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Value for Money and Risk in Public–Private Partnerships

Evaluating the Evidence

Matti Siemiatycki and Naeem Farooqi

Problem, research strategy, and findings:

Delivering improved public services at lower cost, also known formally as *value for money* (VfM), is often the main rationale for procuring large infrastructure projects through public–private partnerships (PPPs). However, it is unclear whether the ex ante assessments of PPPs account for key planning concerns, including limitations on community consultation, contractual lock-ins that curtail public flexibility to make future plans, and a political preference for PPPs that may influence the way that projects are structured and evaluated. This set of questions is examined for 28 infrastructure PPPs delivered in Ontario, Canada, and interviews with 18 senior political, government, and private-sector participants in the province's PPP industry. We find that transferring of construction risks from government to the private-sector partners drives VfM results, and may overvalue the extent to which planning related risks can be transferred.

Takeaway for practice: PPP contract structures should permit more transparency during the project planning process and preserve the flexibility of governments to control key planning tasks such as user fees, service coordination and facility expansion. Strategies might include: the unbundling of construction and operation phases of the PPP in all but the most unique situations, the use of competitive dialogue tendering to deepen public–private collaboration earlier in the planning process, and the inclusion of contract rebalancing terms to better share rather than transfer project risks.

Around the world, large-scale public infrastructure projects have increasingly been designed, built, financed, and operated through public–private partnerships (PPPs). The main government rationale for delivering hospitals, schools, prisons, water treatment plants, roads, and subways through PPPs is the prospect of providing improved public services at a lower lifecycle cost, also known as *value for money* (VfM; Wall & Connolly, 2009).

In its simplest form, VfM is defined as a measure of the extent to which cost savings are achieved when delivering a public infrastructure project through a PPP relative to a traditional government-led procurement approach. Proposed drivers of VfM in PPPs include contracts that encourage innovation, the management of complete lifecycle costs, and the allocation of project risks such that governments are protected in case of large cost overruns and revenue shortfalls (Garvin & Bosso, 2008; Nisar, 2007). However, because in most jurisdictions it is common that technical evaluations of VfM are not publicly released, the underlying sources of VfM, and, thus, the central basis on which the decision to proceed with a PPP, are not well understood.

The aim of this article is to determine how project planners have structured, evaluated, and selected the preferred model of partnership between the public and private sector to deliver high stakes public infrastructure projects in order to realize VfM. In particular, we examine three interrelated issues based

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on an analysis of the state of practice within Ontario, Canada's largest PPP marketplace. First, how are project risks assessed and apportioned between the partners and evaluated in *ex ante* studies of VfM? Second, what contractual structures and allocations of risk and reward between the partners have been used to achieve VfM in PPPs? Third, how has the politics of project risk and VfM influenced the role of the private sector in infrastructure project delivery?

Greater understanding of how VfM is conceptualized, measured, and used within the PPP decision-making process points to strategies to structure PPP contracts and allocate project risks between the partners to better protect the public's interest in these complex transactions. This is particularly important for planners who have articulated specific planning-related concerns with PPPs, such as limits on the potential to carry out meaningful community consultation, integrate individual facilities into the wider infrastructure networks, and maintain government flexibility to make plans in light of changing priorities (Fischbacher & Beaumont, 2003; Shaoul, Stafford, & Stapleton, 2010; Siemiatycki, 2010). Before delving into the specifics of the Ontario case, however, it is first necessary to provide an overview of the contemporary theory and global practice of VfM as a concept and an assessment tool.

Defining the Value of Partnerships

In broad terms, the value of PPPs is guided by the belief that governments and firms working in meaningful collaboration will deliver major infrastructure projects that have better outcomes than any one party could deliver on their own (Huxham & Vangen, 2000; McQuaid, 2000). PPPs transform the role of government from a provider to a purchaser of public services. In a traditional government procurement, the public sector takes primary responsibility for facility design, financing, and operations, while contracting with a builder to construct the facility. PPPs represent a shift in approach to infrastructure procurement by bundling multiple service delivery functions into a single concession. This article focuses specifically on PPPs in which a private-sector concessionaire builds and finances a facility and may also be contracted to provide facility management and maintenance services over a long-term operating period (Garvin, 2010; Wettenhall, 2003).

In such models of partnership, competition between firms has a very specific place: It is for the market rather than in the market. This means that a limited form of competition is introduced where firms compete to be selected as the private partner, but once selected there is no

competition in the provision of service to the public at large. Most PPP projects are government-regulated monopolies that are not subject to accompanying deregulation, as was the case during earlier periods of privatization.

Because of the interdependence between different actors involved in the successful delivery of an infrastructure mega-project, the strength of the partnership approach is derived from the aligning of interests, risks, and rewards between the partners. "Our central proposition is that the PPP is a strongly incentive-compatible contracting arrangement. The cost effectiveness of a PPP relative to traditional procurement," argue Grimsey and Lewis (2004, p. 6), "is a result of upfront engineering of the design solution and the financing structure combined with downstream management of project delivery and the revenue streams." Thus, from a theoretical perspective, the conceptualization of value in a PPP is financial, administrative, and public-interest related, which is achieved through the allocation of incentives, risks, and rewards within the partnership arrangement.

Calculating VfM

A key challenge for government agencies has been to find a rigorous and feasible method of evaluating whether PPPs provide a superior approach to delivering infrastructure than traditional methods. This is especially pertinent in a context where PPPs have been criticized as being politically motivated by an ideological belief in the efficiency of the private sector and a desire to obscure the true costs of large public investments by drawing on up-front private financing (Flinders, 2005; Murphy, 2008; Quiggin, 2004). The concept of VfM has been developed as the benchmark used to assess the comparative merits of using a PPP to deliver a project relative to other procurement options. Importantly, it is not a measure of the merits of competing investment opportunities, which is meant to be conducted earlier in the planning process.

The most formalized approach to measuring PPP VfM was initially developed in the United Kingdom and has, subsequently, been adopted in various forms as part of the PPP procurement process in Australia, Canada, Ireland, The Netherlands, Japan, Hong Kong, South Africa, and other emerging PPP markets. In the Anglo model, prior to final approval of a PPP scheme, the net benefits and costs of the proposed project are calculated based on the submission of the winning bidder. These are compared against a hypothetical equivalent project delivered through the traditional public-sector procurement model. The public-sector comparator (PSC), as the hypothetical traditionally delivered scheme is known, provides a benchmark of VfM based on the level of innovation, efficiency, and risk

transfer delivered by the winning private-sector concessionaires (Khadaroo, 2008). This public-sector-comparator-based methodology of calculating VfM is widely considered to be the state of the art within the PPP industry, and will be the focus of this article.

The financial VfM comparison is typically based on three factors: the raw base costs of building, financing, and operating a comparable project using either a PPP or a traditional procurement approach; the amount of risk retained with the public-sector partner under both procurement approaches; and transaction costs. A discount rate is applied to cash flows of both the PPP bid and the public-sector comparator to account for the cost of future expenditures in current value dollars. Taken together, as shown visually for a hypothetical project in Figure 1, the financial VfM of PPPs commonly boils down to a calculation of whether innovation and efficiencies and real risk transfer as realized through the PPP arrangement outweigh the higher costs of private-sector financing, a premium paid to the private sector for assuming greater risk, and higher associated transaction costs. In this way, the VfM evaluation is intended to capture whether the proposed advantage of the PPP approach actually delivers measurable benefits.

VfM and Current Debates

To date, the methods and merits of the Anglo-inspired model of calculating ex ante VfM have been hotly debated

in the scholarly literature and popular discourse. Technical concerns about the way that VfM is calculated dominate the accounting and project management literature, and have been characterized by Hodge and Greve (2010) as first-generation matters. For planners, however, more relevant recent debates may be those related to second-generation matters, which focus on the governance and political settings in which VfM documents are produced and PPP projects are delivered.

There is extensive evidence that PPP procurement models recast the role of government in project planning and service provision by substantially altering the socioeconomic and community impacts of privatized projects. Commonly identified shortcomings of PPPs include issues of commercial confidentiality of key project information limiting meaningful consultation (Forrer, Kee, Newcomer, & Boyer, 2010; Shaoul et al., 2010; Siemiatycki, 2007), the loss of public policy flexibility and poor network integration due to long-term PPP concessions (Froud & Shaoul, 2001; Hodge & Greve, 2007; Siemiatycki, 2010), and instability in partnership agreements leading to costly contract renegotiations and even failure (Acerete, Shaoul, Stafford, & Stapleton, 2010; Guasch, 2004).

A final emerging area of debate relates to the governance and political settings in which VfM documents are produced and PPP projects are delivered and, in particular, whether institutionalized support for applying the PPP model can influence the types of projects that are selected,

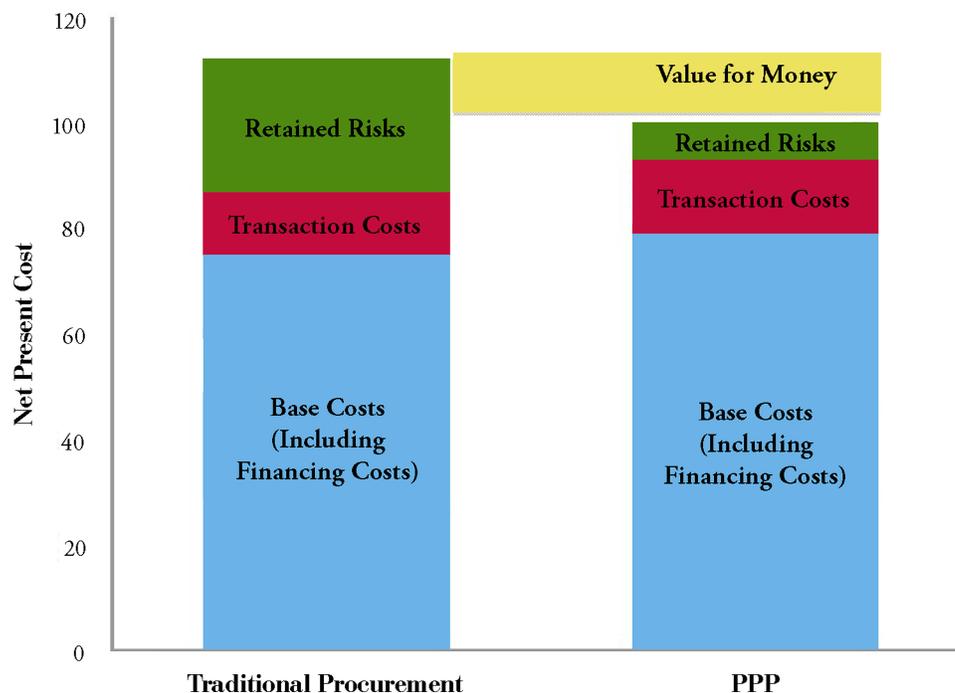


Figure 1. Components of value for money calculation.

(Color figure available online.)

the risks and responsibilities transferred to the private sector, and the integrity of the project evaluations (Heald, 2003; Hodge & Greve, 2010; Monbiot, 2010; Shaoul, Stafford, & Stapleton, 2007). While each of these issues is germane to planners and an important determinant of whether a proposed PPP project will deliver VfM, it is not clear how they are considered when structuring the contractual arrangement and assessing the merits of a PPP.

Evaluating VfM in Ontario

In the following section, we explore the extent to which key planning concerns are considered in the contemporary contract structures and ex ante evaluations of PPPs, through an analysis of the current practice in the Canadian province of Ontario. This analysis is carried out by reviewing each of the 28 VfM reports that were made publicly available by Infrastructure Ontario up until October 2010. There is strong political and public policy support for carrying out large infrastructure projects through PPPs: The Ontario government has carried out more infrastructure PPPs than any other government in Canada.

Each VfM report covers a project that has been approved by the provincial government for PPP delivery between 2007 and 2010. In total, the sample included 23 hospitals and related health facilities, which were either newly built or refurbished, 4 justice facilities, and 1 new government data warehouse. The total net value of these PPP projects was Canadian \$7.1 billion: 19 of the projects are build-finance (BF) model PPPs that only include capital costs; 9 of the projects are build-finance-maintain (BFM) or design-build-finance-maintain (DBFM) style PPPs that bundle some facility maintenance costs into the concession.

Complementing our analysis of VfM reports, we also carried out unstructured interviews with 18 key stakeholders involved in the planning and delivery of PPPs in Ontario. These stakeholders consisted of two former Ontario Ministers of Infrastructure and two opposition party infrastructure critics, Board members of provincial agencies that had procured a facility using a PPP, senior civil servants, and private-sector practitioners involved in PPP procurement in Ontario. We have used the interviews to shape our understanding of the contextual environment in which PPPs are planned in Ontario, to identify key areas of interest and concern that stakeholders have with PPPs, and to inform our analysis of the practice of evaluating, planning, and delivering infrastructure through PPPs.

We focused on the practice of partnership structuring and evaluating VfM in Ontario for three reasons. First, as of 2005, Ontario like many jurisdictions globally has had a special purpose government agency mandated with promoting and procuring large infrastructure projects through PPPs. Infrastructure Ontario, as the agency is known, has policy requiring that a comprehensive Anglo-style VfM evaluation is used to assess the merits of proceeding with each infrastructure project as a PPP. Second, the VfM methodology has been explicitly developed in accordance with best practices used in other Canadian provinces and abroad (Infrastructure Ontario, 2010).

Third, Infrastructure Ontario has gone further than procurement agencies in most jurisdictions in systematically releasing a final PPP VfM report to the public at the conclusion of the PPP procurement process. Infrastructure Ontario has also publicly released the methodology and summary risk matrix used to calculate VfM (Altus Helyar Cost Consulting, 2007). Combining our detailed document analysis with the key informant interviews provides a window into the drivers of VfM within the technical evaluations, the contemporary contractual structures of PPPs, and the social and political contexts in which VfM reports are produced and used to inform decision making.

Drivers of VfM

The first point to be made from a review of the Infrastructure Ontario VfM appraisals is the crucial role that risk transfer has in ex ante evaluations. As can be seen in Table 1 and shown visually in Figure 2, the base cost of delivering each project is invariably lower (on average 16% less) when delivered through a traditional procurement rather than a PPP. This suggests that while the PPP concessionaires may identify project-level innovations and efficiencies over the lifecycle of the project through the PPP procurement process, these are not recognized as delivering major identifiable savings above and beyond the higher cost of private rather than public financing and a premium charged for taking on greater project risk. Transaction costs for lawyers and consultants were also markedly less under traditional government procurement. While transaction costs are a small fraction of the cost of each PPP project, they add up to \$228 million for Infrastructure Ontario's portfolio of PPPs.

Only after the transferring of project risks is considered do PPPs show VfM. In the 28 projects reviewed, a retained risk premium averaging 49% of the base cost of delivering the project was added to the traditional government procurement option, and in each case this additional risk premium swung the VfM calculation in favor of the

Table 1. Comparison of public-private partnerships and traditional procurement costs for 28 Ontario projects.

| Project name | PPP model | Date of VfM (M/Y) | PSC base cost (\$M) | PSC retained risk (\$M) | PSC transaction costs (\$M) | Retained risk as % of base costs | PPP base cost (\$M) | PPP retained risk (\$M) | PPP transaction costs (\$M) |
|----------------------------------|-----------|-------------------|---------------------|-------------------------|-----------------------------|----------------------------------|---------------------|-------------------------|-----------------------------|
| Montfort Hospital | BF | 01-07 | 177.4 | 59.0 | 3.0 | 33% | 188.8 | 24.5 | 6.6 |
| Quinte Health Care | BF | 03-07 | 68.3 | 24.8 | 1.2 | 36% | 72.2 | 9.9 | 3.5 |
| St. Joseph's Health, London | BF | 05-07 | 31.0 | 9.3 | 0.6 | 30% | 32.2 | 2.7 | 1.6 |
| Sudbury Regional Hospital | BF | 05-07 | 120.6 | 41.7 | 7.8 | 35% | 131.9 | 11.2 | 10.3 |
| Trillium Health | BF | 05-07 | 96.5 | 28.9 | 2.1 | 30% | 104.1 | 5.0 | 4.2 |
| Youth Justice Facil. | BF | 06-07 | 86.3 | 25.7 | 0.1 | 30% | 93.2 | 7.5 | 1.9 |
| Sunnybrook Health | BF | 06-07 | 129.0 | 36.0 | 2.7 | 28% | 142.0 | 6.7 | 5.4 |
| Rouge Val. Health | BF | 10-07 | 60.4 | 26.2 | 1.5 | 43% | 63.9 | 10.1 | 3.0 |
| Bluewater Health | BF | 10-07 | 211.6 | 50.3 | 1.9 | 24% | 214.1 | 15.5 | 6.0 |
| Hamilton Health | BF | 11-07 | 42.1 | 18.4 | 0.7 | 44% | 45.0 | 6.8 | 2.1 |
| Runnymede Health | BF | 11-07 | 62.8 | 24.9 | 1.2 | 40% | 62.5 | 9.9 | 3.3 |
| Ottawa Hospital Cancer Program | BF | 01-08 | 46.5 | 19.4 | 1.5 | 42% | 46.7 | 7.8 | 2.8 |
| Credit Valley Hosp. | BF | 06-08 | 152.3 | 65.3 | 6.1 | 43% | 162.8 | 25.6 | 9.3 |
| Kingston General Hospital | BF | 07-08 | 129.6 | 58.5 | 4.7 | 45% | 142.1 | 22.6 | 8.3 |
| London Health Sciences | BF | 07-08 | 204.9 | 87.4 | 4.3 | 43% | 211.8 | 31.1 | 7.9 |
| Toronto Rehab Inst | BF | 10-08 | 109.9 | 46.4 | 2.0 | 42% | 112.1 | 19.0 | 5.2 |
| Lakeridge Health | BF | 02-09 | 83.2 | 35.9 | 4.0 | 43% | 91.5 | 14.4 | 6.4 |
| Royal Victoria Hospital, Barrie | BF | 03-09 | 249.7 | 108.9 | 1.9 | 44% | 258.5 | 39.6 | 6.4 |
| Windsor Hospital | BF | 06-09 | 83.3 | 34.4 | 1.8 | 41% | 91.7 | 13.7 | 4.5 |
| North Bay Regional Health Centre | BFM | 03-07 | 404.6 | 229.9 | 5.6 | 57% | 551.7 | 22.2 | 18.0 |
| Sault Area Hospital | BFM | 08-07 | 325.8 | 220.7 | 4.7 | 68% | 407.8 | 38.8 | 11.5 |
| Woodstock General Hospital | BFM | 12-08 | 218.0 | 182.2 | 5.1 | 84% | 290.7 | 35.1 | 10.7 |
| Durham Courthouse | DBFM | 04-07 | 247.0 | 157.0 | 8.0 | 64% | 334.0 | 25.0 | 17.0 |
| New Data Centre | DBFM | 04-08 | 266.0 | 175.7 | 2.2 | 66% | 352.0 | 26.4 | 7.2 |
| Niagara Health | DBFM | 05-09 | 658.6 | 485.5 | 5.9 | 74% | 851.4 | 197.5 | 16.1 |
| Bridgepoint Hospital | DBFM | 10-09 | 452.0 | 427.3 | 6.2 | 95% | 728.4 | 74.9 | 16.9 |
| Toronto South Detention Centre | DBFM | 11-09 | 479.6 | 350.7 | 7.6 | 73% | 708.4 | 63.3 | 16.7 |
| Waterloo Court | DBFM | 03-10 | 304.4 | 235.1 | 11.5 | 77% | 458.7 | 43.0 | 15.2 |
| Total | | | 5,501.4 | 3,265.5 | 105.9 | 49% | 6,950.2 | 809.8 | 227.8 |

Note: BF = build-finance; BFM = build-finance-maintain; DBFM = design-build-finance-maintain; PPP = public-private partnership; PSC = public sector comparator; VfM = value for money.

Source: Data from Infrastructure Ontario value for money reports: <http://infrastructureontario.org/en/projects/index.asp>

PPP. For the 19 build-finance PPPs in the sample, these projects do not include any private involvement in facility operations and maintenance, and the risk premium averaging 38% of the base delivery cost will mainly cover construction risks associated with cost escalations and completion delays that would be retained by the government if the project were delivered through traditional procurement. For the 9 PPPs that include facility maintenance in the concession, the allocated risk premiums are higher (averaging 73% of base costs) to account for the inclusion of both construction and lifecycle risks. The publicly available

VfM reports do not provide a detailed financial breakdown of the PPP or the comparable traditionally procured project, so it is not possible to assess key issues such as the cost of raising private finance, or the cost of transferring specific risks.

The well-documented history of persistent cost overruns on large infrastructure projects in Canada and throughout the world means that governments are well advised to take steps to protect taxpayers against the financial impacts of risk (Flyvbjerg, Bruzelius, & Rothengatter, 2003; Siemiatycki, 2009; vanWee, 2007). According to

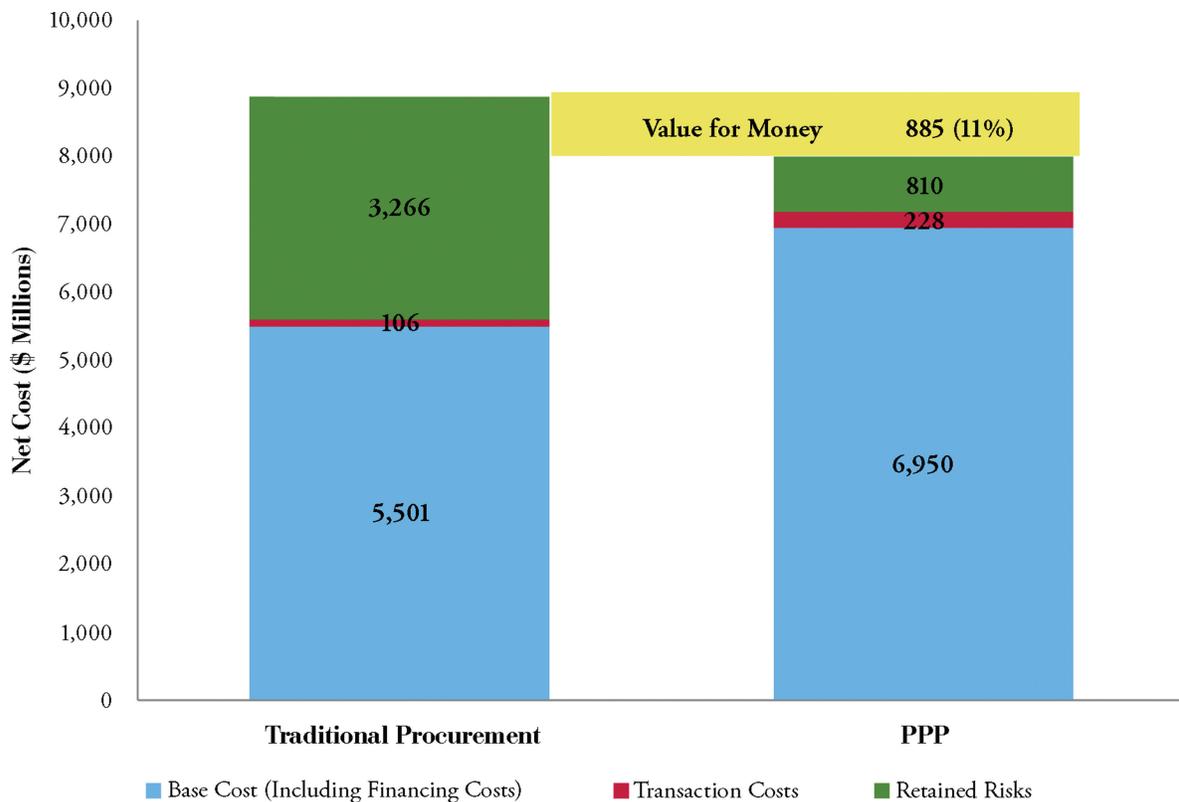


Figure 2. Value for money comparison on Infrastructure Ontario public–private partnerships.

Source: Data from Infrastructure Ontario value for money reports: <http://infrastructureontario.org/en/projects/index.asp>

(Color figure available online.)

Flyvbjerg (2009), an ex ante evaluation of project risks should be based on detailed empirical analysis of cost escalations on a reference class of past projects. In practice, however, Infrastructure Ontario reports that their approach to modeling the potential impacts of risk on a project is as much science as art.

Through a risk workshop involving Infrastructure Ontario staff, public-sector sponsors and stakeholders, and external expert consultants, the participants identify all of the possible risks facing a project. They then estimate the potential impact that each risk may have on the traditional and PPP procurement options, expressed as a percentage of the project base cost. The estimated allocation of risks is based on benchmarking of past project cost variations, as well as the more subjective professional opinions provided by the expert analysts involved in the risk workshop (Infrastructure Ontario, 2007). The final VfM reports include letters from the independent firm that conducted the evaluation and an outside process fairness monitor certifying that VfM is demonstrated.

In a context where PPP VfM is dependent on risk transfer, Ball and his colleague's ethnographic study of the risk workshop process in Britain found that the subjective aspect of pricing and allocating risk leaves the method open

to both the overestimation of risks retained by the public sector in the traditional procurement, and underestimation of risks that could be controlled under a well-managed traditional contracting model (Ball, Heafy, & King, 2003). The Ontario Health Coalition has raised similar concerns in Canada (Ontario Health Coalition, 2008). As displayed in Figure 3, Infrastructure Ontario's publicly available matrix for allocating risk in the VfM calculation shows that governments using the traditional procurement model retain substantially larger financial liabilities for nearly every type of risk identified as possibly occurring during infrastructure project delivery than under the PPP approach (Altus Helyar Cost Consulting, 2007). No empirical data is provided to substantiate these risk allocations, making it difficult to assess their accuracy and validity.

Infrastructure Ontario has been opposed to releasing the detailed financial and risk allocation information that underpins the publicly available VfM reports. As one senior agency official stated in an interview, "Would you release the entire design of the thing? You end up getting into very complicated things and so on." The official went on to say, "To me, the important thing is for people to understand that there is a process, that an external, third independent party is going to run the process, and at the

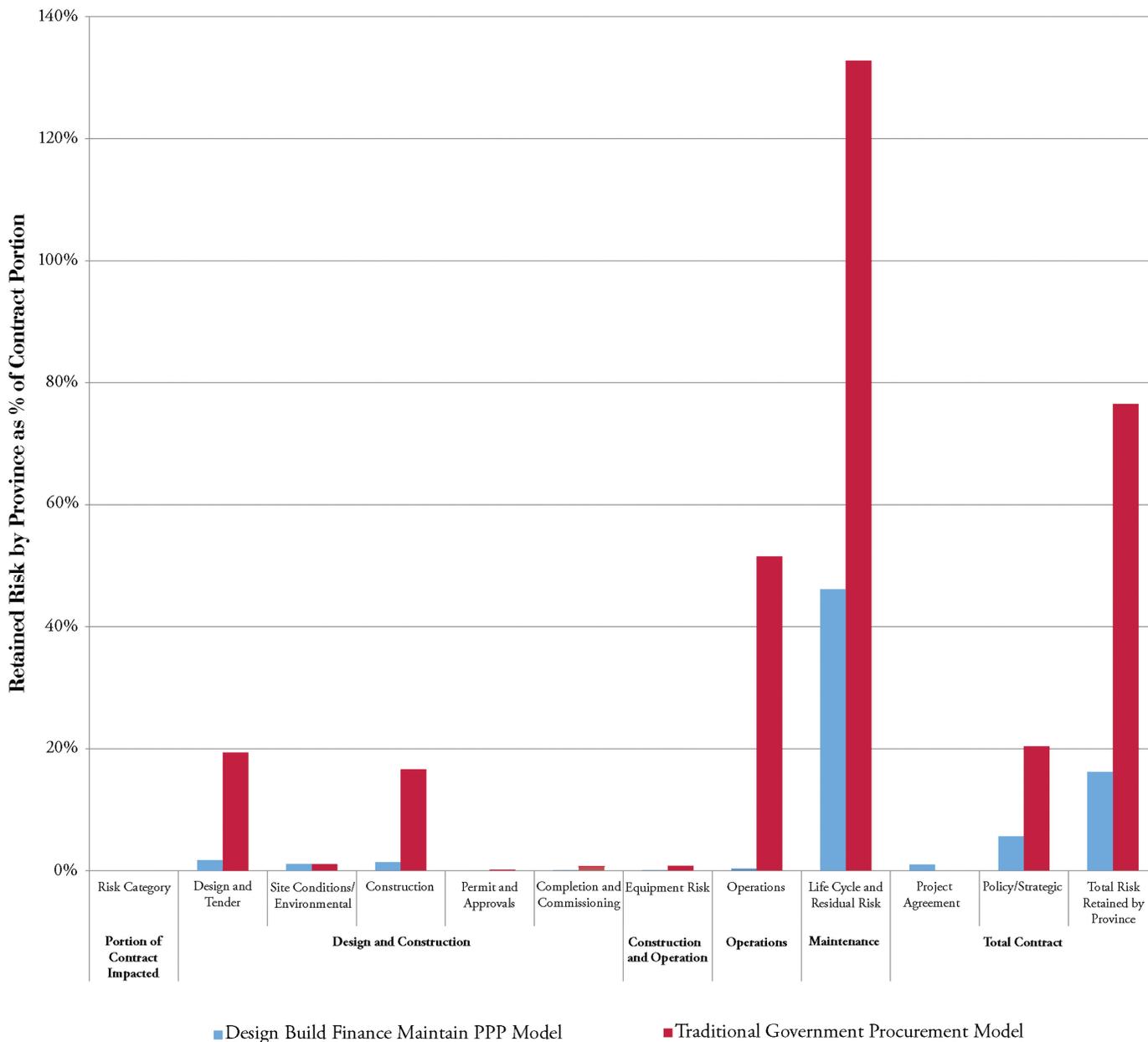


Figure 3. Infrastructure Ontario value for money summary risk matrix. PPP = public-private partnership. Source: Data from Altus Helyar Cost Consulting, 2007.

(Color figure available online.)

end of the day they are going to the happy and comfortable to certify that this is the number in their view.”

However, the details of the data underlying the VfM analysis, and in particular the high cost of risk transfer on PPPs, has come under particular scrutiny in Ontario by the provincial auditor general. After reviewing the financial documentation of one of Ontario’s first hospital PPP projects which was planned in the early 2000s (which is not included in the sample as it predates the formation of Infrastructure Ontario and the current VfM methodology), the auditor concluded that the risk transfer costs were excessive.

We were concerned that the transferred risks for this project amounted to almost 13% of the November 2004 government design-and-build estimate of \$525 million. In comparison, actual cost overruns (a major component of risk transfer) in the design and construction of the Peterborough Regional Health Centre—a hospital built under the traditional procurement approach during the same period—were about 5% of the total contract value. (Auditor General of Ontario, 2008, p. 112)

The data presented in this article shows that despite the Ontario Auditor General's concerns about the high cost of risk transfer, subsequent VfM appraisals continue to include a substantial premium for risks retained by government in the estimate of traditional procurement costs, which in each case tips the financial calculation of VfM in favor of a PPP procurement.

To be certain, the risk of major cost overruns and delivery delays are very real. Two commonly cited examples in Ontario that are put forward to support the rationale for PPPs and the high-risk premiums included in the VfM assessments are traditionally procured hospital projects in Sudbury and Thunder Bay. Each of these hospital projects had escalations of over 50% of the estimated construction cost (Ontario Health Coalition, 2008). However, without the release of the data underlying Infrastructure Ontario's risk matrix, it is not possible to ascertain whether this magnitude of overrun is the norm on traditionally procured infrastructure projects or an outlier and how the risks of cost overruns vary by asset type. Thus, in Ontario, the key question in assessing VfM with PPPs is at what cost are risks being transferred to the private-sector partner, and could these risks be managed at lower cost using an alternative approach?

Unpacking Risk Transfer

Given how central the allocation of risk is in tipping the scale in favor of PPPs, it is important to delve deeper into the PPP process to unpack how project risks are actually transferred, and thereby understand how VfM is created. It is widely proposed that PPPs transfer project risks to the private sector by bundling key project delivery functions that were traditionally disaggregated into a single concession. This bundled approach to infrastructure project delivery is meant to deepen early and ongoing cooperation between the partners so that their interdependence is of an increasingly reciprocal nature (Smyth & Edkins, 2007; Teicher, Alam, & Gramberg, 2006). Accountability and performance is increased among the project partners by better linking financial reward with ongoing project performance (Flyvbjerg et al. 2003). Private debt and equity investment is the glue that holds the PPP arrangement together and is the key driver of value in the PPP model. It aligns the interests between the partners, ensuring that the private-sector partner has an incentive to manage the risks that are transferred to them because otherwise returns from their initial investment will be in jeopardy (Grimsey & Lewis, 2005).

While private financing is a key feature of PPPs, the ways that the private sector's initial capital investment is repaid differ widely. As illustrated in Table 2, the repay-

ment approach selected is critical as it determines which risks are transferred to the private sector, how the incentives are specifically aligned between the partners, and also whether the conditions are in place for key planning concerns with PPPs to arise. In Ontario, as in other jurisdictions, three PPP repayment approaches have been commonly employed, with varying results: recovery through user fees, availability payments, and construction completion payments.

Early PPPs in Ontario and globally sought to transfer construction, operation, and revenue risk to the private sector by repaying initial private-sector investment through generated user fees over an extended concession period, often lasting between 25 and 99 years. To protect the investor's revenue stream, these PPP concessions included strict contractual terms setting out user fee rates, service quality standards, how the service could be retrofitted and expanded, and sometimes non-compete clauses to restrict future public investment. These contractual terms made this type of PPP concession particularly prone to planning concerns over poor network integration and the loss of public control of long-term infrastructure decision making. Costly conflicts between the partners were common, often leading to contract renegotiations and sometimes the termination of the concession (Siemiatycki, 2010; Vining & Boardman, 2008).

Conflicts between the partners and public discontent have been heightened by the lack of disclosure about the detailed contract terms at the time that the concession agreements were signed. In one major PPP in Ontario that sought to transfer revenue risk to the private sector, the Highway 407 toll road north of Toronto, the incoming Liberal government in 2002 undertook lengthy and ultimately unsuccessful legal action to restructure the toll agreement on the 99-year highway lease that enabled the private partner to realize very high profits. The public has also complained bitterly about aggressive toll collection tactics that are permitted within the concession agreement.

More recently, there has been a move toward partnership models that involve predetermined government payments provided that the facility is available on schedule and functioning as planned over a long-term operating period. These availability-payment-type concessions make it possible for governments to transfer construction, scheduling, and availability risk to the private sector, with performance incentivized by private risk capital at stake over the concession period. If performance does not meet contractually agreed-upon levels, penalties can be levied against the concessionaire. At the same time, by retaining revenue risks, the government can maintain control over facility ownership, user fee setting, system wide service and

Table 2. Design and planning implications of public–private partnership payment models.

| | User-fee-based PPPs | Availability payment PPPs | Construction completion payments |
|---|---|---|--|
| PPP payment model | Private-sector partner recoups initial capital investment through facility user fees over the course of a long-term operating period | Private-sector partner recoups initial capital investment through scheduled government payments, provided the facility is available and functioning as contractually specified over a long-term operating period | Private sector makes investment in the construction costs of a project, which are repaid in full by the government once construction reaches substantial completion; there is no long-term operating partnership |
| Private functions bundled in the PPP concession | Design, construction, financing, operation, maintenance | Design, construction, financing, maintenance | Construction, financing, and sometimes facility design |
| Risks transferred to the private sector partner | Construction cost and scheduling; facility availability; operation and maintenance quality and cost; revenue levels | Construction cost and scheduling; facility availability; maintenance quality and cost | Construction cost, design, and scheduling |
| Type of project typically used for | Infrastructure where a user fee revenue stream can cover the entire capital and operating costs of a project, such as a toll-highway, energy project, or waste and water plant | Freestanding facility where operation and maintenance can be transferred to the private sector; however, a dedicated revenue stream does not exist to repay private capital investment or operation costs, such as a hospital, courthouse, prison or transit line | Infrastructure where public- and private-sector service provision are closely intertwined so that facility operation and maintenance cannot be meaningfully transferred to the private sector, such as refurbishment of a part of an existing public asset |
| Impact on planning concerns | High: Contracts limit public partner flexibility over user fee rate setting, service coordination, and changes to the facility to meet public policy goals | Medium: Public partner maintains control over user fee rate setting and service coordination but may still face difficulties upgrading or changing service levels | Low: Public partner maintains long-term control over all aspects of the facility and can make changes as desired during operation period |
| Examples in Ontario | Highway 407 (prior to inception of Infrastructure Ontario) | Royal Ottawa Hospital; Brampton Civic Hospital (prior to inception of Infrastructure Ontario) | Sunnybrook Health; Montfort Hospital |
| Experience | Costly legal conflict between the partners when incoming government objected to toll rate; public dissatisfaction with aggressive toll collection tactics permitted in the concession | Low-level conflicts between partners over maintenance quality or inflexibility to make public-sector-initiated changes to work practices | Effective at transferring construction cost and scheduling risk |

Note: PPP = public–private partnership.

fee integration, and place making and programming in and around the facility.

In Ontario, availability-payment-based concessions have been used to deliver large new greenfield hospital, courthouse, and prison projects. These types of facilities do not have ready user revenue streams, and public policy has dictated that clinical or correction services are to be provided by public employees. Yet, because they are freestanding buildings, it is not overly complex to turn some aspects of facility maintenance and non-core operational services over to the concessionaire.

Nevertheless, due to the long-term concessions that pre-specify all aspects of facility maintenance over a 25–50-year period, these contracts can still be inflexible, locking in specific work practices or service patterns, with any changes requiring the public-sector partner to pay a penalty. Critics of this partnership structure have been particularly vociferous in the health care sector, arguing that the long-term concession agreements will lock in a model of health care provision focusing on regional mega-hospitals that may be increasingly incompatible with the localized needs of an aging population

(Ontario Health Coalition, 2008). In the short term, however, the risk of inflexibility has not tended to threaten the entire viability of the partnership, but has been a source of ongoing low-level tension between frontline public-sector service providers and the private contractors on site.

Finally, a significant part of the portfolio of PPP projects in Ontario includes hospital renovations and expansions rather than greenfield projects. The complex interfaces between the old and new facilities make it difficult to effectively use availability payment partnerships that transfer operations and maintenance risk to the private sector. In these cases, Infrastructure Ontario has used a build-finance model to transfer construction cost and scheduling risk to the private-sector partner, by only repaying the private partner's investment in the project upon completion of the work. The upfront investment of private financing is designed to create a key incentive to deliver the project on time and on budget, by encouraging better coordination of up-front project design work that minimizes the prevalence of requests for costly change orders (Altus Helyar Cost Consulting, 2007).

In this model, the private debt lenders have an important role in incentivizing the contractor to meet their scheduled timeline, as they continue to charge interest on their loans until the construction is completed and repayment is made. At the same time, because of the lower rates at which government can borrow money, PPP models that repay the private-sector investment following construction completion rather than over an extended operating period lower overall borrowing costs.

Thus, overall, the contemporary PPP models employed in Ontario focus primarily on controlling a very specific set of risks: those of construction cost overruns and completion delays. Conversely, the provincial government in Ontario has not widely sought to transfer revenue and operating risks, thereby avoiding many of the planning-related concerns that arise around loss of government flexibility that has plagued some PPPs internationally and been a key source of tension between the partners. This risk allocation strategy is consistent with the view in the scholarly literature that “the main risks are those that arise from technical obsolescence and changing regulation, government policy and demand, as earlier studies have shown, and the public sector will still hold these” (Shaoul, 2005, p. 453). However, because PPPs in Ontario focus so centrally on the transferring of construction risks which are highly quantifiable based on past experience, this magnifies the importance of making available the underlying data that informs the risk matrix so that the public can scrutinize that the benefits of meaningful risk transfer outweigh

the substantially higher costs of private as opposed to public borrowing.

One intriguing conclusion from this analysis of the mechanisms of project risk transfer is what it says about the place of competition and collaboration in PPPs. PPPs have often been framed as a way of introducing competition and market incentives into the project delivery process to drive efficiencies, bring down project costs, and improve project results. Sufficient competitive tension between bidders is especially critical in spurring cost-saving design and financial efficiencies in the submitted proposals.

However, this alone does not distinguish the value generator in PPPs from traditional procurement models: Each entail competitive tendering processes for the large construction portions of the project, and government can contract out facility operations separately from the PPP. Moreover, international evidence shows that PPPs actually have limited the number of firms competing for concessions, because fewer have the financial and technical capacity to attract major private investors, provide the range of services bundled into PPPs, or cover the substantial PPP project bidding costs (National Audit Office, 2007; Soliño & Vassallo, 2009). Instead, the creation of value in PPPs is rooted in both the way that collaboration is structured and incentivized between the public and private partners, as well as the level of competition between firms to win the project. This has important policy implications that will be discussed below.

The Politics of VfM

While the selection of an appropriate PPP partnership model and risk allocation strategy is based on a technical evaluation of the project's merits that includes a VfM assessment, it is also very much a political process as well. This political process is grounded in the institutional and social context in which procurement decisions are made. The politics of VfM play out at two levels.

First is at the project and assessment scale. In particular, are there perceived biases or conflicts of interest among those preparing the ex ante VfM assessment documents? Within Infrastructure Ontario, the dual role as a PPP project delivery agency that also manages the VfM evaluation process can create potential incentives to tailor the VfM appraisal to favor PPPs in order to gain further project delivery work. This concern has been articulated in the scholarly literature and also among proponents of PPPs such as the World Bank and Organisation for Economic Co-operation and Development (OECD; Dutz, Dhingra, & Shugart, 2006; OECD, 2010; Vining & Boardman, 2008).

Another area where a perceived conflict may exist is with the external consultants who are hired by Infrastructure

Ontario to produce the VfM appraisal documents in accordance with the procurement agency's methodology. Each of the 28 appraisals reviewed in this article was conducted by one of the Big Four accounting firms: Deloitte, PriceWaterhouseCoopers, KPMG, and Ernst and Young. This level of industry concentration is not entirely surprising given the large amount of experience and technical capacity that these firms have as advisors in the global PPP marketplace. Nevertheless, each firm has taken an explicitly positive position on the benefits of PPPs and publically promotes their services as PPP transaction advisors with government and private-sector clients. Authors such as Shaoul (2008) have contended that the advisory firms carrying out VfM appraisals are not entirely impartial analysts but rather have an interest in finding in favor of PPPs.

In response to these concerns, Infrastructure Ontario has taken steps to reinforce the integrity of their procurement process and the credibility of the VfM assessment approach. The VfM evaluation methodology is made publicly available and has been independently peer reviewed. A fairness auditor is hired for each PPP procurement to oversee and verify the integrity of the process. Accounting and quality control rules are in place to ensure professionalism in the production of the VfM reports conducted by the major accounting firms.

Beyond the VfM assessments themselves, however, the politics of VfM as a concept and an assessment tool have also been central to the ways that PPPs have been promoted and implemented in Ontario. In the mid-2000s, in the wake of the unpopular Highway 407 deal as well as a series of controversial hospital PPPs, PPPs in the province were widely equated with infrastructure privatizations that were broadly opposed. As part of the Liberal government's political strategy to shift public opinion and make PPPs acceptable with the public, leading politicians identified that an important part of the PPP delivery approach was empirically demonstrating that PPPs delivered VfM. "We stated up front the key principles so first and foremost public interest is paramount," explains David Caplan, the former Ontario Minister of Infrastructure at the time that Infrastructure Ontario was created, in an interview. "Value for money must be demonstrated; process must be fair" (personal interview, January 23, 2012).

In practice, however, the development of the technical VfM assessment appraisal is only one step that comes toward the end of the process of deciding to proceed with a PPP. Prior to such assessments being carried out, many decisions are made through a combination of business case assessments, informal discussions between project stakeholders, and a formal treasury board approval to proceed with the project as a PPP. In fact, as Minister Caplan describes,

Infrastructure Ontario and their VfM process have little role in deciding whether a project should proceed:

Their role was not to tell the government that this was a good project or a bad project... Once that decision was made, it was their job to put it out to the market; to make the best contract; to oversee the way that it was rolled out. (personal interview, January 23, 2012)

Given the process followed to plan PPP projects in Ontario, the VfM appraisal is used to confirm that the PPP model as designed is the correct decision, rather than as an assessment of available procurement options before a political decision to proceed with a PPP is made. The VfM report is also part of the suite of persuasive planning documents used to build support for the merits of PPP procurement with a skeptical public.

Finally, in a context where the allocation of risk underpins the VfM proposition of PPPs, senior politicians in Ontario have been closely attuned to the politics of risk when setting out the policy parameters for PPPs. In particular, the emphasis on transferring construction risk to achieve cost certainty stems from an awareness that construction cost escalations and delays on major infrastructure projects are not only expensive but also a major political risk. As George Smitherman, another former Ontario Minister of Infrastructure and past Deputy Premier explained in an interview, "The biggest trap in life is to predict the cost of an infrastructure project years before it's completed." He continued, "And the one thing about the P3 [PPP] model is that at the time that you roll out a price, it's the price" (personal interview, January 18, 2012).

Conversely, even if PPPs that transfer revenue and operation risk to the private sector could technically demonstrate that they deliver VfM, the governing Liberal party has not widely permitted Infrastructure Ontario to proceed with these types of deals over the past decade. These types of arrangements are seen to face strong stakeholder and public opposition for being too closely associated with outright privatization of public services, and there are high political risks associated with a model that cedes considerable government control over future planning. Despite petitioning from industry to more fully involve the private sector in all aspects of project delivery, the Liberal government since the mid-2000s adhered to a strategy to begin with simple build-finance PPPs to shape public acceptance of the model, before proceeding to more complex PPP approaches involving revenue risk transfer and facility operations. Thus, the structure of a PPP deal is not only based on the strict findings of the technical VfM assessment but also on the historical experiences with

infrastructure delivery and the political dynamics of the community in which the project is being delivered.

Implications for Planners

This article has explored the conceptualization, assessment approaches, and politics of VfM in large infrastructure PPPs. As has been illustrated, the VfM of a major infrastructure project is not assured simply by the decision to deliver it using a PPP. Rather, success is determined by the quality of the processes through which the PPP is planned and delivered, the allocation of key project risks between the partners, and, importantly from a planning perspective, the ways that the contracts are structured to balance the tradeoffs between incentives to manage project risks and the potential loss of government flexibility and control over long-term asset management. Indeed, these issues are common sources of conflict between the partners that have resulted in costly contract renegotiations, legal disputes, and, ultimately, the early termination of the PPP concession in some cases.

The findings point to two sets of conclusions: those related to the production of the VfM assessment, and those related to the way that PPP concessions are structured in order to deliver VfM. First, it is critical that key project information that underpins the complete VfM report is publicly released during the project planning process prior to approval, enabling meaningful assessment and debate of the merits of a PPP compared to other procurement alternatives. This includes data on private rates of project financing, expected returns on private investment, and the data used to develop the risk premiums that are applied to both the PSC and PPP concessions in the VfM assessment. This information is rarely released; however, there are not strong commercial reasons to classify this information once the bidding process is complete (see Siemiatycki, 2007).

More broadly, when recognizing that the VfM in PPPs is achieved through the leveraging of meaningful collaboration alongside the insertion of competition into the planning process, this enables a rethinking of the way that PPP contracts can be most effectively structured. At the most basic level, PPP planners should focus on unbundling the construction and operations phases of a project. Short-term build-finance or design-build-finance-type contracts provide an effective means of incentivizing the private-sector partner to manage project design and construction risks while lowering overall borrowing costs and still maintaining long-term government control over user fee setting and public policy concerns. In a context of complex contracting, these arrangements are fairly simple to structure,

manage, and monitor. Moreover, because the concessions involve fewer disparate tasks and lower bidding costs, they are also more likely to attract a larger number of bidders, enhancing the level of competition for the concession.

As illustrated based on the portfolio of PPPs in Ontario, the majority of projects lend themselves to short-term PPP models that focus on transferring construction risks to the private-sector partner. Depending on the circumstances, the public-sector partner can separately competitively contract facility operation or maintenance on a short-term rolling basis. In this approach, the government partner retains policy control over the asset, while also leveraging ongoing competitive tension between firms to provide the highest quality service operation at the lowest cost.

Longer-term concessions that bundle facility design, construction, financing, operations, and maintenance are best suited for situations where there are concerns about construction quality and facility maintenance over time, and where revenue risks can be effectively transferred to the private-sector partner. These are the most uncertain and complex types of partnerships, open to the threats of incomplete contracts. In such cases, emerging planning approaches, contract models, and payment methods have been developed to share rather than fully transfer project risks.

In order to leverage the benefits of deeper public–private collaborations to develop innovative solutions to complex infrastructure problems, some government agencies have moved toward a tendering practice known as competitive dialogue. In this approach, the public-sector client develops the performance specifications for a given project. They then enter into a dialogue with multiple prequalified concessionaires in order to refine the design and contract specifications of their bids to best meet the desired outcomes, prior to the submission of a best and final offer from each bidder. Public- and private-sector practitioners have reported that the competitive dialogue approach maintains competitive tensions between the bidders throughout the tendering process, spurs efficiency gaining project innovations, and builds trust and reduces conflicts between the partners, though there are concerns about the additional time and cost associated with this model (HM Treasury, 2010).

Another approach to improve the effectiveness of long-term PPP arrangements is to build rebalancing clauses directly into the concession agreement. If the rate of return or demand expectations are exceeded, the government partner shares in the benefit. Conversely, the private-sector partner is compensated in cases where returns fall below expectations. The thresholds at which the contract is rebalanced are determined as part of the bidding process,

so that they are arrived at through a competitive process. The application of contract rebalancing techniques is important as they tie the long-term interests of the partners in the mutual success of the project (Albalate & Bel, 2008; Engel, Fischer, & Galetovic, 2001).

Around the world, delivering VfM has been identified as the main rationale for procuring large infrastructure projects through PPPs. This reflects a significant departure from earlier waves of PPP projects that were motivated by political objectives of keeping infrastructure debt off of the public balance sheet, and an ideological view that the private sector could deliver projects more efficiently than government employees.

If PPPs are to truly move from being perceived as a politically motivated project-financing mechanism to another tool in the planner's toolbox to deliver large infrastructure projects, credible methods are necessary to appraise the merits of PPPs relative to other alternatives, and contract models are required that enable governments to meet the diverse and changing long-term interests of their communities. Achieving these objectives requires technical revisions to the VfM appraisal methodologies currently being employed, but also considerations of key planning concerns when selecting the models of PPP to be used for a project.

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