Research on the Executive Evaluation of County Government Budget Performance Management System based on FAHP

-- Taking H Province as an Example

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Abstract

This paper draws on the "four-dimensional model" of grass-roots government system execution, and based on the key factors affecting effectiveness of budget performance management system execution, the field investigation and questionnaire survey data. Firstly, the evaluation index system of system execution is constructed from four aspects: personnel, informatization, environment and management. Secondly, Delphi method and analytic hierarchy process are used to determine the index weight of each level, and combined with the comprehensive index method to build the evaluation model. Finally, the fuzzy comprehensive evaluation method is used to evaluate the executive ability of the comprehensive implementation of budget performance management system in H Province, find problems and put forward corresponding suggestions.

Keywords

County Government; Budgetb Performance Management; Executive Evaluation.

1. Introduction

The county government is the core of national grass-roots government governance and has been in the working state of "thousands of lines above and one needle below" for a long time. In the comprehensive implementation of the reform of budget performance management, there is a vertical imbalance. There are common problems of "hot at the top and cold at the bottom" and "strong at the top and weak at the bottom" in terms of organizational support ability, system design and practical operation. The financial resources directly used by the county government accounts for a relatively high proportion. However, the subjective initiative and actual execution of performance management are relatively weak. This pattern of performance management level and financial flow is opposite, which amplifies the possibility of capital performance loss of the county government. Therefore, how to break the constraints in the budget performance management reform of the county government, continuously deepen the progress, strength, depth and breadth of the reform, then help the high-quality development of county economy has important research value and significance.

Since the 1950s, European and American countries have tried to launch a variety of budget reform programs, and tried to influence budget decisions by collecting, analyzing and applying performance information (Schick A, 2014)[1]. Along with the practice of performance budgeting reform, the academic circles have also carried out tracking and exploration around the types and nature of performance budgeting, reform concepts, success or failure experience and influencing factors, as well as practical and feasible improvement strategies. In particular, most scholars focus on the causes that affect the success or failure of performance budgeting reform and practice, hoping to explore the "bright road" that performance budgeting can operate effectively in different political, economic, social, legal and organizational contexts(Bossidy L, 2011)[2]. For example, some scholars have summarized more than 20

specific factors, including political culture, organizational capacity, degree of legislation and implementation strategies, that can affect the application of performance budgeting and its ultimate success or failure (Lu, 2015) [3]. In fact, the current practice forms of performance budgeting in the reform of different countries are different, and the implementation effects are also very different. This shows that, on the one hand, performance budgeting itself is an open system, and its application and promotion degree will not only be affected by political environment, economic level, etc. The restriction of external macro factors is also closely related to the value recognition, organizational capacity, institutional framework, operating mechanism and selection strategy in the reform process (Ho, 2015) [4]; At the same time, the performance budget reform process is a kind of institutional innovation, the process has obvious institutional characteristics. Not only the organizational structure, operating rules and operation process will restrict its innovation level, but also organizational behavior, personal behavior, historical tradition and social culture will affect its development level (Ho, 2018) [5]. Rossi, Freeman, Lipsey (2002)[6]divided the performance evaluation of policy implementation into three modes: behavior, results, and comprehensive performance evaluation .

After studying the literature, it is found that there are currently few studies on the budget performance management of the county government, and most of them are based on the perspective of case analysis, which can not systematically and comprehensively reflect the implementation of the county government in the process of comprehensively implementing budget performance management. The questions and suggestions raised were similar. And there are common problems such as single evaluation index system framework and insufficient individuality index. In view of this, on the basis of the existing research results, this paper comprehensively considers the blocking factors in the process of implementing the budget performance management system of the county government, and constructs an execution evaluation model. Based on the author's on-site investigation and interview with the financial departments and budget departments of more than 20 counties such as Mengzhou City, fan county and Puyang demonstration area in H Province, as well as the questionnaire information of 150 budget departments. The author evaluates the executive ability of the county government in H Province to comprehensively implement the budget performance management system, fully and objectively reflect the problems existing in the implementation process, then "suit the remedy to the case" and put forward a practical optimization path. And it will promote the full implementation of the county government budget performance management and national governance.

2. Design of the Executive Evaluation Index System

2.1. Analysis of Influencing Factors

By referring to the "four-dimensional model" of grassroots government system implementation proposed by Mo Yongbo(2018)[7], and according to the literature review at home and abroad and a large number of field research results, the author believes that the comprehensive implementation of budget performance management: personnel is the key, information technology is the support, the implementation environment is the catalyst and the management system is the guarantee, each factor influences and promotes each other. Therefore, it is proposed to construct an evaluation index system of execution from the four aspects of personnel, informatization, environment and management.

2.1.1. Personnel Factors

The personnel factors refer to the comprehensive influencing factors of the executors of the budget performance management system. People are the main body of the system and cannot be ignored in any management problem. The government's executive power is ultimately formed and reflected by the executives. The number of full-time and part-time personnel

working on budget performance management, the executive's work experience, competency, educational structure, professional background, age level, business training, willingness to learn, attitude and so on, these will have an important impact on the implementation of the system. The reason why many tasks of the current grass roots government are difficult to implement and slow to advance is the problem of people(Yue Zhang,2019)[8].

2.1.2. Informatization Factors

The informatization factors refer to the factors in the construction of the informatization level of budget performance management. The budget performance management work itself should talk about "performance", and informatization is the key means to improve the budget performance management work. While building a budget performance management system of "all-round, whole process and full coverage", the work difficulty and intensity of financial departments, budget units and performance management departments at all levels are increasing day by day. By organically combining budget performance management with contemporary information development and providing software and hardware technical support, we can effectively improve the efficiency and quality of system implementation. Therefore, the informatization promotion degree of the financial department and the informatization support ability of the budget unit are the key factors affecting the executive power. Although governments and scholars at all levels have realized the importance of budget performance management informatization construction, due to the difficulty of platform function development, differences in local financial support at all levels, and acceptance of promotion and application, the popularity of budget performance management informatization platform is low, which seriously restricts the full implementation of budget performance management system.

2.1.3. Environmental Factors

The environmental factors refer to the external macro environment and the internal environment of the organization that affect the execution of the budget performance management system. The county government is the terminal of the "top-down" organization and implementation framework of the budget performance management system, and the beginning of the "bottom-up" feedback mechanism. The strength of the system's execution is inseparable from the influence of the internal and external environment. The external environmental factors mainly include the legal environment, the level of regional economic development, the efforts of superior departments to promote the implementation of budget performance management, the quality of third-party institutions, etc. The main influencing factors of internal environment are the awareness of departments to fully implement the budget performance management system, cultural atmosphere, the attention of leaders, the willingness of departments to cooperate, the degree of responsibility definition and the ability of self-examination and self-correction, etc.

2.1.4. Management Factors

The management factors refer to the management mechanism factors that affect the implementation of the system. A good management mechanism can play the role of a "baton", running through all the links before, during and after the implementation of the system. Whether to set up an independent performance management section room; Whether the management system, implementation rules,pre-assessment,performance tracking,information disclosure, incentive and restraint mechanisms are sound and well implemented; Whether the setting and review of performance objectives, the construction of performance index database, "double monitoring" operation, performance self-evaluation and result application are the key influencing factors.

2.2. Indicator System Design Principles

2.2.1. Principle of Combining Comprehensiveness with Emphasis

The budget performance management system execution evaluation system is a multi-level, multi-factor intertwined system. When designing indicators, we should strive to fully reflect the factors that affect the execution capability, and fully combine the results-oriented characteristics of budget performance evaluation. Executive capacity, resource allocation support, mechanism construction and implementation, etc. (Julnes, 2001)[10]. In fact, while the focus of the indicator system is prominent, it also means that the indicator system is more streamlined. The combination of comprehensiveness and focus can make the indicator system more sound and efficient.

2.2.2. Principle of Operability

The designed evaluation index should be practical and feasible. The required index data can be obtained from the existing data, and the obtained data can be verified. Therefore, when designing the evaluation index for the implementation ability of the county government's comprehensive implementation of the budget performance system, we must be realistic and fully consider whether the evaluation index is clear and easy to understand, whether the required data is easy to collect, and whether the calculation procedure is too cumbersome. In this way, the designed index system has strong operability, which can save a lot of time and economic cost, so that the practical significance of the index system can be brought into play.

2.2.3. Principle of Scientific

Whether the design of evaluation index system is scientific or not is the key to the smooth progress of performance evaluation. When designing the index system, we must consider the purpose and significance of the evaluation, follow the law and characteristics of the executive power of county-level governments (Kaplan, 1996)[10]. Each designed index must have a clear and scientific meaning, and pay attention not only to avoid overlapping but also to the internal relationship between the indexes, so as to establish a set of logical, comprehensive and scientific index system. Only by following the scientific principle of index design can we ensure that the evaluation results are correct and scientific.

2.3. Design of Evaluation Index System

The evaluation of the executive power of the county government system is actually the evaluation of the elements' influential degree on the executive power. By fully excavating the blocking factors that affect the effectiveness of execution, and taking into account the institutional characteristics of budget performance management, a preliminary evaluation index system framework is formed, and it is designed as a questionnaire for the execution evaluation index system, and relevant experts are invited to evaluate the design scheme of the index system. Finally, through discussion and research with the expert group, 4 primary indicators, 12 secondary indicators and 30 tertiary indicators were determined to comprehensively evaluate the execution of the county government budget performance management system, as shown in Table 1.

Table 1. Evaluation index system of executive ability of the county government budget performance management

Primary indicators	Secondary indicators	Tertiary indicators
Personnel factors (A)	Staffing (A1)	Number of personnel (A11)
		Work experience (A12)
		Competence (A13)
	Professional quality (A2)	Educational level (A21)

		Professional background (A22)
		Age level (A23)
	Business training (A3)	Business training (A31)
	working attitude (A4)	Willingness to learn (A41)
		Working attitude (A42)
Informatization factors (B)	Information platform construction (B1)	Informatization promotion degree of financial department (B11)
		Information support capacity of budget unit (B12)
Environmental factors (C)	External environment (C1)	Legal environment (C11)
		Administrative pressure (C12)
		Third-party organization quality (C13)
	Internal environment (C2)	Performance awareness (C21)
		Cultural atmosphere (C22)
		Leadership Emphasis (C23)
		Department collaboration (C24)
		Responsibility definition (C25)
Management factors (D)	Organization (D1)	Organization setting (D11)
	Management system and implementation (D2)	Soundness and implementation of management system (D21)
		Information disclosure system and implementation (D22)
		Incentive and restraint mechanism and implementation (D23)
	Prior management (D3)	Pre-assessment mechanism and implementation (D31)
		Performance target setting and review (D32)
		Complete construction of performance indicator database (D33)
	In-process management(D4)	The soundness of the performance tracking mechanism (D41)
		"Dual monitoring" implementation (D42)
	Post management (D5)	Self-assessment progress (D51)
		Application of evaluation results (D52)

3. Establishment of Index Weight and Model Construction

3.1. Establishment of Index Weight

The evaluation of the executive power of the county government budget performance management system is a complex evaluation system with multi-objective, multi-level and multi-criteria. In view of these characteristics of the evaluation system, this paper uses the analytic hierarchy process to determine the weight of the indicators (Shujun Jiang , 2020)[11]. Analytic Hierarchy Process (AHP) can divide complex problems into various hierarchical structures according to the interrelationships between different elements. By constructing a judgment matrix, the importance of each index is compared with each other by means of quantification, and it is carried out step by step to obtain the weight value of each index level.The research idea of AHP is relatively systematic and clear. It constructs the model of thinking and decision-making process through mathematics, simplifies complex problems, can analyze problems more hierarchically and methodically, and the evaluation results are more

scientific and objective. The simple analytic hierarchy process is still insufficient to determine the weight. Therefore, this paper also adopts the combination of Delphi method. We issue the evaluation form of the executive ability index of the county government's budget performance management system to relevant departments and units. Many experts score it according to their personal experience, and then collect the opinions of experts as the basis for determining the weight.

3.1.1. Establish Hierarchical Structure Model

According to the design of the evaluation index system above, different types of indicators are processed hierarchically, and the hierarchical structure model required to calculate the index weights is constructed, see Table 1. The hierarchical structure model is divided into three layers. The first layer is the target layer, which is designed according to the goals of system execution evaluation; the second layer is the criterion layer, which is designed according to the criteria to be adopted to achieve the performance evaluation goals; At the program level, the design is based on the specific programs that need to be adopted to implement the criteria.

3.1.2. Construction of Judgment Matrix

The construction of the judgment matrix is the basis for the smooth progress of the AHP. The upper-level elements are used as the evaluation criteria, and the matrix elements are confirmed by pairwise comparison of the current-level elements. If there are n factors in a level, respectively $L_1, L_2, ..., L_n$, when comparing the importance of L_i with L_j, it is represented by a_{ij}. For example, when comparing the importance of L_1 and L_2, it is represented by a_{12}, and the matrix A is reciprocal, its judgment matrix form is shown in Table 2.

Table 2. Judgment matrix

Z	L_1 L_2 ... L_n
L_1	L_{11} L_{12} ... L_{1n}
L_2	L_{21} L_{22} ... L_{2n}
...	... ...
L_n	L_{n1} L_{n2} ... L_{nn}

The ratio in the judgment matrix is obtained by quantifying the importance of the index and then comparing them. Therefore, in order to avoid the excessive subjectivity of the ratio, it is necessary to combine data, expert opinions and research experience on related topics, and determine it after repeated research. Usually, the relative importance of each pair of indicators is determined by the 1-9 ratio scale, that is 1, 2, 3, ..., 9 and their reciprocals are taken. The specific meanings are shown in Table 3.

Table 3. Judgment matrix

Scale	Meaning
9	Compared with the two elements, the row is more important than the column.
7	Compared with the two elements, the row is strongly important than the column.
5	Compared with the two elements, the row is important than the column.
3	Compared with two elements, the row is slightly more important than the column.
1	Compared with two elements, the row is as important as the column.
2,4,6,8	Intermediate number of adjacent comparisons.
Reciprocal	$a_{ji} = 1/a_{ij}$

According to the above methods and steps, this paper takes the primary indicators "personnel factors", "information factors", "environmental factors" and "management factors" as an example to calculate the right confirmation process.

a. Build the judgment matrix of primary index weight, see Table4.

Table 4. The judgment matrix of primary index weight

Z	A	B	C	D
A	1	2	1/2	1/3
B	1/2	1	1/4	1/5
C	2	4	1	1/2
D	3	5	2	1

b. Calculate the element product of each row of the judgment matrix.
$$P_1=0.3333; P_2=0.025; P_3=4; P_4=30;$$
c. Calculate the 4th power root of the element product respectively.
$$\overline{W_1}=\sqrt[4]{P_1}=0.7598, \overline{W_2}=\sqrt[4]{P_2}=0.3976, \overline{W_3}=\sqrt[4]{P_3}=1.4142, \overline{W_4}=\sqrt[4]{P_4}=2.3403;$$
d. Normalize the vector.Calculate the maximum eigenvalue of the judgment matrix.
$$W_1=0.1547, W_2=0.0809, W_3=0.2879, W_4=0.4765;$$
Therefore, the obtained eigenvector is $W= [0.1547,0.0809,0.2879,0.4765]^T$.

e. Calculate the maximum eigenvalue of the judgment matrix.
The characteristic root of the judgment matrix is

$$ZW=\begin{bmatrix} 1 & 2 & 1/2 & 1/3 \\ 1/2 & 1 & 1/4 & 1/5 \\ 2 & 4 & 1 & 1/2 \\ 3 & 5 & 2 & 1 \end{bmatrix} \times [0.1547,0.0809,0.2879,0.4765]^T$$

$$ZW_1=1\times0.1547+2\times0.0809+1/2\times0.2879+1/3\times0.4765=0.6193;$$
$$ZW_2=0.3255, ZW_3=1.1592, ZW_4=1.9209;$$
$$\lambda max=\sum_{i=1}^{n}\frac{ZW_i}{nW_i}=4.0211 \ \ (i=1,2,3,4)$$

3.1.3. Consistency of Judgment

Since the comparison matrix is obtained by the method of pairwise comparison, in order to avoid the occurrence of self-contradictory phenomena, it is necessary to carry out a consistency check on the judgment matrix. The specific steps are as follows:
a. Calculate consistency metrics.
b.
$$CI=\frac{\lambda max - n}{n-1}=\frac{4.0211-4}{4-1}=0.007$$
c. Calculate the random consistency ratio.
If the random consistency ratio CR<0.1 (RI refers to the average random one-time index), it indicates that the judgment matrix has satisfactory consistency, otherwise the judgment matrix should be modified. After CI was calculated, the value of RI was confirmed in Table 5.

Table 5. Average random consistency index test value

n	1	2	3	4	5	6	7	8	9
RI	0.00	0.00	0.58	0.90	1.12	1.24	1.32	1.41	1.46

It can be obtained from the table, the random consistency ratio CR=$\frac{CI}{RI}$ =0.0078<0.1. So we can obtain results that the matrix passes the consistency test, indicating that the index weights are set reasonably. Therefore, the weights of the primary indicators are A=0.1547, B=0.0809, C=0.2879 and D=0.4765.

In the same way, the weights of the secondary and tertiary indicators are determined by the same calculation method for the same-level indicators, and they all pass the consistency test. Due to the limited space, this article will not repeat them.

3.2. Construction of Evaluation Model

According to the design and weight determination of the execution performance evaluation indicators of the county government budget performance management system, combined with the characteristics of indicators at all levels, this paper calculates the comprehensive weights of the last-level indicators based on the principle of the comprehensive index method, thereby constructing a performance evaluation model (Shujun Jiang,2020)[12]. The primary indicators evaluation model is as the follow :

$$YJZB_i=\sum_{j=1}^{m} W_{ij}\left(\sum_{k=1}^{n} W_{ijk}V_{ijk}\right), \ i=1,2,3,4; \tag{1}$$

In the above formula, $YJZB_i$ represents the comprehensive evaluation value of each primary indicator. i=1, 2, 3, 4, which represent the four primary indicators of human, machine, environment and management respectively; W_{ij} represents the lower level of each primary indicator's weight ; m represents the number of second-level indicators under each primary index; n represents the number of third-level indicators under each second-level index; W_{ijk} represents the weight of the third-level index under the second-level index; V_{ijk} represents each third-level index rating value. Finally, according to the evaluation values of the four first-level indicators of human, machine, environment, and management, the comprehensive weight of each indicator is calculated to construct an evaluation model. The index comprehensive weight calculation model is:

$$ZHQZ=\sum_{i=1}^{4} W_i\times YJZB_i \tag{2}$$

3.3. Determination of Comprehensive Weight

Through the above mentioned index weight determination and evaluation model construction at each level, using the principle of the comprehensive index method, the final index weight and the final index evaluation score are obtained by comprehensively processing the index weights at all levels, as shown in Table 6.

Table 6. Weight table of evaluation indicators

Primary index weight		Secondary index weight		Tertiary index weight		Comprehensive weight
A	0.155	A_1	0.351	A_{11}	0.333	0.018
				A_{12}	0.333	0.018
				A_{13}	0.333	0.018
		A_2	0.351	A_{21}	0.333	0.018
				A_{22}	0.333	0.018
				A_{23}	0.333	0.018
		A_3	0.109	A_{31}	1	0.017

		A_4	0.189	A_{41}	0.333	0.010
				A_{42}	0.667	0.020
B	0.082	B_1	1	B_{11}	0.500	0.042
				B_{12}	0.500	0.042
C	0.287	C_1	0.333	C_{11}	0.500	0.048
				C_{12}	0.250	0.024
				C_{13}	0.250	0.024
		C_2	0.667	C_{21}	0.200	0.038
				C_{22}	0.200	0.038
				C_{23}	0.200	0.038
				C_{24}	0.200	0.038
				C_{25}	0.200	0.038
D	0.476	D_1	0.083	D_{11}	1	0.040
		D_2	0.361	D_{21}	0.500	0.086
				D_{22}	0.250	0.043
				D_{23}	0.250	0.043
		D_3	0.196	D_{31}	0.311	0.029
				D_{32}	0.493	0.046
				D_{33}	0.196	0.018
		D_4	0.180	D_{41}	0.500	0.043
				D_{42}	0.500	0.043
		D_5	0.180	D_{51}	0.500	0.043
				D_{52}	0.500	0.043

4. Application of Fuzzy Comprehensive Evaluation

On the basis of the evaluation indicators and weighted scores of the existing the county government budget performance management system, combined with on-site investigations and interviews with financial departments and budget departments of more than 20 counties and districts in H Province , obtained 150 questionnaires from the budget department, and established several scoring factors to determine the degree of compliance with the indicators. In the complete evaluation of this study, five evaluation levels are defined for each index: V= [V1, V2, V3, V4, V5] = [very good, good, common, poor, very poor], and make V= [5, 4, 3, 2, 1].

4.1. Comprehensive Evaluation and Calculation of Secondary Indicators

4.1.1. Comprehensive Evaluation and Calculation of "Staffing" in Secondary Indicators

a. Fuzzy relationship matrix R1: 150 valid evaluation questionnaires were collected, and the evaluation of "staffing" in "personnel factors", see Table 7. The fuzzy relation matrix R11 is obtained after normalization.

$$R_{11} = \begin{bmatrix} 49/150 & 16/150 & 46/150 & 24/150 & 15/150 \\ 10/150 & 35/150 & 56/150 & 35/150 & 14/150 \\ 21/150 & 42/150 & 45/150 & 29/150 & 13/150 \end{bmatrix} = \begin{bmatrix} 0.33 & 0.11 & 0.31 & 0.16 & 0.10 \\ 0.07 & 0.23 & 0.37 & 0.23 & 0.09 \\ 0.14 & 0.28 & 0.30 & 0.19 & 0.09 \end{bmatrix}$$

b. Comprehensive evaluation and calculation of "staffing" indicators:

$$M_{11}=\omega^{11}*R_{11}= (0.333\ 0.333\ 0.333) * \begin{bmatrix} 0.33 & 0.11 & 0.31 & 0.16 & 0.10 \\ 0.07 & 0.23 & 0.37 & 0.23 & 0.09 \\ 0.14 & 0.28 & 0.30 & 0.19 & 0.09 \end{bmatrix}$$

$$=\begin{bmatrix} 0.178 & 0.206 & 0.326 & 0.195 & 0.095 \end{bmatrix}$$

Table 7. Comprehensive score table of secondary indicators of "staffing"

Indicator category (Secondary indicators)	Detailed evaluation factors for indicators	Weights	Score				
			Very good	Good	Common	Poor	Very poor
Staffing (0.351)	Number of personnel (A11)	0.333	49	16	46	24	15
	Work experience(A12)	0.333	10	35	56	35	14
	Competence(A13)	0.333	21	42	45	29	13

M_{11} comprehensive evaluation description: The evaluation of the "staffing" index in the "personnel factor" is, 17.8% of people think it is very good; 20.6% of people think it is good; 32.6% of people think it is fair; 19.5% of people think it is relatively good Poor; 9.5% thought it was very poor.

4.1.2. Comprehensive Evaluation of Other Indicators at the Secondary Level

Comprehensive evaluation of "professional quality" indicator in "personnel factors":
$$M_{12}=\omega^{12}*R_{12}=\begin{bmatrix} 0.305 & 0.362 & 0.209 & 0.120 & 0.004 \end{bmatrix}$$

Comprehensive evaluation of "business training" indicator in "personnel factor":
$$M_{13}=\omega^{13}*R_{13}=\begin{bmatrix} 0.053 & 0.053 & 0.233 & 0.513 & 0.147 \end{bmatrix}$$

Comprehensive evaluation of "working attitude" indicator in "people factors":
$$M_{14}=\omega^{14}*R_{14}=\begin{bmatrix} 0.076 & 0.378 & 0.224 & 0.271 & 0.051 \end{bmatrix}$$

Comprehensive evaluation of "information platform construction" indicator in "informatization factors":
$$M_{21}=\omega^{21}*R_{21}=\begin{bmatrix} 0.127 & 0.180 & 0.193 & 0.383 & 0.117 \end{bmatrix}$$

Comprehensive evaluation of "external environment " indicator in "environmental factors":
$$M_{31}=\omega^{31}*R_{31}=\begin{bmatrix} 0.090 & 0.300 & 0.420 & 0.110 & 0.080 \end{bmatrix}$$

Comprehensive evaluation of "internal environment " indicator in "environmental factors":
$$M_{32}=\omega^{32}*R_{32}=\begin{bmatrix} 0.132 & 0.309 & 0.377 & 0.107 & 0.075 \end{bmatrix}$$

Comprehensive evaluation of "organization" indicator in "management factors":
$$M_{41}=\omega^{41}*R_{41}=\begin{bmatrix} 0.573 & 0 & 0 & 0 & 0.427 \end{bmatrix}$$

Comprehensive evaluation of "management system and implementation" indicator in "management factors":
$$M_{42}=\omega^{42}*R_{42}=\begin{bmatrix} 0.155 & 0.360 & 0.223 & 0.143 & 0.118 \end{bmatrix}$$

Comprehensive evaluation of "prior management" indicator in "management factors":
$$M_{43}=\omega^{43}*R_{43}=\begin{bmatrix} 0.138 & 0.232 & 0.311 & 0.232 & 0.088 \end{bmatrix}$$

Comprehensive evaluation of "in-process management" indicator in "management factors":

$$M_{44}=\omega^{44}*R_{44}=\begin{bmatrix}0.157 & 0.280 & 0.207 & 0.253 & 0.103\end{bmatrix}$$

Comprehensive evaluation of "post management" indicator in "management factors":

$$M_{45}=\omega^{45}*R_{45}=\begin{bmatrix}0.147 & 0.313 & 0.163 & 0.263 & 0.113\end{bmatrix}$$

4.2. Comprehensive Evaluation and Calculation of Primary Indicators

Comprehensive evaluation of "personnel factors":

$$M_{1}=\omega^{1}*M_{1i}=\begin{bmatrix}0.189 & 0.277 & 0.256 & 0.218 & 0.060\end{bmatrix} ;i=1,2,3,4.$$

Comprehensive evaluation of "informatization factors":

$$M_{2}=\omega^{2}*M_{21}=\begin{bmatrix}0.127 & 0.180 & 0.193 & 0.383 & 0.117\end{bmatrix}$$

Comprehensive evaluation of "environmental factors":

$$M_{3}=\omega^{3}*M_{3i}=\begin{bmatrix}0.118 & 0.306 & 0.391 & 0.108 & 0.077\end{bmatrix} ; i=1,2.$$

Comprehensive evaluation of "management factors":

$$M_{4}=\omega^{4}*M_{4i}=\begin{bmatrix}0.185 & 0.282 & 0.208 & 0.190 & 0.134\end{bmatrix} ; i=1,2,3,4,5.$$

4.3. Comprehensive Indicators Evaluation of Execution

$$M'=\omega*M_i , i=1,2,3,4.$$

$$=\begin{bmatrix}0.155 & 0.082 & 0.287 & 0.476\end{bmatrix} * \begin{bmatrix}0.189 & 0.277 & 0.256 & 0.218 & 0.060 \\ 0.127 & 0.180 & 0.193 & 0.383 & 0.117 \\ 0.118 & 0.306 & 0.391 & 0.108 & 0.077 \\ 0.185 & 0.282 & 0.208 & 0.190 & 0.134\end{bmatrix}$$

$$=\begin{bmatrix}0.162 & 0.280 & 0.267 & 0.187 & 0.105\end{bmatrix}$$

4.4. Evaluation Results of System Execution

Table 8. Evaluation results of system execution

Rating scale	VM1	VM2	VM3	VM4	VM'
Score	3.317	2.817	3.280	3.191	3.210
Comment	Between common and good	Between poor and common	Between common and good	Between common and good	Between common and good

By using the fuzzy comprehensive evaluation method, the evaluation results of budget performance management of county governments in H Province are obtained. As can be seen from Table 8, the comprehensive evaluation score is 3.210, and the evaluation level is between common and good, indicating that there is still a lot of room for improvement in the system execution of budget performance management by county governments in H Province. The primary indicators are sorted as follows: personnel factors > environmental factors > management factors > information factors, and the score of "information factors" is only 2.817, which is between the poor and common level.

5. Conclusion and Suggestions

5.1. Conclusion

Through the calculation of FAHP model, focusing on the index weight, questionnaire survey and performance evaluation score, it can be concluded that the executive power of budget

performance management system in H Province is at the common level. The main reasons are as follows:

a. The budget performance management organization of the county government is not independent enough, there are few full-time and part-time personnel engaged in relevant work, and the professional quality can not meet the needs of performance management.

b. The budget department does not fully understand the requirements in the process of performance management reform, and has poor initiative in learning relevant methods and systems of budget performance management.

c. The construction and application of budget performance management information platform is low, which reduces the efficiency of performance management to a certain extent.

d. At present, the legal environment of budget performance management is relatively inadequate, and the cultural atmosphere of budget performance management within the unit is not strong enough.

e. During the implementation of budget performance management, there are some bad phenomena, such as fuzzy boundary of main functions, mutual prevarication between departments and so on.

f. The soundness of the management system is relatively insufficient, and the supporting methods and operation processes can not support the comprehensive development of budget performance management, and the effect of system implementation is not ideal.

5.2. Suggestions

5.2.1. Clarify the Main Responsibilities and the Functional Boundaries of Budget Performance Management

County level finance needs to further clarify and define the functions and responsibilities of the financial department, budget department and project unit in the process of budget performance management. Specific suggestions: firstly, the responsibility orientation of the financial department. As the leader of the reform of budget performance management, the county-level financial department needs to adjust the institutional setting, and responsible for promoting the budget department at the same level and guiding the financial department at the lower level to carry out budget performance management; Secondly, the responsibility orientation of the budget department. As the main body responsible for budget preparation and implementation, all departments and units shall optimize the budget management process, clarify the division of responsibilities for setting, monitoring, evaluation and review of internal performance objectives. Formulate detailed rules for performance management and evaluation, and build a departmental budget performance management system in accordance with the requirements of the integration of budget and performance management; Thirdly, the responsibility orientation of the project unit. As the executor and operator of capital expenditure, it is the main body directly responsible for the performance of capital use. It needs to be responsible for the performance results of each capital expenditure, which is also the end link of the budget performance management process.

5.2.2. Build a Cooperation Pattern and Improve the Professional Ability of Participants

First of all, the performance management departments of county-level financial departments need to be set up independently and equipped with professionals. Through professional training, study and investigation, business exchange and other measures, we should constantly improve the theoretical literacy and business skills of performance managers and enhance the ability to control performance management. Secondly, the budget department can set up a special department or clearly assign the responsibility of budget performance management to relevant functional departments. At the same time, a liaison system should be established and a special person should be appointed to be responsible to ensure that all work of performance

management is implemented in place. Finally, the financial department should pay attention to support and guidance on the one hand and standardized management on the other hand. Cultivate more qualified third-party institutions to serve the local market through local support and external introduction.

5.2.3. Consolidate the Performance Foundation and Improve the Quality of Budget Performance Management

Firstly, improve the construction of performance indicators and standard system. It is suggested that the county-level financial department should actively guide the budget department to speed up the establishment of project or department personality index system by industry, field and level, form standardized and complete level-1, level-2 and level-3 indicators (Wang Hui, 2020). The second is to establish a combination mechanism between the preparation of performance objectives and project construction. The county-level financial department shall earnestly fulfill the requirements for the construction of the annual project library, implement the performance objective management for all projects under warehousing management, strengthen the review of performance objectives, and realize the "four synchronization" between the performance objectives and the department budget, that is, synchronous declaration, synchronous review, synchronous adjustment and synchronous release. The third is to establish a supporting performance management auxiliary database. Organically combine the social and economic development database, expert database, third-party organization database and performance analysis case database with performance management information to realize the sharing and interconnection of business, finance, assets and other information of governments at all levels and budget departments.

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