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For the Record

Rethinking Engel et al.'s Critique of Highway P3s

In "Public–Private Partnerships: Some Lessons After 30 Years" (Fall 2020), Eduardo Engel, Ronald Fischer, and Alexander Galetovic offer several conclusions from their considerable research on this subject. I have been researching public–private partnerships (P3s) in the highway sector since 1987, including publishing the Reason Foundation Policy Study "Availability Payments or Revenue-Risk P3 Concessions? Pros and Cons for Highway Infrastructure" in 2017. I believe that while Engel, Fischer, and Galetovic's critique is valid for many P3s in Latin America and Europe, it has little to do with how highway P3s are structured in the United States.

Here are the main critiques Engel, Fischer, and Galetovic set forth in their *Regulation* article, drawn from their National Bureau of Economic Research working paper "When and How to Use Public–Private Partnerships in Infrastructure: Lessons from the International Experience":

- P3s "are routinely renegotiated" after the winner has been selected, suggesting a kind of crony capitalism.
- The only real benefit of P3s is lower maintenance cost, not greater value for taxpayers via transferring risks to investors.
- The cost to the government is the same whether the project uses availability payments (explained below) or tolls (assuming the government would have chosen to use tolls in the first place).
- Revenue risk is too great for the market to bear, so if a project is financed based on revenue risk borne by the company, it will not be financeable without government revenue guarantees (which Engel, Fischer, and Galetovic say are common).

Many of those points do apply to Latin America and to some countries in Europe, such as Germany and the United Kingdom. But they are not problems in either Australia or the United States, where highway P3s are generally toll-financed, with major risks transferred from the state (i.e., taxpayers) to the P3 investors.

Outsourcing risk / It is important to understand that two different models are used worldwide for large-scale highway P3 projects. In Canada, Germany, much of Latin America, and the UK, these projects are generally financed based on the government agreeing to provide annual "availability payments" (APs) over the life of the long-term P3 agreement (typically 30–35 years). Bond buyers finance the deals based on the government's commitment to making those payments every year. Some of the projects do include tolls, but the tolls are paid directly to the government, which can then use the revenue to cover some of the cost of making the annual APs.

By contrast, most U.S. and Australian toll P3 projects are financed by toll revenues paid directly to the P3 companies by their customers. This means the risk of insufficient traffic and revenue is borne by the company, not the state (as in AP-financed P3s). Other risks transferred include construction cost overruns and late completion. At the outset of the project, the value of these risk transfers, as well as hidden state costs such as insurance (and the P3 company paying taxes to the extent it is profitable), are compared with traditional government procurement in a detailed Value-for-Money analysis to determine if the project is better done traditionally or as a P3. Hence, there is far more value in a revenue-risk P3 than just assured maintenance. Also, in Australia and the United States there is no history of "renegotiation" of the deal after the winning bidder has been selected. Indeed, P3 companies can go bankrupt if they badly miscalculate.

As for the cost to the state being the same for a P3 and conventional procurement, this might be the case for the AP type of P3. But it is clearly not the case

when the private sector provider makes the public case for tolling as the only feasible way to get the project done in the near term and willingly takes on the revenue risk. (This has been called "the outsourcing of political risk.") Such projects might have waited several decades for the state to eventually amass the resources to build them—or might not be done at all.

The most challenging claim in Engel, Fischer, and Galetovic's article is that revenue risk is a major obstacle to using the P3 mechanism unless the state provides revenue guarantees. The authors created an alternative model under which competition for the project is based on the lowest net present value of revenue each bidder would require over the life of the project. The agreement would thus have a duration that is variable: the company would go on collecting tolls until it has achieved that total, whether that takes 20 years or 95. This changes the model from "revenue risk" to eventual guaranteed profit. That would certainly subject this form of P3 to denigration as a form of "crony capitalism" if it were tried in this country.

In their 2017 article titled "Sharing the Big Risk: Assessment Framework for Revenue Risk Sharing Mechanisms in Transportation Public–Private Partnerships" (*Journal of Construction Engineering Management*), Stanford's Michael Bennon and colleagues analyzed various ways in which revenue risk could be transferred in long-term P3s. They included having government take all the risk (via the AP model), Engel's variable-length model, minimum-revenue guarantees by the state, and some form of revenue sharing. Bennon et al. evaluated each based on its effect on the borrowing capacity of the project. Their conclusion was that the least-bad approach would be a kind of revenue-sharing structure that included a small minimum-revenue guarantee and offered high potential upside for the company. Their model explicitly finds that the variable-length concession "does little to increase project leverage and hence reduce the cost of financing."

Focusing on consumers / Even more important, in my view, is that by providing essentially a guaranteed rate of return to the investors, the AP concession takes away the incentive to earn a higher return by doing a superb job of attracting toll-paying customers and delivering high value to them. In a toll road project done as an AP concession, the company has no incentive to design and operate the road so as to maximize convenient opportunities for would-be customers to enter it or seek to win their ongoing loyalty. The firm's only two tasks are to build the project competently on time and then maintain it to the state transportation department's standards. That is why this form of concession company can be caricatured as "a construction company plus a contract maintenance firm."

The availability payment concession takes away investor incentive to earn a higher return by doing a superb job of attracting toll-paying customers.

By contrast, a revenue-risk concession is a *highway business*, which has the kind of direct customer–provider relationship that you have with your cell-phone company and other service providers. That is what is sorely lacking in the 20th-century U.S. highway model we continue to follow (except for the few toll roads). Motorists and truckers pay both federal and state fuel taxes that are still called "user fees," but politicians now spend the resulting revenue on as many things as they can think of to gain votes. Highway users have no idea what they pay in gas taxes or whom to hold responsible when the roads they use are in poor condition.

Highway users are not *customers* of state DOTs, because the fuel taxes users pay do not go to the DOTs; they go to state and federal treasuries. The DOTs' actual customers are the legislators who decide how much money the DOTs have available to spend each year and what it must be spent on, often short-changing proper maintenance in order to fund more ribbon-cutting opportunities in members' districts. AP concessions keep most of that model in place, except for guarantees of proper maintenance.

To be sure, some worthy projects have high enough revenue risk that they can be difficult to finance solely on projected toll revenues. U.S. revenue-based P3 projects thus far have averaged about 14% state equity investment, along with an average of 29% private equity, 27% loan money through the Transportation Infrastructure Finance and Innovation Act (TIFIA), and the rest either bank debt or tax-exempt private activity bonds. In Texas and Virginia toll concessions, there is a revenue-sharing mechanism in which the state gains a share of the revenue if it rises above a baseline agreed to at the outset. TIFIA and modest state equity with revenue-sharing is a far better way of reducing the extent of revenue risk while preserving the powerful incentives to attract and please toll-paying customers.

Conclusion / Contrary to what one might conclude from Engel, Fischer, and Galetovic's article, in the U.S. highway sector the revenue-risk model has succeeded. Since the very first such project—the 91 Express Lanes in California, financed in 1993—there have been 17 revenue-risk highway P3 models, compared with just seven financed based on availability payments (four of which included tolls paid to the state). Only one of the 17 revenue-risk P3s has a (very small) state minimum-revenue guarantee. Two of the 17 filed Chapter 11 bankruptcy during the Great Recession, as did several Australian P3 toll-tunnel projects. In none of those cases were there any taxpayer bailouts. Since that time, bond buyers and rating agencies have applied far more rigorous stress tests to projected traffic and revenue of P3 projects. Today's P3

toll projects are more conservatively financed than the first generation, and many have retained investment-grade ratings despite short-term traffic decreases in 2020 because of COVID-19.

In short, the revenue-risk P3 model is working well in Australia and the United States, and for some of the major highway and bridge projects in France, Spain, and several other countries in Europe. Rather than needing reform, the U.S./Australian P3 approach can serve as a model for other countries.

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Reply

Bob Poole has been a longstanding and influential supporter of public–private partnership (P3) highway projects in the United States and we appreciate his interest in our article. His main concern is that our conclusions do not apply to the United States. To the contrary, we argue below that they do apply.

Poole claims that Present Value of Revenue (PVR) contracts are not suitable for the United States because they reduce the demand risk borne by the P3. This would be perceived in the United States as crony capitalism. Bearing demand risk is desirable because "the concession will do a superb job attracting toll-paying customers and delivering high value to them."

Recall however, that in a PVR auction of a P3 highway, firms bid on the present value of toll revenues and the lowest bid wins. Because the concessionaire is selected in a competitive auction, it will receive a fair compensation and the process cannot be described as crony capitalism.

PVR auctions reduce the demand risk facing the concessionaire because the P3 lasts until the bid is collected. Having firms bear demand risk is costly. A firm that bears demand risk requires a higher return to accept a riskier business. Paying a premium is worthwhile if the P3 can manage those risks, such as construction, operation, and maintenance cost risks. But it is wrong to ask the P3 to bear risks it cannot control because then its only response is to ask for a higher return at the expense of users. Because highway demand depends largely on factors beyond the P3's control—such as the overall state of the economy, the financial crisis or, more recently, the COVID-19 pandemic—it does not make sense to have the concessionaire bear demand risk.

Poole argues that in the United States those highway P3s that overestimated demand (most of them, it turns out) went bankrupt and were not bailed out by renegotiations. It is positive that losses remain private and are not socialized, but an infrastructure system based on occasional huge returns and frequent heavy losses leads, in the best of cases, to expensive finance, with the costs borne by users. Furthermore, as Poole himself pointed out in his 2017 Reason Foundation study "Availability Payment or Revenue-Risk P3 Concessions? Pros and Cons for Highway Infrastructure," the fact that construction companies "are leery of, or are simply unwilling to accept, traffic and revenue risk" explains why, since 2009, half of all new highway P3s in the United States have been availability payment (AP) concessions.

Moreover, contrary to Poole's assertion that in "the United States there is no history of renegotiation of the deal after the winning bidder has been selected," several American P3 contracts have been renegotiated. For example, the Dulles Greenway failed to meet demand estimates, went into Chapter 11, tolls were increased, and the concession term lengthened from 40 to 60 years to the benefit of some of the original equity holders. As noted in our 2011 Hamilton Project discussion paper "Public–Private Partnerships to Revamp U.S. Infrastructure," five of the 11 highway P3 contracts that had reached the operational stage at that time had been renegotiated.

Poole argues that governments do not have resources to build new infrastructure, so there is a fiscal reason for P3s. That is not true, as we explain in our 2013 article "The Basic Public Finance of Public–Private Partnerships" (*Journal of the European Economic Association* 11[1]: 83–111). To see the point, suppose that instead of a toll-based P3 highway, the transit authority issues a bond backed by the toll revenues from the highway and uses those funds to contract a private firm to build the road. If a private party receives financial support for a toll-based P3, the same financial resources are available to the transit authority. That is, for example, how the Golden Gate Bridge in San Francisco and many other U.S. highways were built. When projects are viable and can be financed by a trust financed by tolls, there is no lack of funding for a government-sponsored project. The fiscal travails of a state are not a reason for choosing P3s over government-led projects. Instead, as we argue in our article, a well-designed P3 program can lead to a variety of efficiency gains, including better and cheaper maintenance, screening projects that are white elephants, fewer delays and cost overruns, and avoiding the cost of bureaucracies.

Poole concludes his critique by suggesting that "rather than needing reform, the U.S./Australian P3 approach can serve as a model for other countries." However, in the period 1993–2016, there were only 13 toll concessions in all the United States (and nine AP concessions since 2009). Contrast that with Chile, whose economy is about 1.3% the size of the U.S. economy and where 40 toll-funded highways and tunnels were concessioned in roughly the same period. This suggests that Chile, with its well-established conflict resolution mechanisms for P3s, its toll-based PVR contracts, and funds provided by institutional investors, is a better model and should be taken seriously, even in the United States.

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