

Discussion on the Salary System for Leaders of Railway Non-Transport Enterprises

Haohui Zhu^{1,*}, Cheng Chi², Ting Ye¹

¹*Labor and Health Department, China Railway Shanghai Bureau Group Co., Ltd., Shanghai, China*

²*Transport & Economics Research Institute, China Academy of Railway Sciences Co., Ltd., Beijing, China*

**Corresponding Author*

Abstract: The performance evaluation of enterprise leaders has always been an important task in deepening the income distribution system, an important content of state-owned enterprise reform, and an important means of stimulating the vitality of state-owned enterprises. This paper summarizes requirements and the practical application in railway bureau group companies, analyzing the current situation of salary composition, assessment methods, salary levels, and salary payments for heads of non-transport railway enterprises. It identifies existing problems and, based on the current performance evaluation system and practical experiences of the Shanghai Bureau Group's non-transport enterprise leaders, proposes optimization suggestions for performance evaluation from the perspectives of salary structure, salary level, assessment methods, and distribution relations. These suggestions aim to support the advancement of salary reform in the non-transport sector of the railway industry.

Keywords: Railway; Non Transportation Enterprises; Responsible Person; Performance Appraisal

1. Introduction

Deepening the reform of the compensation system for leaders of state-owned enterprises (SOEs) and establishing a compensation system aligned with the characteristics of SOE leaders are of significant importance. This reform aims to improve the incentive and constraint mechanisms for compensation distribution in SOEs, foster a reasonable distribution relationship between enterprise leaders and employees, appropriately regulate compensation disparities among different enterprise leaders, enhance the vitality of

enterprise development, and form a rational and orderly income distribution structure. In recent years, China has gradually established a performance-oriented income distribution system for enterprise leaders, integrated with economic development. Railway enterprises have also actively and beneficially explored performance evaluations for their leaders based on practical conditions.

2. Literature Review

Regarding the compensation system for enterprise leaders, current scholars have conducted research and practical discussions on performance indicator evaluation, compensation-performance linkage, and other aspects. Based on the theory of strategic-oriented differentiated performance evaluation, Wang optimized the performance evaluation system for subsidiary company leaders, establishing a strategic-oriented differentiated performance evaluation system that effectively alleviated the principal-agent dilemma between parent and subsidiary companies [1]. Yang addressing the practices and current state of performance evaluation for general management personnel in state-owned enterprises, proposed improvement suggestions such as reducing subjective performance indicators and conducting multi-dimensional performance evaluations [2]. Jiang based on a competency model, constructed a performance evaluation system for middle and senior managers in enterprises and detailed the architecture of a competency model-based performance evaluation system [3]. Liu et al., using A-share state-owned listed companies that existed from 2005 to 2010 as typical cases, studied the impact of factors like government regulation and management power on executive compensation. They found that government regulation tends to create rigidity in executive

compensation, which can subsequently lead to the failure of compensation to effectively reward diligence and penalize negligence among operators [4]. Executive compensation incentives serve as a crucial corporate governance mechanism to resolve the principal-agent conflict between enterprise operators and owners. A scientifically reasonable executive incentive system can effectively motivate management to work hard and strive for improvement, enhance the enterprise's operational management level, and hold significant importance for its sustainable development.

Regarding performance evaluation in railway enterprises, Li proposed that the salary levels for leaders of railway bureau organs, station/segment leaders, and leaders of joint venture companies managed by the railway bureau should be independently determined and regulated by the railway bureau based on its own income structure and distribution relationships [5]. Zhang, by introducing core evaluation indicators, proposed a compensation assessment model where base salary is linked to the previous year's enterprise performance evaluation results, performance-based pay is linked to the achievement of the current year's profit targets, risk-based pay is linked to the quality of risk prevention and control in the current year, and tenure-based pay is linked to the leader's accumulated performance points over their tenure [6]. Lu et al., using A-share listed subsidiaries of state-owned enterprise groups from 2015 to 2019 as a sample, proposed that salary inversion significantly positively affects corporate innovation investment. The greater the degree of inversion, the higher the investment, with salary defense as the core mechanism. This effect is more pronounced in contexts where the motivation for defense is stronger [7]. Wang focused on the performance evaluation system for state-owned enterprise leaders, proposing that its essence lies in state-owned property rights management. He pointed out that current performance indicators are difficult to adapt to high-quality development. He constructed a five-dimensional evaluation framework encompassing "industrial layout, business ecosystem, innovation drive, risk management, and financial returns," recommending the optimization of the indicator system with a focus on annual assessment [8]. Li, based on

manually collected data from 2015-2021, proposed that salary inversion for vertically appointed chairpersons in state-owned listed companies reduces investment levels, increases financing costs, and decreases working capital management efficiency. Factors such as being a local state-owned enterprise, having a younger chairperson, and implementing equity incentives can mitigate these negative effects [9]. Zang, using A-share state-owned listed companies as a sample, proposed that the gap in executive compensation exhibits an inverted U-shaped relationship with corporate value. A moderate gap promotes corporate value enhancement, and this relationship can be optimized in regions with sound corporate governance and a high degree of marketization [10].

Based on existing research, there is very little publicly available literature specifically on compensation for leaders of railway non-transportation enterprises. Exploring and establishing compensation incentive methods and evaluation models for leaders of railway non-transportation enterprises holds significant practical importance for adapting to the requirements of modern enterprise management systems and operational mechanisms and for forming a rational and orderly income distribution structure.

3. Policies and Current Status

The optimization of compensation systems for enterprise management has consistently been a significant task in deepening the reform of income distribution systems, an important component of state-owned enterprise (SOE) reform, and a crucial means to invigorate SOEs. At the national level, a top-level design framework for SOE leader compensation has been proposed, focusing on improving compensation mechanisms, setting appropriate compensation levels, establishing a reasonable compensation structure, and standardizing compensation management. At the enterprise level, railway enterprises have actively engaged in beneficial exploration. In recent years, non-transportation enterprises directly under railway bureaus have begun implementing an annual salary system for operators, linking their income to operating performance, following a model similar to that used for transportation stations and segments.

3.1 Policy Evolution

3.1.1 National Level

Since the reform and opening-up, China has continuously advanced the market-oriented reform of SOE compensation systems and initially established an annual salary system as the primary compensation model for SOE leaders. From 1992, when Shanghai pioneered pilot programs for an annual salary system for SOE operators, to the early 21st century, various provinces and cities across China successively issued guiding documents related to the annual salary system for enterprise operators. Over 10,000 SOEs implemented pilot programs for this system. In 2003, the annual salary system for SOE leaders transitioned from the pilot exploration phase to full-scale implementation. By 2004, leaders in central SOEs had generally adopted a performance-oriented annual salary system. In 2009, with the aim of standardizing the basic principles for compensation distribution among central SOE leaders, the structure and level of their compensation were clarified, marking the beginning of top-down regulation and the establishment of incentive and constraint mechanisms.

China places high importance on compensation management for SOE leaders, particularly those in central SOEs, and has accelerated the pace of compensation reform. In 2014, the state released guiding documents such as the Reform Plan for the Compensation System of Leaders in Centrally Managed Enterprises and the Opinions on Deepening the Reform of the Compensation System for Leaders in Centrally Managed Enterprises. Addressing issues in the SOE leader compensation system, these documents proposed improving the compensation determination mechanism, reasonably setting compensation levels, standardizing compensation payment and management, coordinating and regulating welfare benefits, and strengthening the supervision and management system. Concurrently, exploration began on reforming the compensation system for professional managers in SOEs. In October 2018, the National Symposium on SOE Reform proposed implementing tenure-based and contractual management for the managerial levels of SOEs and establishing a professional manager system. Subsequently, some central SOEs launched pilot programs for professional managers and

related compensation system reforms in their subsidiaries, and some local regions also conducted their own explorations.

3.1.2 Enterprise Level

Taking the Shanghai Railway Bureau as an example, the compensation system for enterprise management has undergone multiple reforms and adjustments. Particularly for non-transportation enterprises, which typically face greater operational risks and have more flexible distribution mechanisms, efforts have been made to enhance the linkage with operating performance, adjust the compensation structure and levels, and increase the motivation of operators to fulfill their duties.

In 1995, the Shanghai Railway Bureau Group Company implemented a production and operation responsibility system for factory directors (managers) in its diversified business enterprises, granting them full autonomous operating rights in accordance with relevant regulations. The Economic Development General Company was required to gradually implement a contracting system linking wages to efficiency for its subordinate operating enterprises. Enterprises meeting certain conditions could trial an annual salary system for managers.

In April 2000, the Shanghai Railway Bureau Group Company stipulated that the diversified business system could adopt methods such as "large-amount risk mortgage contracting" or an "annual salary system" for the managers of these enterprises, based on actual conditions. This aimed to closely link operator remuneration with enterprise operating performance, widen the distribution gap, and motivate operators.

In 2002, the Shanghai Railway Bureau Group Company clarified that the operator's annual salary would consist of a basic annual salary and a performance-based annual salary. The basic annual salary was determined based on the enterprise's average employee wage from the previous year, considering factors such as enterprise scale and operational difficulty. The performance-based annual salary was a reward extracted at a certain percentage for exceeding assessment targets. Key assessment indicators included operating revenue, net profit, state-owned asset preservation and appreciation rate, and return on equity. The performance-based annual salary was calculated as a certain proportion of the basic annual salary based on

the completion of indicators, with a maximum not exceeding twice the basic annual salary. Starting in 2004, pilot programs for the annual salary system were initiated at the level of non-transportation enterprises directly under the Group Company, with full implementation beginning in 2005. From 2010 onward, to meet the needs of diversified operations and integrated management, the compensation of leaders in non-transportation enterprises was linked to operating performance for assessment, following a model comparable to that used for transportation stations and segments.

3.2 Current Compensation Status

Currently, the compensation distribution for leaders of non-transportation enterprises directly under the Shanghai Railway Bureau Group Company is implemented in accordance

with the Compensation Management Measures for Leaders of Subsidiary Units of China Railway Shanghai Bureau Group Co., Ltd. The composition of their compensation and the assessment methods are detailed below.

3.2.1. Compensation Structure and Assessment Methods

The compensation for leaders of non-transportation enterprises consists of basic income and performance-based compensation income. The performance-based compensation income is further composed of process assessment income and annual assessment income. The base amount for performance-based compensation income should, in principle, account for no less than 50% of the total compensation standard. Specific assessment methods are outlined in Table 1.

Table 1. Composition and Assessment Contents of the Salaries of Heads of Non-Transport Railway Enterprises

| No. | Item | | | Assessment Content and Method |
|-----|-------------------------------|------------------------------|------------------------|--|
| I | Basic Income | | | The Group Company determines the amount based on the income level of on-duty employees and local labor market rates in each respective region. It is assessed and disbursed monthly. |
| II | Performance Assessment Income | 1. Process Assessment Income | Safety | Assessed and rewarded based on the safety incident record of the Group Company and the unit itself, as well as the unit's safety management performance. |
| | | | Production & Operation | Assessed and rewarded based on the operating performance of the Group Company and the production/operational performance of the unit itself. |
| | | Key Tasks | | Assessed and rewarded based on the unit's completion of phased or temporary key tasks assigned by the Group Company. |
| | | 2. Annual Assessment Income | | Determined for the unit's principal responsible person based on the annual operating performance assessment results, and linked to the growth of the average wage of the unit's employees. |

3.2.2 Compensation Levels

The base amounts for the basic income and performance-based compensation of leaders in non-transportation enterprises are determined periodically by the Group Company. This determination is based on relevant regulations, including the control standards established by the China State Railway Group, and considers factors such as the unit's safety responsibilities, operational contributions, and management complexity, benchmarking against the standards applied to transportation stations and segments.

The actual post-assessment income is generally on par with that of their counterparts in transportation stations and segments.

Analysis of income data from the past three years indicates that the cumulative income growth for the principal responsible persons in

non-transportation enterprises directly under the Shanghai Bureau is 3.8 percentage points higher than that for principal leaders in transportation stations and segments. Their income levels are broadly equivalent to those of principal leaders in transportation stations and segments within the same region. Furthermore, the income disparity among the principal leaders of different non-transportation enterprises is slightly smaller than the disparity observed among leaders of transportation stations and segments.

3.2.3 Compensation Disbursement

For leaders of non-transportation enterprises, salary components such as position wages, skill wages, allowances, and subsidies are archived as "filed wages" and are not disbursed. These individuals must not receive any income

beyond what is stipulated by national regulations, the China State Railway Group, or the Group Company. They are prohibited from receiving any form of remuneration—including wages, bonuses, or allowances—from any enterprise or unit where they hold a concurrent position, or from obtaining any other additional benefits. Self-determination of income, enjoying unauthorized wages or bonuses, and receiving income exceeding established standards are strictly prohibited.

The disbursement of wage income for leaders of non-transportation enterprises must strictly adhere to relevant financial accounting regulations. It must be listed under separate accounting items in financial statistics, managed through independent accounting with detailed subsidiary ledgers. All wage income must be incorporated into the unit's total wage management and reported statistically in accordance with railway labor statistics rules. Any income obtained in violation of regulations must be recovered in full. In severe cases, organizational disciplinary action will be taken in accordance with relevant regulations, accompanied by economic penalties.

4. Experiences and Shortcomings

An analysis of the implementation of the compensation system for operators of railway non-transportation enterprises reveals positive outcomes in areas such as performance-linked assessment and transparent, rational distribution. However, deficiencies persist in the incentive and constraint mechanisms, as well as in the structure and levels of compensation.

4.1 Practical Experience

1. Enhanced Operational Management: By more closely aligning the compensation of enterprise leaders with operational performance, a preliminary mechanism has been established that links leaders' personal interests with those of the enterprise, integrating their responsibilities, rights, and benefits. This has stimulated leaders' enthusiasm and initiative to take proactive actions, fulfill their duties diligently, and strive for greater contributions.

2. Standardized Internal Wage Distribution: By focusing on the compensation distribution for enterprise leaders—a critical leverage point—the practice of enterprises creating unjustified pretexts for indiscriminate bonus issuance has been effectively curtailed at its source. The

channels for leaders' wage income have been streamlined. Internal income distribution relationships within enterprises have been rationalized, essentially forming a reasonable tiered structure for the income levels of principal leaders, deputy leaders, and other managerial personnel.

3. Increased Transparency in Income Distribution: Establishing a performance assessment-based income distribution mechanism for enterprise leaders has standardized and clarified their income channels. Implementing systems such as income reporting and filing for leaders, and incorporating these into specialized inspections like audit supervision, has enhanced the transparency of leaders' income. This approach ensures reasonable income growth for leaders while maintaining an appropriate ratio between their income and the average employee wage.

4.2 Identified Issues

4.2.1 Inadequate Medium- and Long-Term Incentive and Constraint Mechanisms

The compensation distribution for enterprise leaders is predominantly focused on short-term incentives. The proportion of medium- and long-term incentives, which are intrinsically linked to sustained operational performance, remains relatively small within the overall compensation structure. Compared to practices in market economies abroad, medium- and long-term incentives are significantly lower. This focus encourages leaders to prioritize short-term gains, often at the expense of long-term strategic development objectives, thereby hindering the establishment of a truly effective, enduring incentive and constraint mechanism.[11]

4.2.2 Lack of Properly Implemented Differentiated Management

The compensation level for enterprise leaders is heavily contingent upon the enterprise's assessed profit. However, the assessed profit of railway non-transportation enterprises is closely tied to the performance of core railway transportation and construction activities, as well as the extent of policy support received. The current compensation framework for leaders of these enterprises lacks a differentiated management approach with corresponding assessment weightings tailored to distinct enterprise categories. This oversight contributes to perceived inequities in

distribution and is not conducive to fostering the strategic realignment and structural optimization of the non-transportation sector across the organization [12].

4.2.3 Persistence of Egalitarianism in Distribution

This is evident in the minimal income disparity among deputy leaders within non-transportation enterprises. Statistical data reveal that the annual income differential among deputy leaders within the same unit ranges from a mere 0.2% to 0.4%. In stark contrast, the income gap among deputy leaders in comparable market-oriented enterprises typically falls between 5% and 10%. The pronounced egalitarianism in compensation distribution undermines the intended incentive and constraint effects within the leadership team, failing to fully mobilize the collective initiative of enterprise leaders.

5. Reform and Development Recommendations

It is imperative to actively implement the relevant directives from the state and the China State Railway Group concerning compensation distribution for enterprise leaders. The goal is to establish and refine compensation management systems, rationally design compensation structures, determine compensation levels based on enterprise categories, and ultimately realize a compensation system for leaders of directly managed non-transportation enterprises characterized by appropriate levels, rational structure, integration of short-, medium-, and long-term components, standardized management, and effective oversight. This will facilitate the formation of a rational and orderly income distribution framework, fully harness the initiative of non-transportation enterprise leaders, and propel the sector toward higher-quality development.

5.1 Optimizing the Compensation Structure

A comprehensive approach is needed to balance fixed versus variable compensation, and short-term rewards versus medium- and long-term incentives. Growth in short-term compensation levels should be moderated, while the proportion of medium- and long-term incentives should be gradually increased. The constraining role of deferred compensation payment should be strengthened. The compensation structure for leaders of non-transportation enterprises should typically comprise annual compensation

(including a basic annual salary and a performance-based annual salary) along with tenure-based incentive compensation.

Basic Annual Salary: This constitutes the foundational, position-related component of a leader's compensation. Its standard should be determined based on factors such as the Group Company's average employee wage and the complexity of the management role, subject to periodic dynamic adjustment.

Performance-Based Annual Salary: This represents incentive compensation earned by leaders for creating value for the Group Company during a specific operational cycle, primarily reflecting the operating results of that period.

Tenure-Based Incentive Compensation: This should be linked to the company's tenure-based operational performance assessment results, the individual leader's tenure performance assessment, and comprehensive evaluation outcomes. The disbursement of individual tenure incentives must be strictly contingent upon these results and the leader's fulfillment of duties, thereby reasonably differentiating rewards.

5.2 Determining Compensation Levels by Category

A gradual shift should be made towards establishing an objective and equitable, indicator-based evaluation system for categorizing and grading non-transportation enterprises. Enterprise categories should be defined by their core attributes, while grades should be assigned based on their scale and overall benefit contribution. The outcomes of this categorized grading assessment should serve as a key reference point for determining the compensation standards for enterprise leaders, forming a long-term incentive and constraint mechanism. The annual compensation standard for a leader can be determined as follows:

Annual Compensation Standard = (Basic Annual Salary Benchmark \times Regional Coefficient) + (Performance-Based Annual Salary Benchmark \times Category & Grade Coefficient)

The Basic Annual Salary Benchmark and Performance-Based Annual Salary Benchmark should be periodically reviewed and set by the Group Company.

Regional Coefficients: Drawing reference from

the basic income standards for non-transportation enterprise leaders in the Shanghai Bureau and considering regional economic development disparities, five key regions—Shanghai, Hangzhou, Nanjing, Hefei, and Xuzhou—should be identified, with specific coefficients assigned to each.

Category & Grade Coefficient: This coefficient should fully account for variations among non-transportation enterprises in functional positioning, industry type, and operational scale, reflecting differences in operational difficulty, responsibility, and risk.

The resultant annual compensation standard for leaders of non-transportation enterprises should not fall below the total compensation level of leaders in transportation stations and segments within the same region.

5.3 Improving Performance Assessment Methods

The performance assessment cycle for leaders should encompass both annual (calendar year) assessments and tenure (typically three-year) assessments. Aligned with the enterprise's strategic development objectives, distinct Annual and Tenure Operating Performance Target Responsibility Agreements should be executed, ensuring these assessment cycles are appropriately differentiated yet effectively interconnected.

Annual Assessment: This should primarily guide non-transportation enterprises in fulfilling their primary market responsibilities and ensuring the accomplishment of the Group Company's annual operational performance targets.

Tenure Assessment: Should primarily steer non-transportation enterprises toward achieving phased strategic development goals and sustainability indicators, while also addressing identified developmental "shortcomings."

5.4 Rationalizing Internal Distribution Relationships

Compensation disparities between principal and deputy leaders, as well as among deputy leaders within non-transportation enterprises, should be reasonably widened to counter egalitarian tendencies. Employing management by objectives, performance assessment targets for deputy leaders should be set rationally based on their specific job responsibilities and areas of oversight. This approach should combine

quantitative assessment with qualitative evaluation, align short-term targets with long-term objectives, and harmonize organizational performance with individual contributions, thereby enhancing the relevance and effectiveness of the assessment process.

Set Scientifically Sound Assessment Targets: For each deputy leader, assessment indicators should be designed based on their defined responsibilities. This design must emphasize value creation and differentiated assessment, incorporating both common indicators relevant to the investor (Group Company) and specific indicators reflective of the enterprise's strategic direction and the individual's functional role.

Integrate Quantitative Assessment with Qualitative Evaluation: The final performance assessment score for a deputy leader should be a composite of quantitative results and qualitative appraisals, assigned appropriate weights. The weight of the quantitative assessment score should, in principle, constitute no less than 60% of the total. Assessment outcomes should meaningfully differentiate among deputy leaders.

Tightly Link Assessment Results to Compensation Distribution: Adhering to the principle of "compensation follows performance," assessment results must be directly tied to the compensation distribution for deputy leaders. Referencing the distribution coefficients for deputy leaders in comparable market-oriented enterprises, differentiated performance-based compensation coefficients should be established. Based on individual assessment results, a deputy leader's coefficient can be set at approximately 85% of the principal leader's coefficient. However, the income gap among deputy leaders should, in principle, be no less than 5 percentage points.

6. Conclusion

Further refining the compensation distribution system for state-owned enterprises is crucial to invigorating their developmental drive. Proactively exploring compensation systems that are adaptable to economic evolution is of paramount importance. This study, grounded in the practical context of Railway Bureau Group Companies, investigates the compensation system for leaders of railway non-transportation enterprises, using relevant enterprises under the Shanghai Bureau Group Company as a case study. It provides an in-depth analysis of

compensation composition, assessment methodologies, disbursement practices, and level determinants, evaluates implementation effectiveness, and synthesizes key experiences and persistent challenges. To meet the demands of modern enterprise management systems and operational mechanisms, foster a rational and orderly income distribution structure, and fully galvanize the initiative of enterprise operators, this paper proposes targeted optimizations for the compensation system of non-transportation enterprise leaders. These recommendations focus on structural design, level determination, assessment methodology refinement, and internal relationship rationalization. They offer valuable insights for stimulating the endogenous vitality and developmental momentum of enterprises and for elevating their operational performance and management standards.

Acknowledgments

This research was supported by the following funding sources:

Project Fund: 1. China State Railway Group Co., Ltd. Science and Technology Research and Development Program Project (2022F012); 2. Scientific Research Project of China Academy of Railway Sciences Corporation Limited (Project No.: 2021YJ121)

References

[1] Wang Dan, Liu Yechen. A Strategic-Oriented Differentiated Performance Evaluation System for State Grid. *Enterprise Management*, 2015(12): 59-62.

[2] Yang Haihong. Problems and Improvement Measures in the Performance Evaluation of General Management Personnel in State-Owned Enterprises. *Enterprise Reform and Management*, 2016(23): 84.

[3] Jiang Haiyang. A Competency-Based Performance Evaluation System for Middle and Senior Managers in State-Owned Enterprises. *Chinese & Foreign Entrepreneurs*, 2017.

[4] Liu Xing, Xu Guangwei. Government Regulation, Managerial Power, and Salary Rigidity of Executives in State-Owned Enterprises. *Economic Science*, 2012(01): 86-102.

[5] Li Na. Some Thoughts on Deepening the Reform of the Salary Distribution System in State-Owned Railway Enterprises. *Guangdong Economy*, 2017(10): 38-41.

[6] ZHANG Guoqing. Thoughts on Establishing Performance Appraisal System of Railway Non-transportation Enterprises. *Railway Economics Research*, 2018.

[7] Lu Chuang, Jiao Yan, Zhang Wenting. Salary Inversion and Corporate Innovation: Evidence from State-Owned Enterprise Groups. *Management Review*, 2024, 36(9): 1-12.

[8] Wang Bin. Performance Evaluation of Leaders in State-Owned Enterprises: Analysis of Institutional Characteristics and Optimization of Indicator Dimensions. *Journal of Beijing Technology and Business University (Social Sciences)*, 2024, 39(2): 1-15.

[9] Li Hanmin. Research on the Salary Inversion of Vertically Appointed Chairpersons in State-Owned Listed Companies and Its Economic Consequences [D]. Beijing: Central University of Finance and Economics, 2024.

[10] Zang Jinhui, Liu Ziyi, Zhang Zihong. Research on the Impact of Executive Compensation Gap on Firm Value in State-Owned Enterprises—An Empirical Analysis Based on Data from A-Share State-Owned Listed Companies. *China Asset Appraisal*, 2023, (03): 32-41.

[11] Ye Ting. Thoughts on Improving the Performance Evaluation System of China Railway Enterprises. *China Human Resources and Social Security*, 2020, (01): 36-38.

[12] LEI Lei, XIAO Yongqing. A System Optimization of Performance Assessment for Research Institutes in Railway. *Railway Transport and Economy*, 2018.