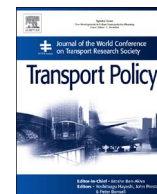




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Evaluating highway public-private partnerships: Evidence from U.S. value for money studies[☆]

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ABSTRACT

This paper examines the state of practice used in the value for money (VfM) analysis of highway projects in the United States. Based on direct contact with public transportation agencies and the search of project websites, seven VfM studies were selected for a comparative analysis. The paper finds that the choice of public sector comparator (PSC) model varied from one study to another, which is driven by agency experience. The risks transferred from employing the public-private partnership (P3) model are closely related to the choice of repayment schemes. Discount rates used in practice are similar across studies despite wide-ranging debates over appropriate rates in the literature. VfM studies show the advantages of agency municipal bonds are reduced when favorable borrowing rates are available to private partners. The paper lastly examines reasons why agencies chose not to deliver projects as P3s based on VfM studies.

1. Introduction

The transportation project development and contracting process at the state level is mired in traditional practices. The players know their parts, and they go through the familiar motions, but agencies and the motoring public are getting less for their money (user fees) because the process is stuck in neutral. At the same time, the resource pot is dwindling: state and especially federal highway user fees (mostly fuel taxes) have not kept up. In fact, most user fees are unchanged since the 1990s. The transportation outcomes of this process are mediocre at best, and many experts are concerned about persistent underinvestment in transportation infrastructure. One thing is commonly agreed upon: meeting our large and growing infrastructure challenges is vital for U.S. growth and development.

A recent report from the McKinsey Global Institute notes that “the process of selecting, building, and operating infrastructure—and the governance systems that could force improvements—has not changed for the better in decades. In the construction sector, for instance, labor productivity has barely moved for 20 years in many developed countries despite steady and significant gains in the productivity of other sectors” (Dobbs et al., 2013). They go on to urge essentially rethinking how the infrastructure delivery process is managed, for example, by focusing on more cost-effective operations and maintenance (O & M) strategies and more broadly on the total cost of facility ownership (TCO). Many observers from both industry and government

feel that public-private partnerships (P3s) offer the potential to bring forward many of these desired improvements and move away from traditional delivery models, but all parties are seeking better evidence about the extent to which P3s can deliver real value and high quality infrastructure. The most publicized examples from experience in the U.S. with transport P3s have been long-term leases where private losses and even bankruptcies of Special Purpose Vehicles (SPVs), e.g., the Indiana Toll Road, have confused the public about the validity of P3s.

Some bright spots for P3s are beginning to emerge. To note just a few of the important P3 projects in the U.S. from the past decade, Virginia's I-495 Express Lanes opened ahead of schedule in 2011, delivering major capacity that had been stalled for years; Florida's I-595 Managed Lanes opened on schedule in 2014 and an estimated fifteen years sooner than a conventional approach; California's Presidio Parkway opened toll-free travel lanes in mid-2015, ahead of schedule and reportedly saving \$100 million or more on Phase 2 via a P3 approach. In September 2015, Texas' LBJ TEXpress Lanes opened three months ahead of schedule and achieved improvements via a tolled P3 that leveraged available state funds by a factor of four: “Without private developers, the five-year LBJ Express project would exceed the total amount budgeted for all of TxDOT's North Texas transportation needs and likely would be delayed for years or never built at all” (National Council for Public-Private Partnerships, 2015).

In the works for the next few years are Denver's FasTracks

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commuter rail improvements; Virginia's Elizabeth River Crossing, and Pennsylvania's Rapid Bridge Replacements, among others. Yet, despite the growing positive experience with P3s, opponents are not fully convinced of the merits of the P3 approach. Proponents and opponents of public-private partnerships (P3s) want to see whether the P3 approach delivers transportation projects more efficiently compared to traditional procurement methods. The problem is that there is no consolidated information to evaluate the performance of the P3 approach as a procurement delivery method (Goldsmith and Deye, 2015; Pelnik, 2015).

This paper examines one of the most widely used tools for evaluating procurement delivery methods, which is the Value for Money (VfM) analysis. The purpose is to examine the state of practice used in the value for money (VfM) analysis of highway projects in the U.S. This paper differs from previous studies because it examines the actual VfM analyses used in the decision-making process rather than VfM guidelines developed by public transportation agencies. The findings from comparative analysis of VfM studies are expected to contribute to improvements in VfM analysis procedures and to assist the public agency decision making process for evaluating P3s as a project delivery method. Because the authors are mainly interested in examining how public transportation agencies are actually developing and using VfM analysis, this paper does not focus on the strengths and weaknesses of the VfM analysis as a methodology. For a review of critical perspectives on VfM analysis, see DeCorla-Souza et al. (2013), Broadbent and Laughlin (2003), Heald (2003), Shaoul (2005), Corner (2006), and Edwards and Shaoul (2003).

This analysis is part of the first of three research projects designed to develop a framework and dataset structure for measuring performance of highway P3 projects in the U.S. A companion research project will question stakeholders of transportation P3 projects about what information is actually needed to support or oppose P3s as a new approach to delivering transportation projects in the U.S. The third project will identify the information gap between existing evidence and necessary information and identify a research, education and outreach agenda to address that gap.

The paper proceeds as follows: Section 2 provides an overview of value for money analysis and general structure of the analysis; Section 3 discusses methodology used for selecting VfM studies and the approach taken for a comparative analysis; Section 4 presents results and the final section concludes the paper.

2. Overview of value for money analysis

Value for Money (VfM) analysis is a widely used tool for public transportation agencies examining the P3 approach as a potential project delivery method for their transportation projects around the world. The objective of a VfM analysis is to help decision makers evaluate various project delivery methods by comparing the traditional procurement method to a P3 approach and to determine the procurement method that costs the least from the public perspective (Boardman and Hellowell, 2015; Federal Highway Administration, 2013). VfM analysis is primarily a financial analysis from the perspective of the public agency. VfM analysis can be used during all phases of project development but it is currently used mainly during the *ex ante* construction period; *ex post* evaluations of P3 projects are still rare (Shaoul et al., 2006). Proponents of P3s use results from VfM analysis as supporting evidence of P3 performance (Colorado Department of Transportation, 2013).

To better understand VfM analysis, it is helpful to illustrate what it is not. First, the purpose of VfM analysis is not to examine whether the project is affordable or the selection would lead to a good use of available resources. Second, generally, VfM studies do not quantify social benefits and costs beyond the facility examined, do not capture the potential benefits from accelerated project delivery via a P3, and do not account for whether the agency has access to funds to pay for the

project. Grimsey and Lewis (2005) characterize the VfM analysis as “a halfway house between a full cost-benefit study of all feasible options on the one hand, and simply allowing a bidding process to ensure value for money on the other.” Recent studies recommend that the VfM analysis should include the social welfare analysis of the project similar to the traditional cost-benefit analysis (DeCorla-Souza et al., 2015).

Another challenge with VfM analysis is that a key difference with a P3 approach is that the private developer/builder competes based on lowest life-cycle cost, not lowest upfront cost, plus the ability to meet the public sector goals as enunciated in the contract. These goals are by nature highly qualitative. In addition, the private partner manages both the project delivery and in most cases the service operation and facility maintenance. These aspects make the quantitative VfM evaluation challenging.

Despite these challenges, a close look at the contents of actual VfM analyses sheds light on many questions that need to be addressed during the decision making process for P3 projects: what are the characteristics of projects that public agencies consider worthy of VfM analysis? What information and evidence are gathered to influence public agency decisions to pursue the P3 approach? What alternative delivery methods have been considered in the decision making process?

Few studies compare approaches used by countries employing VfM analysis (Grimsey and Lewis, 2005; Morillos and Amekudzi, 2008). Even fewer reports have examined cross-project evaluation of VfM analyses in the U.S. For example, the Federal Highway Administration (FHWA) of the U.S. Department of Transportation presented an overview of guidelines for VfM analysis in Virginia, California, Florida, Texas and Georgia in 2011 but did not examine actual contents of VfM studies (Federal Highway Administration, 2011). Similarly, the authors have not found studies analyzing actual VfM studies of U.S. P3 projects and conducting comparative analysis. This may be due to the fact that the P3 approach has been adopted over only about two decades; there is no centralized P3 unit conducting VfM analysis as in Ontario, Canada, South Africa and the United Kingdom; and not all P3 projects require VfM analysis. In this study, the authors examine VfM studies of projects delivered or not delivered as P3s to answer the following research questions:

- What is the state of practice of VfM analysis in evaluating highway P3 projects in the U.S.?
- What information do VfM studies of highway P3 projects deliver to public decision makers?
- What metrics are used across selected VfM studies in the U.S.?
- Is there a need for a developing a standard approach for VfM studies in the U.S.? Are there concerns about developing standards in the U.S. context?

Before discussing the general structure and contents of VfM analysis, the meaning of “value for money” should be clarified. Various definitions of value for money have been used in the literature and the most widely used definition is the one by the U.K. Treasury: “Value for money is defined as the optimum combination of whole-of-life costs and quality (or fitness for purpose) of the good or service to meet the user's requirement” (Her Majesty's Treasury, 2006). In plain language, value for money is “the best price for a given quantity and standard of output, measured in terms of relative financial benefit” (Grimsey and Lewis, 2005). Based on these definitions, a VfM analysis can be thought of as a set of procedures for estimating potential value for money derived from implementing the P3 approach for delivering a project.

To make a clear distinction, the authors use the phrase “value for money” when referring to the level of costs associated with a project delivery method and use the abbreviation “VfM” when it is used like an adjective as in VfM analysis.

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