

Study on Performance Appraisal of Urban Rail Transit PPP Project

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Abstract: The urban rail transit PPP project aims to provide citizens with high-quality rail transit services to meet the needs of the people. China's current urban rail transit PPP project operating mechanism is not yet mature. Therefore, it is imperative to study how to ameliorate and improve the performance management of rail transit PPP projects. In the dissertation, firstly, relevant theoretical research is first carried out. Secondly, the status of China's current urban rail transit PPP project performance appraisal is analyzed in the dissertation, and the main existing problems are pointed out, including the lack of relevant industry regulations, various investment return mechanisms leading to multiple assessment methods. Finally, corresponding solutions to these problems are put forward in the dissertation. It is hoped that the study in this dissertation will provide some reference for the performance appraisal of urban rail transit PPP projects.

1. Introduction

The urban rail transit PPP project is now developing prosperously in China, the society capital are lead into the component in the application of PPP model in urban rail transit. The model blends advanced technology and management skills of project company, has provided ceaseless fuel for the construct and develop the city transport. But China's current urban rail transit PPP project operating mechanism is not yet mature. How to establish a set of scientific and effective performance appraisal system, evaluate the implementation process and effect of urban rail transit PPP project, ensure that the project is in a controlled state, and according to the evaluation results carry out effective incentives and punitive measures for construction units is related to the success of the implementation of urban rail transit PPP projects. Therefore, it is imperative to study how to ameliorate and improve the performance management of rail transit PPP projects.

2. Some Relevant Theoretical Foundations about Performance Assessment of Urban Rail Transit PPP Project

2.1. Urban Rail Transit Project.

Urban rail transit is is a general name for the the inclined transport in the city, including all kinds of track trolley, subway etc^[1]. It is an important part of an urban transportation system. Urban rail transit projects have some characteristics such as big investments, long construction period and investment recovery period, ticket prices subject to government restrictions, so it can hardly succeed if merely drawn on enterprise^{[2]-[3]}.

2.2. PPP Project.

TPPP project originates From England. The pattern of PPP is a cooperative mode about Government and enterprises based on the public projects^[4]. The pattern of PPP is widely used in the city infrastructure construction and maintenance in contemporary China. Its major goal is to bring in a wealth of social capital, into the life cycle of construction projects. At the same time, It is a

combination of government control and enterprise advanced technology. So it can ease public infrastructure construction lacking of funds because of government lacking of money, and reduce project build and operate risks. Of course, our government must maintain long-term friendly and mutually beneficial relations of cooperation with the social capital^[5].

2.3. Performance Assessment of Project.

The concepts of the performance assessment covers two major aspects. One is the management of project companies by government. The government evaluates infrastructure projects or relevant measures of service with certain standards to meet the public demands and benefits, it sets down reimbursement ratio of user fees or paying by the government and consuming by the public based on the assessment results. The other is Management of project companies by social capital. Performance assessment of project is the legal link of supervision and control on the PPP project. Formulating performance assessment measures is to achieve an important way of performance assessment. Performance assessment measures should some major problems such as evaluation body, evaluation contents, the evaluation standard, the evaluation method, the application of results of evaluation, etc. Performance assessment measures should be operable and relatively stable, not immutable.

2.4. PPP Project Payment Mechanism.

There are three major types of PPP project payment mechanism: government-financed program, user-financed program and viability gap funding^[6]. Government-financed program project is which is funded by the government. The main investment of the passenger of project is government, and there are hardly direct economic benefits. For example, implementing sponge city. User-financed program project is which is funded by consumers enjoying product and providing the fund. Project company takes on the entire or partial risks. To ensure project feasibility, whether there are enough quantity of product of project should be determined to appeals to social capital. For example, a highway project has too many crossing to control the traffic volume, so the highway project maybe court defeat. Viability gap funding project can't get the expected income by only user fees, some form of State aid must be granted. The project usually provides public welfare, with low business operational activities, service trades, and low benefit. such as gym, cultural palace and so on. The urban rail transit PPP project generally adopt viability gap funding, because the urban rail transit PPP project underwent in China today should be given to the government, the government generally control fare of user fees, This led to the project get hardly estimated earnings by only user-financed program way. In some PPP Projects, corresponding performance inspection system is not built according to the project's own payment mechanism, only making sure funding is linked to performance of whether the project's acceptance is qualified or not. But according to the characteristics of PPP projects, its entire life cycle should be the cope of performance assessment, not only the construction quality but also operation and handover quality and the operating condition and the economic gain, should be be the cope of performance assessment. The performance assessment cope and evaluation indicators can communicate with the viability gap funding. As things now stand in China, the availability of performance assessment would be unacceptable to most of social capitals. On one hand, social capitals lack confidence in their own operation management, and on the other hand social capitals fear the government is inability to perform the contract, and performance appraisal system of PPP Projects is not yet fully developed at this stage.

3. The Analysis of the Present of Performance Appraisal of Rail Transit PPP Project

3.1. He Features of Present of Performance Appraisal of Rail Transit PPP Projects.

(1) Different assessment scope. The performance appraisal of ordinary rail transit project is mainly for project construction period, including construction costs, project quality and safety in construction period, quality detection after completion and project duration. The over ownership of ordinary rail transit project is only one. Its consideration is how to improve project quality, reduce

construction costs and complete in time. Compared with the ordinary rail transit project, rail transit PPP project has its own features. It involves many subjects, different subjects operate at different times. From the public perspective, the government consider not only some problems such as quality in construction period but also operation quality, the project benefit after the transfer in operation period. For social and economic benefits, the government should require the rail transit PPP project all specified quality indexes to accord with the standard. There are obvious differences between the two in the stage of assessment. But beyond that, the rail transit PPP project is completed by the government and social capital together. The evaluation contents of the rail transit PPP project should cover performance operations of social capital itself, and consider both the benefit of all benefit relatives, including investors, users, and related enterprises. (2) Different indicators for performance appraisal. Now most ordinary rail transit projects adopt operational performance evaluation system, the focus is influence of project's operation of construction after foundation establishment, performance appraisal comes down to the quality of infrastructure. But besides influence of project's operation of construction after foundation establishment, lots of other factors such as passenger traffic, quality of service, the amount of government subsidy for the feasibility gap were considered to be key factors. Different returning system can lead to different influence factors of the rail transit PPP project, the evaluation indexes are different.

3.2. Some Problems of Performance Appraisal of Rail Transit PPP Projects.

(1) The lack of industry standards. Relevant technical specifications and standards of rail transit projects are not perfect enough, there are contents needed to be revised, the legal provisions about PPP Projects are relatively small. Because of double investment and integration of government and social capital, the rules and regulations involved PPP project are more complex, there are not enough laws to be bound. PPP projects have just started in China, some unresolved issues of primary stage are still waiting to be explored. (2) Assessment methods are unorganized. Because of PPP projects their own complexity, the rail transit PPP projects come into being various return mechanism. For instance, Some project companies link quality during construction and operation with cost, make assessment on the difference between actual cost and cost quotation expecting. The focus of performance appraisal is quality during construction and operation and cost of projects, the return mechanism of rail transit PPP project is that the projects gain profit by the difference between recouped their costs according the expected capital return rate and cost quoting of construction. For instance, some project companies link setting the return rate of investment of social capital with traffic variation, in this case, exactly audited statements should be provided by third-party agents. As a whole, the return mechanism of PPP projects are varied, and the return mechanism of PPP projects is the presuppositions of assessment system. So assessment methods are unorganized about rail transit PPP projects in China at present^[7]. (3) Evaluation indexes are difficult to reach consensus. there are too many stakeholders involved bout rail transit PPP projects, in the selecting of warning index and weight number, there are so many things that you have to consider about performance appraisal. These cause that the detection of a certain objective is advantageous in one side but useless in other sides. For instance, with user pays, whacking up fares can increase ticket revenue, which is advantageous for the project company, whacking up fares can reduce public satisfaction and influence social benefits. So performance appraisal of rail transit PPP projects need to consider many respects and different factors' activities.

4. Some Main Control Measures

4.1. Look for the Breakthrough from Existing Policy and Methods.

(1) Construction quality assessment. At present, for common urban rail transit engineering, there are a series of relevant standards to assess construction quality, including “General technical specification of metro vehicles”, “General technical specification of urban rail transit signaling system”, “Technical specifications for urban rail transit”^[18]. Acceptance of constructional quality of

urban rail transit signaling engineering and so on, these are some specifications about urban rail transit. Although some specifications about PPP projects are in conflict with them, or PPP projects don't involve them, the specifications among them that conform to the PPP projects' requirements still can be used for reference. And our country has made some progress in PPP projects of other aspects, such as project about sewage treatment. PPP projects have certain features in common, so specifications of other more perfect PPP projects can be quoted. (2) Operation quality assessment. Because of its own features, PPP project about urban rail transit should go through enterprise operation stage. Operation stage is an important link of PPP project about urban rail transit. At some foreign construction projects, the performance level of construction projects is being paid close attention to. The purpose of the performance appraisal is to control projects so that the cost and the construction period can be reduced and revenue can be raised. Now, more and more scholars lucubrate the performance appraisal of construction projects and put forward a lot of appraisal system. With the development of the times, one of the method KPI(Key Performance Indicators) as a tool to assess the performance of construction projects is widely used. Many KPI models and frameworks have been proposed one after another. Because KPI models assess the production performance of all aspects of project operation excellently and efficiently, they are widely used in all kinds of project assessment, such as performance evaluation of environment detection and project management.

4.2. Search for Ways from the Government and Society.

To solve the problem that different return mechanisms lead to different assessment methods, the goal that PPP project about urban rail transit requires firstly should be figured out. For government, the significance of carrying out PPP projects is that it can exchange small expenditures for high repay. And for society, it can profit from its excellent management style and advanced technology. The fundamental purpose of the two is to gain maximum benefit. Thus the substance of the performance appraisal is how to make both the government and society benefit from it. Thus from the government's point of view, the government should consider how to reduce subsidies and how to gain more benefit from user's pay when the projects are transferred to the government and from the social capital's point of view how to gain more benefit at operation period is the key, for this also can reduce the government's subsidies and expenditures.

4.3. Establish Reasonable Index System from Key Factors.

Aiming at present problem that PPP projects involve stakeholders too many to unify, enlightenment can be given by some foreign performance appraisal. KPI, AHP and so on developed by foreign scholars all can be used for reference. By establishing a kind of KPI mathematical model, take the data into problem, find out the key point, and then discuss the link between key index and other index. And AHP can define the importance of every indices according to the relation of their determinants. Both can be used for reference. But these methods should not be used blindly, because of the difference of economic situation and enterprise system between China and foreign countries.

5. Summary

The rail transit PPP projects are quick development in China. It is imperative to study how to ameliorate and improve the performance management of rail transit PPP projects. It will be perfect with long-term practice and study.

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