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A Comparative Analysis of Value for Money Studies: Highway Public-Private Partnerships Projects in the U.S.

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RESEARCH QUESTION

- What is the state of practice used in the value for money (VfM) analysis of highway public-private partnership (P3) projects in the United States?

DATA & METHOD

- VfM studies were identified based on the search of project websites and direct contact with public transportation agencies; seven studies were selected for a comparative analysis.
- Conducted a comparative analysis of indices and assumptions of VfM studies

WHAT IS VALUE FOR MONEY ANALYSIS?

- A widely used tool for public transportation agencies examining the P3 approach as a potential project delivery method.
- Primarily a financial analysis from the public agency perspective.
- "Value for money" defined as the best price for a given quantity and standard of output, measured in terms of relative financial benefit.

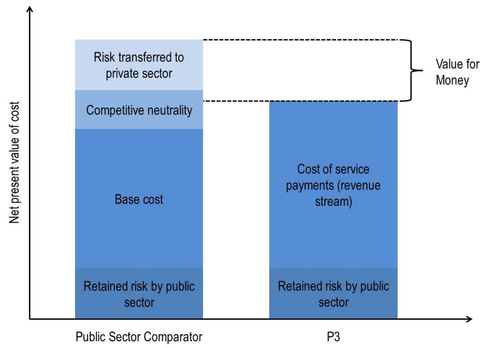

Figure 1. Comparison of public sector comparator and P3 in the VfM analysis

FINDINGS

- 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.

DISCUSSION & CONCLUSION

- Based on VfM analysis, some agencies chose not to deliver project using P3 approach because:
  - The traditional procurement model presented higher value for money than P3 (i.e. C470 Express Lane in Colorado).
  - Lack of enabling legislation allowing availability payments for P3 projects (i.e. I-64 Managed Lanes and I-85 Renewal Projects in Virginia)
- Further research is needed about how assumptions on risk management efficiency and P3 life-cycle cost efficiency are developed and used in VfM analysis.
- The findings of this research should be used with caution for revenue-risk projects because cases analyzed are all availability payment projects.
- Whether the current practice of VfM analysis delivers the critical information decision makers need is open to debate and a companion project is planned to survey decision makers on this issue.

Table 1. Characteristics of P3 projects and VfM analysis (as of July 2015)

Project Name	Public Sponsor	Invested Capital (million)	PSC[1] Model	P3 Model[1] (Shadow Bid)	% Savings	$ Savings (million)	Final P3 Model	Current Status	Project Schedule
Presidio Parkway Phase 2	Caltrans	$365	DBB	DBFOM+avail DBF (no toll)	23% [7.4%, 24%]	$147 [$54, $150]	DBFOM+avail	Under construction	VfM: Feb 2010 Commercial close: Jan 2011 Financial close: June 2012
I-595 Managed Lanes	Florida DOT	$1,814	DBF	DBFOM+avail	4.2% [-0.7%, 12%]	$78 [-$13, $244]	DBFOM+avail	In operation	Initial VfM; Aug 2007 Selection: Oct 2008 Financial Close: Mar 2009 Post-bid VfM: Mar 2009
Port of Miami Tunnel	Florida DOT	$914	DBB[2] DB	DBFOM+avail	27.5%	$398	DBFOM+avail	In operation	Initial VfM: Feb 2006 Financial close: Oct 2009 Post-bid VfM: Apr 2010
I-4 Ultimate	Florida DOT	$2,323	DB	DBFOM+avail	[34%, 35%]	[$1,286, $1,375]	DBFOM+avail	Under construction	Feasibility analysis: 2011-12 Selection: Apr 2014 Financial Close: Sept 2014 Post-bid VfM: Sept 2014
Brent Spence Bridge	Ohio DOT	$2,632[3]	DBB+toll DB+toll[2]	DBFOM+avail[2] DBFOM+toll	-	-	DBFOM+avail	Procurement schedule to be determined	Initial VfM: Sept 2013
I-64 Managed Lanes	Virginia DOT	$2,957[3,4]	DBB (no toll)	DBFOM+avail[2] DBF(no toll) DBFOM+toll	2.9% [2.9%, 4.4%]	$89 [$89, $133]	-	Project deferred	Initial VfM: Jun 2013
I-85 Renewal Project	Virginia DOT	$806[3]	DBB (no toll)	DBFOM+avail	9.7%	$87	-	Project deferred	Initial VfM: Jun 2013

[1] P3 Model and PSC Models are as used in the latest VfM analysis. For instance, the comparison between DBFOM P3 model and DBF PSC model for I-595 managed Lane is from the post-bid VfM analysis conducted in March 2009.
[2] indicates the preferred model among alternatives.
[3] indicates estimates when the P3 model (DBFOM+avail.) is assumed.
[4] The estimated cost includes costs of design, construction, operation and maintenance costs, and excludes the cost of financing.
[ ] Numbers inside brackets indicate the lowest estimate on the left and the highest estimate on the right under various scenarios proposed in the VfM studies.
Notes: DBFOM = design-build-finance-operate-maintain; DB = design-build; DBF = design-build-finance; DBB = design-bid-build; avail = availability payment; toll = toll revenues project; PSC = public sector comparator; RFQ = Request for Qualification; RFP = Request for Proposal; RFI = Request for Information

Table 2. Assumptions on equity internal rate of return (IRR) & discount rates

	Equity Internal Rate of Return (IRR) Assumptions		Discount Rate Assumptions		
Project Name	PSC model / Equity IRR	P3 model / Equity IRR	PSC discount rate	PPP discount rate	Notes
Presidio Parkway	DBF / 18.5%	DBFOM + avail. / 11.5%	• Social preference rate or social discount rate: 9.2% • Risk free rate (government cost of capital rate; taxable): 7.5% • Risk free rate (government cost of capital rate; rate exempt): 5.5%	• Same as PSC discount rate except the risk free rate (government cost of capital rate; taxable) is adjusted to 7.5% plus upwards risk adjustments for PPP model discount rate	Initial VfM Analysis
I-595 Managed Lanes	DBF / n.a.	DBFOM+avail / 11.5%	• Nominal discount rate 5% • Sensitivity analysis 6% and 7%	• Same as PSC discount rate	Same for initial and post-bid VfM Analysis
Port of Miami Tunnel	DBB / n.a.	DBFOM+avail / 11.33%	• Nominal discount rate 5%	• Same as PSC discount rate	Same for initial and post-bid VfM Analysis
I-4 Ultimate	DB / n.a.	DBFOM+avail / 12% (post-tax)	• Nominal discount rate 5%	• Same as PSC discount rate	Post-bid VfM Analysis
Brent Spence Bridge	DBB / n.a.	DBFOM+avail / n.a.	• Risk adjusted DC 5% (proxy for the States's long term cost of capital in the current tax-exempt markets) • Non-risk adjusted DC 8.5%	• Same as PSC discount rate	Initial VfM Analysis

Acknowledgement
Authors would like to thank Geoffrey S. Yarema and Anne Washington for providing valuable comments on an earlier version of the paper. They would also like to thank the Virginia Office of Public-Private Partnerships and the Office of Comptroller at Florida Department of Transportation for providing additional data and references for this research. The research and writing of this paper was supported by the Center for Transportation Public-Private Partnership Policy and the School of Policy, Government and International Affairs at George Mason University. The Center receives support from the Virginia Secretary of Transportation and private donors. The authors would also like to express their gratitude to the valuable comments from the partners of the Center. This paper represents the views of the authors, who are responsible for any errors or omissions.

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Presented at
Transportation Research Board 95th Annual Meeting
January 10-14, 2016
Washington, D.C.

#16-4546