Construction of Performance Evaluation System for Public Projects Based on Public Satisfaction

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[Abstract] Bing founded on public satisfaction; this paper analyzes the necessity of the construction of performance evaluation index for public projects. After discussing the principles and priorities of index construction, the initial indicators are proposed, and the feasible and reasonable methods to establish the evaluation system are penetrated as well. As a conceptual and theoretical study, it is concluded that public satisfaction should be integrated into the performance evaluation of public projects, not only because of the dominated goals but also the requirements of continuous improvement for public projects.

[Keywords] public projects; public satisfaction; performance; an evaluation system

Introduction

With the developing economy, Chinese governments increasingly pour lots of funds in public works. From 2006 to 2015, annual fixed assets in municipal public utility construction soared from 576.51 billion yuan to 16204.4 billion yuan (MOHURD 2016). Due to the large scale of investment in public works, there are inevitably accumulated problems, such as projects of low quality, and then casualties damaged by these defective public works, high pollution, resource wasting, and even corruption, etc. The performance evaluation of public works, refers to using scientific and normative evaluation methods to compare anticipated target, process and results of economy of public investment behavior, efficiency, and comprehensive evaluation (Zhu et al. 2009). Therefore, performance evaluation is now transparent to public and is taken seriously. However, the performance evaluation system of public projects in China is still in its infancy and needs to be perfect. Moreover, the goal of public projects is to maximize public interest so that public satisfaction will be an important indicator of public project performance evaluation. After consideration of the above issues, this article provides certain guiding role for the government to improve the performance evaluation of public project.

Literature Review

Reviews on the Performance Evaluation of Public Project

The United States is the world's earliest countries taking account of examination and assessment of public projects. In the 1960s, American accounting agency firstly established the rules, e.g., Economy, Efficiency, and Effectiveness, recognized as "3E" government performance of typical structure paradigm, and later joined Equity, building the structure factors of "4E". Also in January 1993, the United States Congress passed the Act of Government Performance & Results, as an important legal basis for performance evaluation of public projects used by the science and technology departments.
Project output should not only contain economic profits, but also include social benefits. This definition provides a measure of social benefits and foundation for the national economic evaluation (Depuit, 1884). After social benefits are presented, the performance evaluation gradually goes into the public view; organizations can get citizen trust through performance evaluation, the public will think the corresponding reasonable after the tax return (Ammons 1995). Advocated by the public, the emphases should be laid on the questions such as effective administration, accountability fulfilling, meeting stakeholders’ expectation, result-oriented (Flynn, 1997).

Since the 21st century, regarding public project performance evaluation in China, great progress has been made. In 2006, Methods and Parameters of Economic Evaluation for Construction Projects was authoritatively issued by departments of central governments. Building a set of the reasonable and feasible index to scientifically evaluate public projects is necessary (Jia et al., 2003), to improve management and performance (Zhang, 2006). Only by this comprehensive and effective evaluation index, performance evaluation can be exactly implemented, in-depth analysis can be reached, and finally performance improvement can be targeted (Du et al., 2008). Chinese scholars have made some penetrations. Evaluation methods, indicators, standards, and procedures are analyzed for different types of public projects, for example, science and technology projects (Li et al., 2004), fiscal expenditure projects (Zhang et al. 2007), and environmental protection projects (Zhai et al., 2009).

**Reviews on Public Satisfaction**

As a result of increased focus on performance evaluation by governments, public satisfaction, which centers around the public and set public perception as the criterion, moves into the public view. Once OECD proposed the idea of an analogy between the public and the client, which indicates that public administration is a kind of service, and the public is the same as clients. Hence clients’ roles among public and private sectors converge (Hughes, 2001). The public satisfaction index (PSI) evolves from the Customer Satisfaction Index (CSI) and stands for a perspective of the beneficiaries’ satisfaction evaluation (Chen et al., 2006). When using PSI to evaluate the governments’ performance, it shows the urgency and necessity of application of administration philosophy in public satisfaction (You et al., 2004), for instance, to analyze the key factors of satisfaction for rural public service (Li et al., 2010).

In aware of the importance of public satisfaction on Chinese project performance evaluation, the study of the public satisfaction index system for public service, the discussion of factors influencing public satisfaction among the government service, and the ways to improve the public satisfaction have already become the important fields in current research scholars.

**Reviews on Project Performance Evaluation Based On Public Satisfaction**

Along with the advancement of democracy in our country, public satisfaction will be the fundamental orientation of government re-engineering and ultimate goal. Government performance is no longer a simple set of synthetic statistical indicators. Government performance must reflect the people's satisfaction (Zheng et al., 2007), and establish a scientific performance evaluation mechanism to meet the inherent requirement of high performance in the definition of public satisfaction government (Zhu et al., 2009), which is the foundation of satisfaction orientation for government projects performance evaluation (Zhu et al., 2008). Here citizens’ satisfaction is a primary measure of public service and government performance (Hu et al., 2014). The measure indicators should be proved as holding the nature of operability (Liu et al., 2006) as well as effectiveness and science (Hu et al., 2009).

In summary, in China, there is some exploratory research on the operable attribute, scientific analysis and rational nature for evaluation system of public service, yet little study on the index
construction for performance evaluation of public projects based on public satisfaction. Public satisfaction should be one key factor in public project evaluation criteria to improve performance. Under this recognition, this article attempts to construct a performance evaluation system to effectively evaluate the performance of public projects and finally improve projects’ management.

Build the Initial Index System

The Principles of Index System Building

Based on public satisfaction of performance evaluation for public projects, the performance evaluation index should be effective, applicable and rational. Therefore, the selection of evaluation index should follow certain principles, and start from the overall welfare to meet the needs of stakeholders. These principles are:

Macro nature. Selecting the public project performance evaluation index should proceed from the overall situation of national development to promote the social and economic benefits and welfare, rather than being confined to the project evaluation of their own interests, but should.

Comprehensive nature. Public projects own the characteristics of a large investment, long construction period, affecting a wide range. Besides the projecting area, it will exert negative or positive impacts on a much wider region. Therefore, it should care about all factors and stakeholders.

The orientation of public value. The public is beneficiaries as well as evaluators of public projects; the public project is closely related to the interests of the public. Therefore, when conducting a performance evaluation, we need to start from the public interests and value, then fit well maximizing public interests in with optimal social welfare.

Response to the real public demand. Since public projects serve the public, then before making the public project performance evaluation index, it should start from the actual demand of the public and consider the opinions of the citizens, ensuring full compliance with the interests of the citizens as well as democracy.

Convenience of operation. The selected index should be operable, representative, logical and independent of variables; it also should consider the design of index data which can be collected easily.

Public equity. Unlike private projects, public projects are funded by the public whose values and preferences are diversified, so in the selection of public project performance evaluation index, we should take account of the fairness of interest distribution between different stakeholders.

Dynamics. Indicator selection for performance evaluation of public projects will vary over time because of the nature of changes on the environment, time and other external conditions. So, at a time we should improve our decision according to the actual project performance and the changing external conditions and internal factors.

The Construction of Initial Indicators

Considering the above principles, we propose a model as an initial index from six aspects, e.g., evaluation of project reputation, project cognition, project significance, project process, project management, and project solution. The model will emphasize the importance of performance evaluation and originate from the Public Satisfaction Model (Zhu et al., 2009), as shown in figure 1.
Figure 1. The framework of initial indicators for public-satisfaction-based project performance evaluation

**Project reputation.** Project reputation refers to the formation of recognition and the degree of satisfaction by the public, according to their value judgment after comprehensive evaluation of a public project and its related factors. Hypothetically, the project reputation is positively related to public satisfaction.

**Project cognition.** Project cognition refers to the extent to which the public project is known by the public, including the depth of understanding and span of recognition, which will respectively be defined the details of relevant information and levels above a certain area known by the public (Zhang et al., 2006). The higher project cognition, the easier and more accurate the project performance evaluation.

**Project significance.** Project significance to the society will be assessed via a post-evaluation which will be examined from economic, social, environmental, and sustainable factors. The public will push up their satisfaction when public projects show the importance to enhance the above factors.

**Project process.** A project will process some stages, e.g., conceptual design, early development, detailed design, production, closure, and operation (Shtub et al., 2007). Process evaluation includes the indicators of project completion and its quality.

**Project management.** Project management is divided into areas as time management, cost management, quality management, risk management, contract management and so on. Public evaluation for each project management area emphasizes on management capability and goal achievability (Jiang, 2013). Excellent management will promote public satisfaction.

**Project solution.** During any stage of a project, there will be some unexpected problems. How to resolve these problems, including methods, results, and consequences, will be appraised by the public, which will inversely interfere with public satisfaction.

**Construction Methods of Evaluation Index for Public Project Performance**

The construction of the comprehensive evaluation index can be used via the expert survey method, the minimum mean-variance method and the minimax difference method (Hu et al., 2000). Above proposed methods are based on the initial indicators of public satisfaction index for public project
performance evaluation, namely the first-level indicators. From the entire index system building, these indicators need to adopt further scientific and reasonable refined subsystems according to the specific situation of the public project, such as secondary and tertiary indicators, and in nature, they can be divided into the quantitative index and qualitative index. Some of which can index for direct quantitative indicators. Jiang (2013) discovered that for other indicators which cannot be quantified directly, required methods should firstly be characterized by fuzzy language, and then ways used via consulting the expert opinion and questionnaire to obtain data, which specifically set up the evaluation system. After the completion of the evaluation system, we can compare and select appropriate methods of performance evaluation.

Main methods include the Analytic Hierarchy Process (AHP), fuzzy comprehensive evaluation method, artificial neural network method, grey cluster evaluation method, etc. For example, when adopting AHP, we need to experience five steps: identify the goals of the evaluation; establish the hierarchical model structure; set up comparison matrix; conduct single level sequencing; test consistency; classify the sort of level (Meng, 2008). In selecting the performance evaluation methods, according to the nature of public projects, we can flexibly choose various evaluation methods proposed above and combine a variety of evaluation methods when necessary. When index weights are determined, by using linear weighted model, combined with weights of the index and the values of parameters, we can calculate composite scores of the whole model (Chen et al., 2008). Then, according to the above scores, finally, we can evaluate the performance of public projects.

Conclusions

Public projects are critical to the development of a country and society. Since they set the goal to serve the public, the real needs of the public should be taken into account. Thus, the performance evaluation of public projects must start from the vital interests of the masses and be on account of public satisfaction. With fair certainty, it is time to establish a set of scientific and reasonable performance evaluation system for public projects in China. This conceptual and theoretical paper presents the principles of construction based upon public satisfaction with public project performance evaluation system; and after examining basic principles, the performance evaluation system of public satisfaction and public projects are combined to determine the initial indicators of performance evaluation for public projects. Thereby we also put forward the evaluation method and procedure, construct the initial performance evaluation index. Due to dynamics of the establishment of performance evaluation system for public projects, the established index in this paper should be changed according to shifts of external and internal factors among different projects. Continuous should be founded on public satisfaction to increase the effectiveness of performance evaluation.

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