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Public-Private Partnerships to Revamp U.S. Infrastructure

In the wake of the Great Recession, state and local governments, facing severe budget constraints, are searching for new, more efficient ways to finance and build infrastructure projects. Public-private partnerships are a particularly appealing option. In a classic public-private

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partnership (PPP), the private partner builds, operates, and maintains a public infrastructure project, such as a road. When one firm is responsible for this bundle of services over time, it has an incentive to make choices that minimize the project's life-cycle costs. Moreover, PPPs financed by user fees can often help screen against investments with low economic returns.

Despite these potential benefits, public-private partnerships are used relatively infrequently in the United States, as compared to many countries in Europe. When they have been used, they have often been dogged by contract design problems, waste, and unrealistic expectations. Inflexible contracting combined with unforeseen circumstances have led to high-profile and costly bankruptcies. In other cases, governments "sold the future" by using a public-private partnership to trade future revenues for current spending—effectively saddling future taxpayers with the bill.

In a Hamilton Project Discussion Paper, Eduardo Engel, Ronald Fischer, and Alexander Galetovic offer a series of best practices to help state and local governments make the most of public-private partnerships. These include choosing partnerships for the right reasons; relying on flexible-term Present-Value-of-Revenue (PVR) contracts; accounting for partnerships as public investments on

government balance sheets; and establishing good governance practices. Implementing these changes can help state and local governments get the highest returns from their investments and reduce risks for all parties involved in a public-private partnership.

The Challenge

A well-designed public-private partnership can have advantages over traditional infrastructure provision. Traditionally, a government agency hires a private firm for the initial phase of construction of an infrastructure project. Upon completion of construction, the government agency assumes control over the maintenance and operation of the project. In this scenario, the private builder has the incentive to keep the initial cost low, even if that means forgoing investments that would save money on maintenance over the life of the project. By bundling the initial investment with responsibility for future maintenance and operations, however, a PPP ensures the private partner has the right incentives to invest wisely up front to minimize costs down the road.

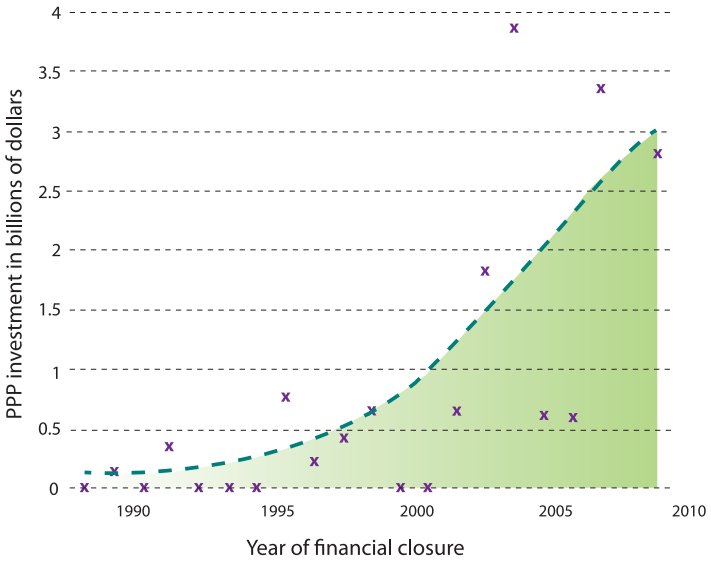
In addition, when a project is financed solely by user fees—as in a toll road—the PPP can provide a screen against inefficient projects. This is because no private investor would bid on a project where the expected costs exceeded the expected revenues.

Between 1998-2007 and 2008-2010, the use of public-private partnerships to provide infrastructure in the United States increased fivefold (although the frequency of usage is still low compared to usage in countries like the United Kingdom and Portugal). Despite their increased use and appeal, however, experience with partnerships has been mixed. The most salient experiences with the PPP model include high-profile toll-road bankruptcies when inflexible or incomplete contracts collided with lower-than-expected toll revenue.

For example, before starting on the Dulles Greenway project, independent consulting companies forecast traffic levels of about 35,000 vehicles a day. But when the road was built, the average number of vehicles per day turned out to be one-fourth of this total. Even after tolls were lowered, ridership increased only modestly. The project quickly fell into default, and the contract was renegotiated, partly at the expense of Virginia taxpayers.

FIGURE 1

Public-Private Partnership Investment in the U.S. Transport Sector



Source: Public Work Financing, October 2010, and other sources.

But greater-than-expected demand also has been a problem with public-private partnerships, as typically designed. When the California Department of Transportation (CalTrans) sold a thirty-five-year PPP concession for tolled express lanes on California's State Route 91, few anticipated the housing boom and related surge in traffic. After a few years, rising congestion sent tolls—and PPP profits—soaring but left commuters furious because a noncompete clause prevented CalTrans from building additional lanes. Eventually, CalTrans bought out the remainder of the PPP contract for $207 million—well over the $130 million cost of building the lanes.

PPPs can also be problematic in other ways: when governments fail to account for them properly, when they use them to pull future user-fee revenue forward from an existing project to plug current budget gaps, or when they create the illusion that there is a steady supply of cheap funding for infrastructure. While it is true that governments do not have to make up-front investments in infrastructure under PPPs, they also forgo the ability to collect future tolls. Moreover, whether collected by a PPP or by a government agency, those tolls will still be paid by drivers. In their eagerness to take infrastructure spending off their books, governments often fail to account for this loss of revenue.

Public-private partnerships can be an effective vehicle for providing infrastructure. But their success depends on how they are implemented.

A New Approach

Engel, Fischer, and Galetovic propose best practices for state and local governments that are interested in using a public-private partnership for infrastructure provision. These include changes to how public-private partnerships are selected, contracted, accounted for, and governed. Implementing these best practices will help ensure that partnerships are used effectively to serve communities' infrastructure needs.

Public-private partnerships often result in earlier completion of projects, lower costs, and better maintenance of infrastructure than would occur under public provision.

Choose a public-private partnership for the right reasons.

- *Public-private partnerships seldom relieve long-run government budget constraints.*

  Public-private partnerships can seem like a free lunch—a way to provide infrastructure without using taxpayer money. In actuality, the government's (or taxpayer's) overall budget constraint is seldom relieved. In a partnership, the government does not need to make an up-front investment, but it does have to forgo future toll revenue—funds that it would otherwise collect under public provision and that are ultimately paid by constituents. In short, the composition and timing of infrastructure financing differs under a public-private partnership, but the government's budget bottom line (and taxpayers' expenditures) remain essentially unchanged over the long run.

- *Public-private partnerships are not more efficient just because they involve the private sector.*

  Under both public provision and a public-private partnership, the government contracts with private companies to build, and sometimes even to operate and maintain, infrastructure. Therefore, the efficiency improvements from well-designed public-private partnerships are not due to private-sector involvement per se, but to the alignment of incentives through bundling. When one firm is responsible for both construction and operation and maintenance, it has an incentive to make choices that minimize a project's life-cycle costs. This often results in earlier completion of projects, lower costs, and better maintenance of infrastructure than would occur under public provision.

  Projects in the United States and United Kingdom demonstrate the efficiency gains that can result from using PPPs. The concessionaire that built express lanes on State Route 91 in Orange County, California, in the mid-1990s, for example, reduced construction time substantially by innovating in traffic management during construction. Similarly, the consortium that proposed the I-495 Capital Beltway HOT lanes in Fairfax County, Virginia, built high occupancy toll (HOT) lanes for one-third of the cost of the high occupancy vehicle (HOV) lanes then planned by the Virginia Department of Transportation.

  Many PPP projects in the United Kingdom demonstrate similar advantages. A 2002 UK Treasury survey found that the percent of PPP projects completed behind schedule was much lower than the percent completed behind schedule under public provision. The treasury reported, further, that there were four bidders, on average, for each project, signaling healthy competition.

- *Public-private partnerships do not necessarily lead to cost-lowering competition.*

  Competitive auctions are generally used to identify the best (often lowest-cost) private contractor. In practice, however, auctions are not always competitive. In some states, legislative approval is required for a contract to move forward after the bidding stage. This can have the effect of undoing the advantages of competitive auctions. Renegotiations can also make the terms of a contract less competitive.

- *Public-private partnerships do not guarantee that user fees are set at an appropriate level.*

  Projects that are built and operated under public provision are often subject to voter pressure to keep user fees low. Often this results in fees that are set at lower than efficient levels. For example, fees may not be indexed to inflation and may decline in real terms over time; increasing them is politically difficult. Public-private partnerships can help counter this tendency, since private firms have an interest in setting user fees at a level that, at minimum, allows them to recoup their initial investment. But they are not a guarantee against low user fees in projects where the government has agreed to make payments in lieu of some or all user fees.

- *Public-private partnerships cannot always filter out wasteful projects.*

  Public-private partnerships are sometimes billed as a way to screen against projects with low social value—so-called "white elephants." The presumption is that private firms would not participate unless there was enough demand for the project to make it profitable. When projects rely on user fees, this is generally true. But in the case of public-private partnerships financed by future taxation (such as jails), there is no market test for the desirability of the project. This leaves the door open to less desirable projects, or white elephants. For this reason, projects provided through public-private partnerships—like all infrastructure projects—should undergo cost-benefit analysis to determine if they are a good use of scarce resources.

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- *User fees can be progressive, and toll roads are not necessarily Lexus lanes.*

  Public-private partnerships are sometimes criticized for supporting so-called "Lexus lanes," or infrastructure that disproportionately serves higher-income households. However, there are several ways in which lower-income users also benefit from the existence of new or improved tolled roads. First, by diverting some users from the original roads to the tolled highways, congestion on the remaining roads may be reduced. Second, whenever there is an urgent need for rapid transportation, everyone has an option to use the tolled road. Third, when user fees finance new investment, only those who benefit most directly from the new or improved highway pay for it, so the burden does not fall on other users of the road system.

Use the right public-private partnership contract.

Traditional fixed-term contracts do not offer a means of regulating demand risk for the private company involved. If demand turns out to be much lower than projected, the private company will either take a loss or attempt to renegotiate its contract, which in practice often leads to more favorable terms for the firm. If, on the other hand, demand is much higher than projected, the private company may receive a windfall and, in the case of road and highway projects, may resist attempts to relieve congestion by adding capacity. Investors and firms seeking to protect themselves will often ask for a risk premium, additional funds to compensate them for demand risk, which in turn results in higher user fees.

One way to guard against demand risk and opportunistic renegotiation is to use a flexible-term Present-Value-of-Revenue (PVR) contract. Under a PVR contract, the private firm bids on the minimum revenue needed to cover its anticipated construction and maintenance costs over the duration of the project, rather than bidding on the lowest cost to construct the project. The firm that makes the lowest bid wins, and the contract term lasts until the winning firm collects the user-fee revenue it demanded in its bid. If demand is high, the firm recoups its revenue bid faster and the contract ends sooner; if demand is weak, the contract duration lengthens, allowing the partner to recover its bid over a long-enough period.

The main advantage of a flexible-term PVR contract is that, unless the project is a complete failure, the requested amount will be collected at some point in time. This reduces the risk to the private partner and, therefore, the required risk premium, as well as the likelihood of opportunistic renegotiation. Another advantage of the PVR mechanism is that it helps define fair compensation, in case the government wants to buy back the contract. In practice, fair compensation would simply be the present value of any uncollected revenue minus reasonable expenses for operations and management. Other award mechanisms do not have such a straightforward compensation mechanism for a possible buyback. This simplicity reduces both the need for and difficulty of contract renegotiations. Finally, with a PVR contract, it is easy to adjust user fees to respond to congested demand conditions, since the only effect is to shorten the contract term.

The main disadvantage of a PVR contract is that it provides fewer incentives to increase demand for the project. This is because firms are compensated regardless of their efforts to manage demand. PVRs are therefore appropriate for passive investments, such as water reservoirs, airport landing fields, and highways, where the firm managing the infrastructure has relatively little ability to affect demand for the investment. For other types of investments, such as mass transit, where firms can have a significant impact on demand, PVR contracts would be less desirable.

Account for public-private partnerships transparently in government budgets.

Because public-private partnerships are usually not accounted for on government balance sheets, they contribute to the illusion that there is a huge stock of funds available for infrastructure repair, improvement, and construction at little or no cost. The lack of visible budget constraints can therefore lead to excessive spending by current governments at the expense of future administrations. Therefore, public-private partnership projects should be included as spending on the government balance sheet as if they were public investments. This reduces the temptation to overspend and ensures that public-private partnerships will be chosen for the right reason—that is, when they lead to significant efficiency gains.

Implement best practices for governance.

It is a common practice in public-private partnerships for the same agency to manage each aspect of governance; however, this can sometimes lead to conflicts of interest that weaken oversight. Since the roles of planning and contracting new works are opposed to the objective of supervising existing contracts, separation of the roles is a healthy principle. One agency at the public works authority of state and local governments should be responsible for planning, project selection, and awarding projects; another should be responsible for enforcing contracts and supervising contract renegotiations. This can reduce the temptation to weaken enforcement of contracts in favor of better relations with construction companies or public-private partnership firms.

Public-private partnership projects should be included as spending on the government balance sheet as if they were public investments.

Key Highlights

The Proposal

Engel, Fischer, and Galetovic propose a series of best practices for state and local governments interested in using public-private partnerships (PPPs) to provide infrastructure.

These include:

Choosing a public-private partnership for the right reasons. PPPs can help ensure that infrastructure is adequately maintained, user fees are set at an appropriate level, and projects with greater social value are selected. But they are not a free lunch.

Using the right public-private partnership contract. PPPs that are financed by user fees should be structured using flexible-term Present-Value-of-Revenue (PVR) contracts.

Accounting for public-private partnerships transparently in government budgets. PPPs should be included on government balance sheets and treated as public investments.

Implementing best practices for governance. One agency at the Public Works Authority of state and local governments should be responsible for planning and awarding contracts and another for enforcing contracts.

Benefits

Implementing these best practices for public-private partnerships can:

Lower demand risk. Present-Value-of-Revenue contracts mitigate demand risk by adjusting the period over which a private company can collect revenue. Greater use of PVRs can reduce risk premiums and user fees by as much as one-third and lessen the need for renegotiation.

Promote fiscal responsibility. Including PPPs on government balance sheets requires governments to fully account for this form of provision in their budgets and reduces the temptation to overspend.

Reduce conflicts of interest. The role of planning and awarding projects tends to be opposed to the role of supervising contracts. Assigning responsibility for these tasks to two different agencies is likely to promote better governance.

Costs and Benefits

The effects of implementing these recommendations can lead to important improvements in infrastructure delivery in the United States. Implementing Present-Value-of-Revenue contracts, by itself, can lead to large reductions in the required return on a project and therefore in the revenue that must be collected from users. This reduces the risk premium demanded by firms when compared to fixed-term concessions (by one-third, in the case considered by Engel et al. 2001).

There is also anecdotal evidence, based on projects completed in the United States, the United Kingdom, and Chile, that well-designed public-private partnerships can result in a number of gains. PPPs in these countries have been linked with lower operational costs, earlier completion, and better maintenance of infrastructure.

Questions and Concerns

1. Are there any precedents for a Present-Value-of-Revenue contract?

The United Kingdom was probably the first country to use a contract similar to PVR. Both the Queen Elizabeth II Bridge on the Thames River and the Second Severn bridges on the Severn estuary were franchised for a variable term. The franchises will last until toll collections pay off the debt issued to finance the bridges and are predicted to do so several years before the maximum franchise period.

Chile was the first country to use an outright PVR auction. In February 1998, a franchise to improve the Santiago-Valparaíso-Viña del Mar highway was assigned in a PVR auction. The reason for choosing the PVR option was that it would be easy to calculate fair compensation for the private company should the government want to end the contract early. Beginning in 2008, PVR auctions became the standard for auctioning highway public-private partnerships in Chile. Seven highway partnerships have been auctioned using this approach, with winning bids adding up to almost $2 billion. Portugal also recently adopted flexible-term contracts for all its highway partnerships.

2. What form of public infrastructure provision is best if user fees cannot be collected?

Three options are commonly used. First, the government can use conventional provision, where it hires a firm to build a project and then assumes responsibility for operation and maintenance. Second, the government can pay the private operator a fixed fee for each user of the infrastructure (for example, in prisons, where the "users" are inmates). Finally, it can pay the vendor a fixed periodic fee, contingent on the vendor meeting a given quality-of-service standard.

Compensating a firm with a fixed user fee is not a good idea because it introduces demand risk, which could be avoided under a fixed periodic-fee contract. This increases the risk premium firms build into their bids. The purported advantage of fixed fees per user is that, because they are demand dependent, they help screen against white elephants. However, this is a moot advantage, given the authors' recommendation to subject all projects financed by government payments to strict cost-benefit analysis. Thus, at least for projects where quality can be contracted fixed periodic-fee contracts are the preferred option.

Conclusion

In the midst of a difficult budget environment, more state and local governments are relying on public-private partnerships to address their infrastructure needs. With scarce resources at hand, it is even more important that they make wise spending decisions and continue to invest in infrastructure. Implementing the proposals in this paper can help states and communities ensure that public-private partnerships circumvent common pitfalls and help maximize returns on infrastructure investment.

Learn More About This Proposal

This policy brief is based on The Hamilton Project discussion paper, Public-Private Partnerships to Revamp U.S. Infrastructure, which was authored by:

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Additional Hamilton Project Proposals

Lowering Borrowing Costs for States and Municipalities Through CommonMuni

States and municipalities depend on the municipal bond market to raise funds for investments in America's schools, roads and highways, hospitals, utilities, and public buildings. Additionally, many individuals rely on municipal bonds as a dependable investment. Evidence suggests, however, that state and local governments that borrow money by issuing bonds and ordinary investors who buy those bonds may pay billions of dollars each year in unnecessary fees, transactions costs, and interest expense due to the lack of both transparency and liquidity in the municipal bond market. This paper proposes the establishment of CommonMuni, a not-for-profit, independent advisory firm that would reduce borrowing costs for municipalities and increase returns for investors by overcoming the difficulty individual municipalities and investors have in coordinating their actions and sharing market knowledge.

Fix It First, Expand It Second, Reward It Third: A New Strategy for America's Highways

The roads and bridges that make up our nation's highway infrastructure are in disrepair as a result of insufficient maintenance that increases travel times, damages vehicles, and can lead to accidents that cause injuries or even fatalities. This paper proposes a reorganization of our national highway infrastructure priorities to "Fix It First, Expand It Second, and Reward It Third." Revenues from the existing federal gasoline tax would be devoted to preserve, maintain and enhance existing infrastructure; funding to build new and expand existing roads would come from a newly created Federal Highway Bank; and projects that meet or exceed projected benefits would receive an interest rate subsidy from a Highway Performance Fund.

The Hamilton Project seeks to advance America's promise of opportunity, prosperity, and growth. The Project's economic strategy reflects a judgment that long-term prosperity is best achieved by making economic growth broad-based, by enhancing individual economic security, and by embracing a role for effective government in making needed public investments. Our strategy—strikingly different from the theories driving economic policy in recent years—calls for fiscal discipline and for increased public investment in key growth-enhancing areas. The Project will put forward innovative policy ideas from leading economic thinkers throughout the United States—ideas based on experience and evidence, not ideology and doctrine—to introduce new, sometimes controversial, policy options into the national debate with the goal of improving our country's economic policy.

The Project is named after Alexander Hamilton, the nation's first treasury secretary, who laid the foundation for the modern American economy. Consistent with the guiding principles of the Project, Hamilton stood for sound fiscal policy, believed that broad-based opportunity for advancement would drive American economic growth, and recognized that "prudent aids and encouragements on the part of government" are necessary to enhance and guide market forces.

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