaluation and budget allocation has gradually become the focus of attention of state governments and public universities. In 1999, according to Rockefeller's survey, American states gradually applied the performance evaluation results of colleges and universities to budget allocation, and the performance of colleges and universities gradually became an important factor affecting the allocation of funds. Only when the performance of colleges and universities reached the standard can they get the allocation of funds [3]. Davis (2003) also pointed out that the performance evaluation system of colleges and universities can be applied in different ways to various state governments. In some cases, performance evaluation results only need to provide performance reports, and in some cases, performance evaluation results can be applied to the financial allocation of colleges and universities. James Guthrie and Ruth Neumann (2007) analyzed the contribution of universities to national and regional economy in detail. In the process of Australian universities gradually changing from academic orientation to market orientation, the composition of university budget sources has changed greatly, so it is necessary to improve the efficiency of budget use by performance evaluation. People have realized the close relationship between performance evaluation and budget allocation, and proved that the application of performance evaluation in colleges and universities is effective.

### **3.2 Domestic related research**

The research on the budget performance of Chinese universities mainly started from the 21st century. Wang Mingxiu, Sun Haibo and others (2005) evaluated universities from three aspects: running strength, operating performance and development potential, and studied how to improve the evaluation effect of budget performance [4]. Xu Rongdi and others (2006) further emphasized that performance evaluation is a means rather than an end, and performance evaluation is an effective tool to link the development strategy of colleges and universities with the implementation effect. Higher education resources are a part of social resources, which are scarce in itself, so the reasonable allocation of university budgets is very important. Introducing performance evaluation is a means to improve the rationality of budget allocation [5]. Wang Liping, Guo Lan, Zhang Yong and others (2008) first put forward the idea of allocating resources inside and outside colleges and universities through the budget performance model, and made a detailed analysis of the feasibility of budget performance from the aspects of national system and performance evaluation system, and put forward some suggestions to solve the problems that may exist in the design and implementation of budget performance system [6]. Lian Xiaohua et al. (2012) analyzed in detail the role of budget performance in the resource allocation of Chinese universities, expounded the mechanism of budget performance, and discussed the problems existing in the implementation of budget performance [7].

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## **4. Management methods of college budget performance**

### **4.1 Foreign related research**

Early performance evaluation is mainly used in the budget allocation of colleges and universities. With western countries paying more and more attention to performance management, performance evaluation methods are gradually applied in the whole process of college budget, including budgeting, budget approval, budget implementation, budget evaluation, budget audit and other links, all of which are applied to different degrees.

At the beginning of accountability action in 1990s, performance evaluation mainly used performance report and performance allocation. Among them, the performance report improves the public participation in improving the performance of colleges and universities by publicizing the performance of colleges and universities, but this influence is limited after all. Performance allocation has a direct impact on improving the performance of colleges and universities and achieving certain performance standards through the close relationship between performance evaluation and allocation. Burke and others conducted in-depth research on the integration of American university performance

evaluation and university budget from 1997 to 2003. Several research reports have been published on the impact of performance reports of American public universities, the status and development of performance grants, and the applicable scope of performance grants.

Carl Borgia and Randolph S. Coyner and others (1996) studied the development process of university budget performance in American comprehensive universities. Some American universities have begun to try to apply the results of performance evaluation to the process of budgeting, so as to improve the efficiency of budget allocation. However, budget performance can't solve all the problems, for example, some performance evaluation results can't be well expressed in budget preparation. However, by changing the budgeting method of incremental budget for a long time and actively adopting budget performance, American comprehensive universities have significantly improved the efficiency of allocating and using education funds, and greatly promoted universities to improve education level, develop scientific research and serve the society. Not only that, American scientific research institutions also actively adopt the budgeting method of budget performance. Seal W and Ball et al. (2011) studied the budgeting methods in the budget performance of colleges and universities. In budget decision-making and budgeting, we mainly refer to the budget process of public sector, and discuss in detail how to apply control theory to solve the balance between short-term budget and long-term budget in budgeting [8].

It is worth noting that the success of budget performance in foreign universities is inseparable from the strict control in budget implementation. For example, public colleges and universities in the United States set up special institutions to ensure budget implementation. The school has set up a special department for budget performance management-the budget control office. Not only that, in order to ensure the correct and standardized implementation of the budgets of various departments, each department will be equipped with budget managers to supervise the budget implementation of the department. British public colleges and universities restrict the random adjustment of budgets in the process of budget implementation through strict procedures. Any budget adjustment must go through a set of complicated procedures and finally be approved by the school committee before it can be implemented. Australian public colleges and universities ensure the implementation of the budget by opening the whole process of budget management. In the stage of budget preparation, the draft budget is published to all teachers and students, and opinions for revision are widely collected. In the stage of budget implementation, all teachers and students are equally supervised.

#### **4.2 Domestic related research**

Zhang Zeming, Wang Liping and others (2004) explained the problems existing in the traditional mode of college budget management, and put forward the budget performance mode of applying performance target management and performance evaluation system to college budget preparation, which can better reflect the whole process of resource utilization in input, output and effect [9]. Xu Jiangbo et al. (2011) put forward a three-dimensional management model of college budget performance, which emphasizes the management of college budget from three dimensions: organization management dimension, performance evaluation dimension and budget cycle dimension. The three-dimensional management model is guided by the school development strategy and based on the performance evaluation system, which organically combines the three dimensions. It not only embodies the spirit of change and reform in the budget management of colleges and universities, but also conforms to the actual situation of Chinese colleges and universities [10]. Mu Dan, Dai Feng and others (2012) discussed the performance model of university budget with performance evaluation as the core, and established a performance evaluation framework. At the same time, they made an in-depth study on the operation model and incentive mechanism of university budget performance [11].

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### **5. Performance evaluation system of university budget performance**

#### **5.1 Foreign related research**

Relevant research and practice have shown that the budget performance of colleges and universities has played a great role in improving the efficiency of budget use. Performance evaluation can be applied in the whole process of budget, so it is necessary to deeply study what kind of performance evaluation system is more suitable for college evaluation. The earliest performance evaluation system of colleges and universities can be traced back to the American university rankings in 1910. At first, the main purpose of these rankings is the evaluation and supervision of universities by governments and the Ministry of Education of various countries. However, these rankings not only have great repercussions in the field of higher education, but also have great repercussions in society. Therefore, major universities began to strive for excellent students, excellent teaching resources and excellent scientific research resources, so as to improve their academic influence and social reputation by improving the ranking of universities.

In the United States, the list of universities published by US News and World Report since 1983 is the most famous. Since 1995, this ranking has used the latest Carnegie classification to rank colleges and universities, and comprehensively evaluated colleges and universities from the aspects of students' quality, teachers' level, financial resources, academic influence and alumni satisfaction. The Jarratt Report in 1985 in Britain evaluated universities from three aspects: internal performance, operational performance and external performance. Among them, internal performance reflects the characteristics of colleges and universities, operational performance reflects the utilization of resources in colleges and universities, and external performance reflects the adaptation of colleges and universities to the establishment of disciplines and social development. QS World University Rankings is one of the most concerned rankings at present, which mainly evaluates the internationalization level, teacher-student ratio, employment rate, academic contribution rate, academic citation rate and so on.

## 5.2 Domestic related research

The research on the budget performance of Chinese universities started late. There are a lot of successful experiences abroad that can be used for reference in the feasibility study and management method research of university budget performance. The research on the budget performance of Chinese universities focuses more on the performance evaluation system that adapts to the actual situation of Chinese universities. Yang Zhou Fu et al. (2002) established a set of financial performance evaluation system for Chinese universities, which directly laid the foundation for financial performance evaluation of Chinese universities and was the earliest achievement in financial performance evaluation of Chinese universities [12]. Guo Yinqing et al. (2006) focused on the budget performance management among departments within colleges and universities, and explained in detail the constraint and incentive effects of applying performance evaluation results to budget allocation for each department [13]. Lu Yuan et al. (2006) established a set of strategic performance evaluation model for Chinese universities. Based on the strategic management theory, this model stratified the strategic performance of universities from six aspects, including teaching, scientific research, self-financing, school assets, school property management and school reputation, and set key performance indicators for each level [14]. Li Wenli, You You et al. (2007) studied the application of least square method, stochastic frontier analysis method and data envelopment analysis method in performance evaluation of colleges and universities, and summarized the advantages and disadvantages of various quantitative methods and their corresponding application scope. Shen Hong et al. (2008) calculated the index weight by using the improved fuzzy analytic hierarchy process based on the balanced scorecard, and established a five-element performance evaluation system for university management evaluation. Hu Xiongying, Zhu Xianghui, Zhang Zongxiang (2009) and others put forward the use of AHP and BSC hierarchical structure to establish a performance evaluation system for university teachers. Wang Meiqiang et al. (2010) studied the evaluation of the operational efficiency of internal departments of colleges and universities, and established a set of evaluation system of operational efficiency of internal departments of colleges and universities by using DEA model, taking manpower and funds as input elements, taking class hours and scientific research achievements as output elements. Qiao Lianbao and others (2015) studied the teaching and research performance of Chinese universities, and limited the research scope to "985" universities directly under the Ministry of Education. Under the assumption of constant scale returns, a set of comprehensive efficiency joint evaluation system is established by using DEA model.

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## 6. Conclusion

Through the analysis of domestic and foreign scholars' research on budget performance management in colleges and universities, it is found that China's research on performance evaluation of higher education expenditure started later than western developed countries. In the process of evaluation index research, foreign scholars mostly set evaluation indexes from the principles of efficiency, effectiveness and benefit, which is a static idea of index setting. However, domestic scholars mostly consider the setting of evaluation indicators from the aspects of input, process, output and so on, and set the indicators in a dynamic way. In addition, domestic and foreign scholars mainly use the balanced scorecard method, data envelopment analysis method, analytic hierarchy process, etc. when studying the performance evaluation methods of higher education financial expenditure, but there are still some shortcomings in the completeness and scientificity of the research on the performance management index system of higher education, such as the evaluation index setting is not comprehensive enough, there is no classification, the characteristics of higher education public products can not be well reflected, the "3E" principle is followed, and the importance of fairness principle is ignored, which leads to the lack of certain reliability of the evaluation system and so on. Therefore, when studying the budget performance management of Chinese universities, we should not only learn advanced foreign evaluation methods, but also establish a scientific and reasonable evaluation index system based on the actual situation of China's higher education development.

## Compliance with ethical standards

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### *Disclosure of conflict of interest*

All authors declare that No conflict of interest in this work.

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