

# ***Risk-based Performance Audit Model and Application of PPP Pension Project Operation Period***

**Chao Wang, Jingrui Zhang, Jiawa Meng\***

*Jilin International Studies University, Changchun, China*

*\*Corresponding author*

**Keywords:** Risk-based; PPP pension project; operation period; performance audit

**Abstract:** Government and social capital cooperation (PPP), as a way of supplying senior care services, is an operable model that meets the needs of each interest body. PPP pension projects have been slow to progress, with risk and uncertainty being the main obstacle factors. In order to cope with the risks of PPP pension projects, this paper takes the core operation period of PPP pension projects as the research object from the perspective of government performance audit, constructs a risk-oriented performance audit model for the operation period of PPP pension projects, the seminar will discuss the future direction of the practical application of the PPP model for the elderly services industry in China, as well as the countermeasures and suggestions for improving the performance audit mode during the operation period of PPP elderly projects. In addition, this article conducts the nursing home project in City A as an example to provide a theoretical basis for the government to better supervise, promote the smooth implementation of PPP pension project in China. This will help the PPP model and the cause of elderly care services to better integrate, improve the quality, efficiency and diversified development of social elderly care services from a holistic perspective, and better interpret the pace of the new era of socialism with Chinese characteristics.

## **1. Introduction**

As of 2022, 116 senior citizen projects with a total investment of 68.97581 billion yuan are publicly displayed in the project database of the Ministry of Finance Government and Social Capital Cooperation Center. The introduction of PPP senior care projects can not only reduce the pressure on the government budget and save financial expenditure for the government, but also reduce the government's political pressure and change from being the leading and provider of senior care services to being the coordinator and supervisor, thus ensuring the simultaneous improvement of the quantity and service quality of senior care projects. In 2019, the Ministry of Finance issued the Government Accounting Standard No.10-Government and Social Capital Cooperation Project Contract and other related documents, which promoted the rational allocation of audit resources and alleviated the audit problems faced by government auditors. However, there are still problems such as imperfect audit mechanism and low level of audit quality in the process of government and social audit bodies participating in the audit of PPP projects. At present, most scholars at home and abroad agree that the performance of the operation period is the key focus of PPP project auditing [1-3]. In

terms of audit methodology, some professors [2,4] advocate the comparison of PPP performance with the public project audit standards followed in traditional public audits as a performance audit component to monitor the performance of government duties; Regarding the audit mode of PPP projects, scholars mostly emphasize the adoption of the audit mode of tracking the whole process [5-7]; In terms of PPP project audit perspective, a risk-oriented performance audit focusing on government operational risk and social public risk assessment can be conducted [8,9]. Most of studies [10,11] that have been conducted on performance auditing indicators focus on using hard indicators to measure program strengths and weaknesses, while performance audits of senior living programs, which are focused on providing soft services, have not been explored enough. PPP projects have a long operation cycle and project risks are inevitable in operation. Conflicts of interests between the government and social capital inevitably exist, and various problems such as effective use of project funds may arise in the process of use. Therefore, it is necessary to explore and construct a risk-oriented performance audit model for PPP projects, improve the supervision system of PPP pension projects, and find a balance point under the conflict of interests of all parties, so as to restrain the behavior of relevant subjects of PPP pension projects on the one hand, and protect the interests of project subjects on the other. Thus, based on the perspective of government performance audit and with reference to the risk-oriented audit model, this paper analyzes the risks during the operation period of PPP pension projects and constructs a conceptual framework for performance audit of PPP pension projects based on the perspective of government performance audit, with reference to the risk-oriented audit model, in order to promote the implementation of performance audit of PPP pension projects and regulate the construction of PPP pension projects.

## **2. Risk analysis of the operation period of PPP pension project**

The PPP operation period, which includes operation and maintenance, performance testing, generally ranges from 10 to 30 years, accounting for 85%-90% of the overall project's full life cycle time. The risks during the operation period of PPP pension projects mainly come from project operation risk (including operational risk and revenue risk); default risk (including contract risk, price risk and concession period risk).

### **2.1. Business Risk**

The operation risk of PPP senior living projects during the operation period is whether the private institutions do not fulfill the operation, maintenance and development contracts or do not fulfill all the contracts. Specifically, these include, first, the risk of operating cost overruns. Caused by poor project cost budgeting and cost control during the operation period. Second, the risk of lack of supporting service facilities. The lack of supporting measures due to financial constraints and other reasons directly leads to low occupancy rate of elderly institutions. Third, the risk of lack of professional staff. The senior care industry requires high professional skills for its employees, but their salaries are generally low, resulting in high professional mobility and large gaps. Fourth, the risk of accidental injury. Since the service targets of senior care institutions are old and frail people, various unexpected events are likely to cause harm to them, so accident prevention becomes the key point for senior care institutions to control.

### **2.2. Earnings Risk**

The risk of income during the operation period of PPP pension projects is reflected in whether the private institutions have unreasonable charges to infringe on the rights and interests of users when the income of PPP projects decreases during the operation period. One, during the operation

period of PPP senior living projects, senior living service costs and housing costs will be incurred, which are generally paid by users, thus, the risk of low market demand due to low social acceptance may occur. Secondly, the pension project itself is a public service project with high investment and small income, which makes it difficult to meet the profitability requirements of the private sector. During the operation phase, if there is a discrepancy between the actual market demand and expenditure, it is not only difficult to maintain the operation, but also means that the investment return period of the PPP pension project is extended.

### **2.3. Risk of default**

Since the laws and regulations related to PPP pension projects are not sound, once a breach of contract occurs, it will lead to unclear division of responsibility and other risks. Due to the long operation cycle of PPP pension projects, the contracts often have a long time span and are non-integrity contracts, implying a higher risk of project default. The default risk of PPP pension projects has a huge impact on the construction, operation and management of the projects.

### **2.4. Government Debt Risk**

During the operation period of a PPP senior living project, if the public demand for the senior living project does not reach the expected minimum demand level or the social capitalist does not reach its expected investment return level, the government may be required to subsidize the feasibility gap between the two in the form of government payment, which will inevitably increase the burden of the government and form an uncertain government contingent liability.

### **2.5. Franchise Period Risk**

There are many factors involved in the concession period of PPP projects, the approval process is complicated, the negotiation is more arbitrary, and the collusion between social capital and performance evaluation agencies is likely to occur during the operation phase of the project, resulting in the lack of necessary supervision of the project, and the social capital party is obsessed with maximizing the return on investment and ignoring the social benefits of the project. If this happens, the PPP project will not be able to provide services that meet the expectations of the project and the needs of the public in the implementation process, and will deviate from the goal of providing high-quality public services or products to the public in a more economical and efficient way.

## **3. A conceptual framework design of risk-based performance audit of PPP pension projects during operation period**

### **3.1. Audit Subject**

This paper considers that the audit subject under the risk-oriented model of PPP pension projects is the personnel of relevant government departments. Considering the complexity of risk assessment and the limitations of government auditing agencies in terms of the number of personnel, professional knowledge reserve and other comprehensive conditions, while external audit has the characteristics of flexibility and convenience of service, it is necessary to fully pool the strengths of government auditing and external auditing agencies when conducting the audit of PPP pension projects, to bring into play the advantages of professionalism and independence, improve audit efficiency, save costs and promote the maximization of audit results.

## **3.2. Audit Object**

PPP elderly service projects involve many project subjects, and according to the requirement of full audit coverage, the audit objects should cover the relevant stakeholders involved in the operation period of the project, including the construction units and service personnel of the operation subjects in the execution stage. For the differentiated interest claims of different audit subjects, targeted work is carried out. Only by clarifying the various objects involved in PPP pension projects can we find the risk of material misstatement, better monitor and evaluate the compliance and effectiveness of the overall project implementation process.

## **3.3. Audit Content**

Currently, auditors can establish risk-based performance auditing standards based on laws and regulations such as the Audit Law of the People's Republic of China, the PPP Value-for-Money Evaluation Guidelines (for Trial Implementation), and the Operational Guidelines for Government and Social Capital Cooperation Model, drawing on the provisions of Chinese CPA Auditing Standard No. 1211 - Understanding the Audited Entity and Its Environment and Assessing the Risk of Material Misstatement. On this basis, a risk-based audit evaluation mechanism is established. Due to the characteristics of PPP senior care service projects such as long operation period and many participating parties, their operation risks are on the high side, which may easily lead to risks at the financial statement level. In the specific audit process, auditors need to conduct targeted qualitative and quantitative evaluations of many processes involved in project implementation, focusing on the causes that trigger operational risks, such as risks of strategic failures, weak internal controls, and inefficient operating activities. According to the evaluation mechanism of PPP elderly service projects, auditors can conduct quantitative assessment and index calculation of corresponding data in the project implementation process to provide objective and accurate assessment results.

## **3.4. Audit Objectives**

Under the risk-oriented audit model, the general objective of the performance audit during the operation period of PPP pension projects is to evaluate the compliance, economy, efficiency and effectiveness of PPP project income and expenditure, pricing mechanism, management of public resources and assumption of social responsibility with the concept of risk control as a guide and the principle of balancing economic and social benefits, in order to help the audited entity take necessary measures to strengthen management and ultimately improve the efficiency of the use of public financial funds. Auditors should follow the evaluation of the public and economic benefits of PPP pension projects during the operation phase, and at the same time, identify the main problems and risks affecting the completion of the projects, and propose targeted correction methods for them, so as to promote the project subjects to strengthen the construction and management of the internal control system and maximize the public service benefits of the projects.

## **3.5. Performance audit indicators and descriptions for the operation period of PPP pension projects**

### **3.5.1. Legal compliance indicators**

The legality index mainly examines the soundness of the management system of PPP senior care institutions, including whether the senior care business management system is sound; there is no

assessment of the project implementation effect. The compliance index mainly refers to the perfection of the financial management system of PPP pension institutions, including whether the financial operation system is perfect; the implementation of the financial management system assessment.

### **3.5.2. Economic indicators**

Including three secondary indicators, respectively, cost savings rate, economic efficiency indicators and value for money (VFM) sustainability. The cost saving rate is based on the cost control of the project; the economic benefit is based on the socio-economic impact of the project implementation; and the value for money (VFM) sustainability is based on the pre-project VFM estimation and the re-evaluation of VFM during the actual operation period.

### **3.5.3. Efficiency indicators**

Including three secondary indicators: capital utilization rate, project operation implementation completion rate and operation completion timely rate. Specifically, the utilization of project funds; the degree of achievement of project operational objectives and the degree of achievement of project operational output timeliness objectives, respectively.

### **3.5.4. Effectiveness indicators**

It includes social benefits, ecological benefits and public satisfaction. Three aspects are examined respectively, namely, the effect of project operation on the role of social retirement, the effect of project operation on the retirement environment, and the people's recognition of project implementation.

## **4. Application of risk-oriented PPP pension project operation period performance audit model**

### **4.1. City A Nursing Home Project Introduction**

City A nursing home project adopts BOO mode, with a construction site of 30 mu, a planned construction area of 11,591.61 square meters, and 580 nursing beds, the main construction content includes housing construction and related supporting indoor and outdoor activities, roads, greening and other infrastructure. The project was initiated by Municipality A. In recent years, the government has invested more than 6 million RMB in financial resources and absorbed more than 15 million RMB in social capital. The total planned assets of the project are \$36.75 million, and the shortfall is financed through bank loans and project revenue debt rolls. The project operation period is about 15 years.

### **4.2. Performance Audit Program for City A Nursing Home Project under Risk-Based Model**

#### **4.2.1. Audit program preparation**

To ensure the smooth implementation of the PPP nursing home project in City A, reasonable and effective program preparation is required. There are four main tasks that government auditors need to implement: First, to identify audit risk points in the operation phase, make audit risk control and management plans, and prepare risk control plans. Second, in the initial stage of project operation, auditors focus on creating a survey form for the elderly and the public who will stay in the nursing home after it is put into operation, collecting user satisfaction and the degree of public service

benefit realization, focusing on whether the objectives of government departments and private enterprises are consistent, incorporating moral hazard into the area of material misstatement risk, and providing timely feedback to the project operator and the government side based on the survey results, so as to make reasonable improvements for the subsequent project. We will provide timely feedback to the project operator and the government based on the findings, and make reasonable improvements for the subsequent project operation and development. Third, during the actual operation stage of the pension project, we follow up on financial information such as balance sheets and income and expenditure details, identify external factors that cause material misstatement of financial statements, the audited entity's own factors as well as fraud and violations of law by management, and identify these as material misstatement risks. Fourth, we focus on reviewing accounting information during the project operation phase to ensure compliance and rational use of funds. Wherever there is a risk of uneconomical, inefficient, or ineffective performance, it should be identified as an area of material misstatement risk, identified as a substantive audit focus, and this risk assessment process should be carried out throughout the audit process to target areas of material misstatement risk at all times, modify substantive audit work, and control audit risk by controlling inspection risk.

#### **4.2.2. Audit method selection**

First, comparative analysis method. The performance evaluation of PPP senior care project should be based on both vertical and horizontal aspects for comparative analysis. On the vertical side, it should be compared based on the cost and income of the elderly institutions in the past three years to examine whether it has considered the principle of cost-benefit priority and has good sustainable development prospects; on the other hand, it should be compared with other elderly institutions of the same type to discover problems and find the existing risk points. Second, field survey method. PPP senior care projects belong to engineering construction projects, the audit team should go to the project site for investigation and research, observe the construction situation, relevant personnel and functional agencies to fulfill their obligations, etc., understand the financial handling of the audited unit, and judge the degree of compliance of its internal control and whether there are significant errors. Third, use relevant expert work. The audit team can seek the help of construction engineers, designers, and other personnel to audit the construction materials, supervision conditions, and quality of completion in a more professional perspective.

#### **4.2.3. The development of audit risk assessment procedures**

First of all, the risk assessment of the audit environment is conducted. The aging population in city A is prominent, the existing nursing institutions cannot meet the current demand for nursing care, the public generally has the concept of aging at home, and the market risk of the nursing home project is high. The uncertainty in pricing regulation mechanism and the special characteristics of PPP pension projects compared with ordinary construction projects make the operation period of PPP pension projects in City A risky. In addition, further environmental risk assessment was conducted by reviewing relevant policy and system documents of City A and using questionnaires. Next, audit risk assessment at the audit planning stage was conducted to judge the audit risk by analyzing the feasibility of various risk prevention measures during the operation period of the project. Again, the audit risk assessment at the testing stage is to conduct substantive testing at the book level and statement level for the project of City A Nursing Home, and to conduct further risk assessment on the results of the testing procedures, as well as to determine whether to improve audit efficiency and reduce audit risk based on the results of internal audit through the evaluation of the content of internal audit work, audit specifications and the credibility of audit results. Finally, the

audit risk assessment in the closing phase is mainly based on evaluating whether the overall audit results are controlled at an acceptable level based on the differences between the results of the performance indicators and the audit objectives during the operation period of the project.

#### **4.2.4. Performance audit report**

The PPP performance audit report needs to fully describe the field investigation and analytical judgments, including interviews, examination of documents, and systematic inspections. This case documents the identification of any uneconomic and inefficient practices found by the audit, while indicating the guidelines on which the judgment was based. We evaluate the risk of the audited matter, identify differences from the guidelines or best practices, analyze the causes, point out the consequences, and measure them to the extent possible. Then we discuss with the manager of City A Nursing Home to seek remedies. Finally, the study recommendation for improvement are made, suggesting a number of possible corrective actions for control weaknesses and the positive impact they can be expected to have. The auditor does not need to develop a detailed implementation plan, but the recommendations should be comprehensive and sufficient to provide the auditor with a basis for improvement.

### **5. Conclusion and Suggestions**

#### **5.1. Dynamic adjustment of project contract performance audit indicators**

Auditors should pay attention to the dynamic balance and symmetrical distribution of costs or risks and benefits based on the relevant terms and conditions agreed in the PPP pension project cooperation agreement, combine project risks, project costs, project operation quality, the degree of diligence and due diligence of social capital parties, and relevant incentives and constraints with each other, systematically assess the performance of PPP pension project operations, dynamically adjust performance audit indicators, and improve the effectiveness of audit reports.

#### **5.2. Focus on the performance capability of both sides of the project**

The audit in the operation phase, on the one hand, focuses on whether the project operator has good performance management ability and the implementation of the project company in construction and operation and other specific work; on the other hand, it also needs to focus on the government's awareness and ability to supervise the project company's performance, as well as the government's own service awareness and contract performance ability, especially the government's ability to pay. Through innovative auditing techniques and expanding the auditing reach, we can promote the project company to complete the construction and operation of the PPP pension project with quality and quantity.

#### **5.3. Building a "four-in-one" performance audit content system**

Under the PPP agreement, auditors should carry out performance audit and feedback evaluation with the interests of all stakeholders of the pension project in mind, focusing on the effectiveness of the pension project construction, mainly on the implementation and execution of national investment policies, reasonably dividing the rights and responsibilities of all parties in the PPP project, especially focusing on the efficiency and effectiveness of the use of social funds, and forming a "four-in-one" performance audit system of economic audit, effectiveness audit, efficiency audit and environmental audit.

#### 5.4. Improve relevant laws and regulations to enhance audit independence

The government should give legal authority to PPP projects from the system, establish government performance auditing guidelines applicable to PPP projects, maintain the authority of government auditing from the legislation, and regulate the implementation of government performance auditing procedures, clearly attributing responsibilities to ensure the independence of government audits and other audits, and provide a strong basis for conducting audits.

#### References

- [1] Shi X. (2016). *Research on the audit of national construction projects under the public-private partnership (PPP) model*, *Audit and economic research*, (3): 3-9.
- [2] Ji F. X. (2018). *Exploring performance auditing of PPP projects under incomplete contract framework*. *Audit research*, (02): 40-45.
- [3] Zhu Y. J. (2019). *Performance evaluation of PPP projects based on EVA perspective*. *Financial Management*, (12): 39-40.
- [4] Han X. P, Chen M. (2018). *Problems and countermeasures faced by the operation of PPP projects in China's pension industry*. *Economic Vertical*, (04): 81-86.
- [5] Cao H. M. (2009). *Construction project tracking audit research on some issues*. *Audit research*, (5): 45-50.
- [6] Wang L. G, Zhang Y. (2016). *Exploration on tracking audit of PPP projects*. *Audit research*, (6): 30-35.
- [7] Chai N. Y. (2018). *Research on the tracking audit of PPP projects from the perspective of government regulation*. *Audit research*, (06): 41-47.
- [8] Han M. G. (2016). *Research on government as in PPP projects from the perspective of risk aversion*. *Construction Economics*, (9): 16-20.
- [9] Kong F. Q. (2020). *Application of risk-oriented audit in construction project tracking audit*, *Journal of economic research*, (18): 134-135.
- [10] Sun Y. D, Zheng Y. (2018). *Research on PPP model of pension projects in the context of aging*. *Research on socialism with Chinese characteristics*, (01): 70-75.
- [11] Lu T. H. (2022). *Research on government-social capital cooperation (PPP) and its auditing: review and outlook*. *Audit Research*, (04): 41-51.