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The Indiana Toll Road Lease as an Intergenerational Cash Transfer

In a recent incarnation of the public-private partnership, state or city governments agree to lease revenue-producing assets to a private operator for a lengthy period, up to 99 years. The government receives an up-front payment, allowing it to collect many years of future revenue at once. This article evaluates the distributional consequences across time of one asset lease, the Indiana Toll Road. The analysis finds that the majority of benefits, in the form of road construction, are enjoyed in the early part of the lease, while the bulk of the costs fall late in the lease, raising important questions about intergenerational fairness.

In the Middle Ages, the children of people who died in debt were responsible for their parents' obligations and could be held in a debtors' prison to ensure repayment (Reinhart and Rogoff 2009, 63). Today, happily, laws shield children from intergenerational debt collection. No laws stop governments, however, from borrowing and shifting the cost of repayment to future generations. This can be a very attractive strategy for politicians who wish to provide costly benefits to contemporary voters without imposing any costs on them. One means of accomplishing this feat is the long-term asset lease.

This article examines the practice of using long-term asset leases as a means of obtaining funding for current government operations.

The first section discusses the phenomenon of asset leases involving up-front payments and explains the history of two important transactions. The next section is devoted to an analysis and estimation of the distribution of costs and

benefits over time of the Indiana Toll Road (ITR) lease. The chief finding is that the bulk of the benefits come early and the majority of the costs arrive late in the lease. The final section of the article examines the concept of intergenerational justice and its applicability to asset leases, considers some alternative means of

leasing roads that do not have adverse distributional effects, and offers concluding remarks.

City and state governments in the United States own many revenue-producing assets, such as toll roads and parking facilities, but because elected officials are reluctant to raise tolls or fees, these assets commonly produce less revenue than they might. The existence of underproducing assets at time when governments everywhere are squeezed for revenue has generated interest in public-private partnerships as a means of increasing revenue (Hodge and Greve 2007). In recent years, states and cities have leased roads or other assets to private operators for a lengthy period, such as 75 or 99 years, obtaining in exchange a large up-front payment from the operator. The operator gets to keep all revenue from the asset for the duration of the lease. These transactions have important consequences for intergenerational justice because they enrich current citizens and governments at the expense of future citizens and governments by transferring future revenue to current budgets.

Prominent examples of asset leases include the Chicago Skyway, leased in 2005 for an up-front payment of \$1.8 billion; the Indiana Toll Road, leased in 2006 for \$3.8 billion; and the parking meters of Chicago, leased in 2008 for \$1 billion. All of these arrangements obtain for the government a large up-front payment,

similar to a loan, which is effectively repaid over time by forgoing the right to collect future tolls or fees. An alternative view of the same transaction is that it converts a stream of future revenue into an up-front payment. Lease arrangements that include large up-front pay-

ments have the potential to shift future revenues to the present, thus enriching the present generation at the expense of the future. The purpose of this article is to assess and estimate the extent of intergenerational transfers resulting from the most prominent asset leasing arrangement, the Indiana Toll Road.

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This article examines the practice of using long-term asset leases as a means of obtaining funding for current government operations.

The ITR lease is particularly useful for this purpose because, of all of the major leasing arrangements, it is structured in a way that most protects future generations by directing the bulk of the proceeds to investments in roads that will pay significant long-term benefits to the public. By contrast, the up-front payments received by the city of Chicago in exchange for the Chicago Skyway and parking meters largely went to pay for current government operations or to provide benefits over a few years.

Public-private partnerships in a variety of forms have taken on an important role in financing, constructing, and operating transportation projects in the United States and the world (see Federal Highway Administration 2007). One important version of the public-private partnerships has the private partner undertake the design, finance, and construction of new transportation infrastructure, especially toll roads. After completion of the construction, the private partner might then hand the asset over to the public partner to operate, or the private party might continue to operate the asset under the supervision of the public partner. By providing the financing, private participation can accelerate the construction of important infrastructure projects without burdening the state budget or adding to state debt.

A very different form of public-private partnerships is the long-term lease or concession of an existing toll road or other revenue-producing asset to a private party. These arrangements have been conducted more often in Europe than in the United States (Bel and Foote 2009). They offer a number of advantages to the public partner, the most important of which is the possibility of generating an up-front payment; another is the transfer of responsibility for setting tolls to a private party. These leases allow the state to extract the cash value of existing assets, much like a home equity loan.

The Chicago Skyway lease in 2005 was the first in the current wave of asset leases in the United States. The Skyway, built in the 1950s, is an 8-mile toll road connecting downtown Chicago with the Indiana Toll Road. For many years, it lost money, but by the 1990s, traffic had increased and it had begun to generate surplus revenue. In 2004, the city initiated a bidding process with the aim of turning over control of the Skyway to a private operator. According to the plan, the operator would gain control of the Skyway for 99 years, including the right to set, collect, and keep tolls for the entire period of the lease. It would make a cash payment to the city at the time it took control of the Skyway. The operator would also be responsible for maintaining the highway.

The result of the bidding was a delightful surprise to city officials. Macquarie-Cintra, an Australian-Spanish consortium, submitted a high bid that included an up-front cash payment of \$1.8 billion. The mayor and the board of aldermen quickly signed off on the deal. The city spent some of the money immediately, used some to pay off bonds, and put some aside for the future.

Inspired by the success of the Chicago Skyway deal, newly elected Indiana governor Mitch Daniels decided to lease a much longer, more lucrative toll road, the Indiana Toll Road. Before being elected

governor, Daniels had been director of the Office of Management and Budget under President George W. Bush, had had a successful business career, and had been a sophisticated financial analyst. The ITR runs along the northern border of Indiana, connecting Ohio and Illinois, and serves as a major truck route between Chicago and the East Coast. Like many other toll roads, it was an underperforming asset. Tolls had not been raised for 20 years, so the real value of tolls paid had declined a great deal through the working of inflation.

Indiana invited bids for a 75-year lease, with details similar to the Chicago Skyway lease. The operator would set, collect, and retain all tolls for the duration of the lease and would take over all maintenance. The result of the bidding process thrilled the governor and the state legislature. The Macquarie-Cintra consortium again came out on top of the bidding with a \$3.85 billion up-front payment. Governor Daniels's plan was to devote some of the proceeds to retiring debt and to use the rest to pay for a 10-year program of statewide transportation improvements that the state otherwise could not afford without raising taxes.

The structure of both leases is very much like a revenue bond, although technically, it is not debt. According to the logic of a revenue bond, a government entity issues a bond to raise cash and pledges the proceeds of a future revenue stream to pay off the bond over a period such as 30 years (Heins 1963). Both the asset lease and the revenue bond exchange a stream of future revenue for cash today. Often, the proceeds of a revenue bond sale are used to finance the construction of an asset that produces revenue to pay for the bond, but that is not essential.

A key difference between a revenue bond and an asset lease is that state constitutions usually limit the duration of bonds to 30 years or less, thus preventing the bond repayment period from stretching on for longer than the asset will last. If a state uses a 50-year bond to pay for a roadway that will last 30 years, that means the people will still be paying for a road 20 years after it has been used up (Heins 1963; Ratchford 1941). Asset leases are a novelty ungoverned by state constitutions; thus, there is no limit on the duration of the leases.

Because a longer stream of revenue is being securitized with leases than with a bond, the leases yield a higher up-front payment than a revenue bond could. This can be very attractive to current decision makers, but the higher up-front payment is possible only because more future revenue is being sacrificed.

Previous research on highway leases has examined different aspects of them, focusing particularly on whether the arrangements represent good value for the governments involved, but they have not considered intergenerational impacts. As Indiana was engaged in the leasing process, the state commissioned a study of the ITR lease by a consulting firm, Crowe-Chizek of Indianapolis. The Crowe-Chizek (2006) study found that if the ITR remained under public control and tolls rose about as fast as they had in previous decades over the next 75 years, the net present value of future tolls, less operating costs, would be \$1.92 billion. The cash payment that the state received was about \$2 billion higher, indicating that the state received a very good price.

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Enright (2006) conducted an alternative evaluation of the value of the lease. He contended that the Crowe-Chizek study had relied on low estimates of future traffic growth and high estimates of future maintenance costs and employed too high a discount rate. Using estimates that he contended were more appropriate, he found that the present value of the 75-year stream of revenue from the ITR exceeded the up-front cash payment by more than \$1 billion. Bowman (2008) examined the finances of the Chicago Skyway lease and found that the net present value of the Skyway under public management would be about \$900 million, half of the amount of the up-front payment. Bowman wrote, "It is easy to see why the City was ecstatic over the winning bid of \$1.8 billion." Taking a different approach, Johnson, Luby and Kurbanov (2007) contended that because the Indiana Toll Road lease provides a 75-year monopoly, the operator might not keep up with traffic loads, consequently pushing traffic onto parallel routes and overwhelming them (the state is partially prohibited by the contract from expanding competing routes).

Whether or not the up-front payments are adequate compensation is an important question, but it does not bear directly on the fairness of the lease across time. Even if the state gets a good price, it could distribute the benefits disproportionately in the first few years, leaving little or nothing to citizens in decades to come.

Estimating Benefits and Costs

The key empirical task of this article is to estimate the distribution of costs and benefits of the ITR lease across the entire 75-year duration. The text of the article will contain a brief description of the method of estimation, while the details that would allow a replication will be reported in an appendix.

The benefits of the ITR lease to the public and to the government of Indiana come entirely from the \$3.8 billion up-front payment received upon signing the contract. It is conceivable that an additional benefit might be better maintenance and operation of the ITR, but there is no way of knowing whether the road will be better or worse maintained under private operation, so that potential benefit (or loss) will not be considered here. The actual benefit of the lease, and the distribution of the benefit over time, will depend on how the up-front payment is used.

The proceeds of the ITR lease are being used entirely for a 10-year program of statewide transportation improvements known as "Major Moves." The state could not otherwise afford these improvements without raising fuel taxes, an option that Governor Daniels rejected. Out of the total received, \$500 million was set aside in a "perpetual trust" called the Next Generation Trust (NGT) to be invested. After five years, and every five years thereafter, income from the trust is also spent on transportation projects.

To estimate the benefits of the up-front payment, I assumed that the balance remaining after subtracting the NGT funds would be spent in equal increments over 10 years (with unspent balances earning interest). The roads and bridges thus built are assumed to provide benefits evenly spread across 30 to 50 years, after which time they are assumed to be decrepit and provide no further benefit. It is

further assumed that all improvements generate a 5.8:1 ratio of benefits over costs (Pereira and Andraz 2011). This generates a distribution of benefits over time, rising quickly over 10 years as the money is spent and then gradually declining as the projects depreciate.

The Major Moves spending occurs for 10 years, but the benefits last much longer. In the model presented here, the last benefit received would be from bridge construction undertaken in the tenth year of Major Moves that would be received in the sixtieth year of the lease. The maximum level of benefits begins in the thirteenth year of the lease, at which time benefits from all 10 years of Major Moves are being received and augmented by the income from the NGT. Benefits begin to decline after the thirtieth year of the lease; at that point, the benefits from the first year of Major Moves roads (but not bridges) will have been exhausted. Benefits continue to decline until after the sixtieth year, when the only benefits come from the NGT.

Calculating costs is more complicated. Cost is conceived here as the value of the revenue that the state sacrifices by giving the ITR operator the power to collect and retain all future tolls. Under the lease, tolls would rise much faster than in the past. The lease allows Interstate Mobility Partners (the group that operates the ITR under the lease) to raise tolls each year at the highest of three rates: (1) the rate of gross domestic product growth, (2) the rate of inflation, or (3) 2 percent a year. Had it retained control of the ITR, the state would have collected some amount of toll revenue in excess of the cost of operating the ITR, and that would have benefited the state budget. How much the state loses is impossible to determine

because we cannot know how the state would have increased tolls if it had retained control. If history is a guide, the state would have raised tolls slowly. The consultant hired by the state to evaluate a leasing deal assumed that the state would increase tolls in the future no faster than in the past, thus producing a low estimate of future tolls and of revenue lost to the state. However, it is self-serving for cur-

rent leaders to assume that future leaders would be timid about raising tolls and to use that assumption to justify cutting the revenue available to future leaders and governments on the grounds that the revenue lost will be modest.

In the current fiscal climate, states are demanding more from their toll roads, and it is likely that Indiana would have, too. In 2007, Pennsylvania adopted a system of mandated future toll increases with legislation known as Act 44. It scheduled a 25 percent toll increase for the Pennsylvania Turnpike for 2010, with 3 percent annual increases thereafter (Pew Center on the States 2009). Governor Daniels doubled tolls on the ITR prior to the lease offering as a way of making the lease more valuable, showing that raising tolls is not impossible or politically suicidal.

Estimates here are based on three different assumptions of future annual toll rate increases: 3 percent, 4 percent, and 5 percent. Calculating net revenue also requires estimates of future traffic growth and costs of maintenance. For these, I use the consultant's estimates. Having assumptions of future toll rates, traffic, and maintenance cost, it is a simple matter to use a spreadsheet to estimate the revenue forgone by the state in each year of the lease.

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The final step in estimating the distribution of costs and benefits across time is to apply an appropriate discount rate. Most people do not regard discount rates as a fascinating topic, but in evaluating very long-term projects, the choice of discount rate has important ethical implications. The purpose of discounting is to reflect the generally agreed-upon fact that costs and benefits accrued today should be weighted more than those in the future. This is uncontroversial if one is evaluating a project from the standpoint of a decision maker today who is deciding whether a project is worthwhile to him or her at the outset of the project. But when a project distributes costs over a very long time, some will fall on people who are not yet born or old enough to participate in decision making. It is callous (or worse) to say that future costs are unimportant because they will fall on people far in the future (see Cowen and Parfit 1992, 145). As Cowen and Parfit noted, “When the future comes, those benefits and costs will be no less real” (145).

There is an emerging consensus that in evaluating projects with very long-term consequences, a low discount rate should be employed to give due weight to the interests of future generations (see Portney and Weyant 1999). The Office of Management and Budget also addressed this issue. It concluded that,

Although most people demonstrate time preference in their own consumption behavior, it may not be appropriate for society to demonstrate a similar preference when deciding between the well being of current and future generations. Future citizens who are affected by such choices cannot take part in making them, and today’s society must act with some consideration of their interest. (OMB 2003, 35)

The OMB and other analysts concluded that future costs and benefits should be discounted, but at a relatively low rate. Cowen (1992), by contrast, argued forcefully for a zero discount rate. Accordingly, estimates in this article will be based on three different discount rates: 0 percent, 2 percent, and 4 percent.

Finally, it should be noted that because these long-term projections are extrapolations of past trends, they could be unsettled by unexpected changes. Changes in transportation technology could fundamentally change the importance of cars, trucks, and interstate highways over the next 75 years, rendering all projections wrong. But estimates of the kind presented here are how the value of the lease is estimated, and the only way we have to understand the consequences of the lease.¹

Results

This section presents estimates of the distribution of costs and benefits over time, and these are helpful in understanding intergenerational issues. I have estimated two different streams of benefits: those from the 10-year Major Moves plan and those from the NGT, although they are combined in the tables and figures. In the appendix, I describe how these estimates were derived.

Understanding the intergenerational consequences of the ITR requires an analysis of how costs and benefits are distributed across time. Table 1 shows the distribution of costs and benefits across the lease, divided into 25-year blocks, employing three discount rates and three rates of annual toll increase. The distribution of

costs depends on both the rate of toll growth and the discount rate employed. Regardless of the assumptions employed, the bulk of benefits come early in the lease, and the bulk of costs are delayed until late in the lease. With higher rates of assumed toll growth, more of the costs fall late in the lease. Assuming 5 percent annual growth in tolls, more than half of the costs fall in the final third of the lease. With a 0 discount rate, more than half of the costs fall in the last 25 years, for all three rates of toll increase. Table 2 shows benefit–cost ratios for the ITR lease divided into 25-year blocks, employing a single discount rate, 2 percent. Under all of the assumed rates of toll growth the benefit–cost ratios for the final 25 years fall below 1.

Figure 1 shows the distribution of costs and benefits over the entire period of the lease, employing a 0 percent discount rate, and thus it is a graphic representation of the same information contained in table 1. The dark line represents benefits from the road building program, and the other three lines represent the costs, in the form of potential toll revenue forgone, under three different rates of toll increase. Even with a modest annual 3 percent toll increase, it is clear that the ITR lease represents a large intergenerational transfer. With larger toll increases, the imbalance over time is far worse. In figure 2, in which the discount rate is increased to 2 percent, the overall balance of costs and benefits is more favorable, but still it is clear that the preponderance of benefits come early and the costs

Table 1 Distribution of ITR Lease Costs and Benefits, by 25-Year Blocks

	0% Discount Rate			
	Total Benefits	Costs, assuming 3% annual toll increase	Costs, assuming 4% annual toll increase	Costs, assuming 5% annual toll increase
1st 25 years	37%	13%	6%	4%
2nd 25 years	41%	31%	23%	19%
3rd 25 years	22%	56%	71%	78%
	2% Discount Rate			
	Total Benefits	Costs, assuming 3% annual toll increase	Costs, assuming 4% annual toll increase	Costs, assuming 5% annual toll increase
1st 25 years	50%	23%	13%	8%
2nd 25 years	37%	36%	30%	26%
3rd 25 years	13%	40%	57%	66%
	4% Discount Rate			
	Total Benefits	Costs, assuming 3% annual toll increase	Costs, assuming 4% annual toll increase	Costs, assuming 5% annual toll increase
1st 25 years	62%	37%	24%	17%
2nd 25 years	31%	37%	35%	33%
3rd 25 years	7%	26%	40%	51%

Note: Columns sum vertically; columns may not sum to 100 percent because of rounding.

Table 2. Benefit–Cost Ratios of ITR Lease across Time

	Assumed Rate of Annual Toll Growth		
	3%	4%	5%
1st 25 years	4.0	3.4	2.9
2nd 25 years	1.9	1.1	0.7
3rd 25 years	0.6	0.2	0.1

Note: Entries represent a dollar of benefit for every dollar of cost, assuming a 2 percent discount rate.

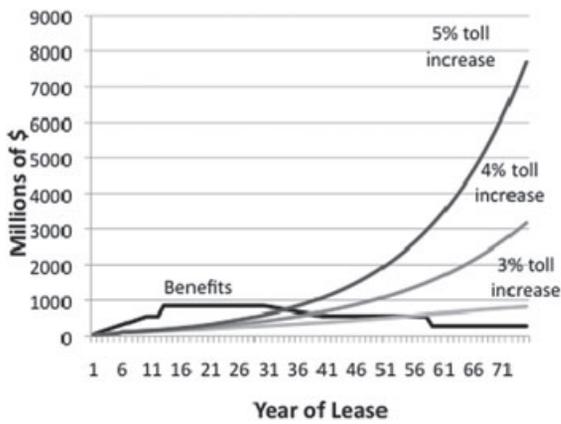


Figure 1 Costs and Benefits of ITR Lease with 0 Percent Discount Rate

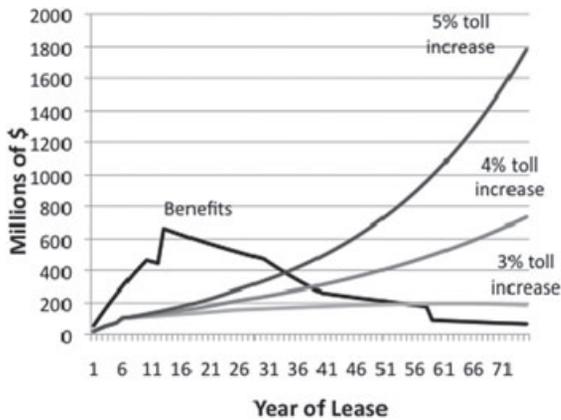


Figure 2 Costs and Benefits of ITR Lease with 2 Percent Discount Rate

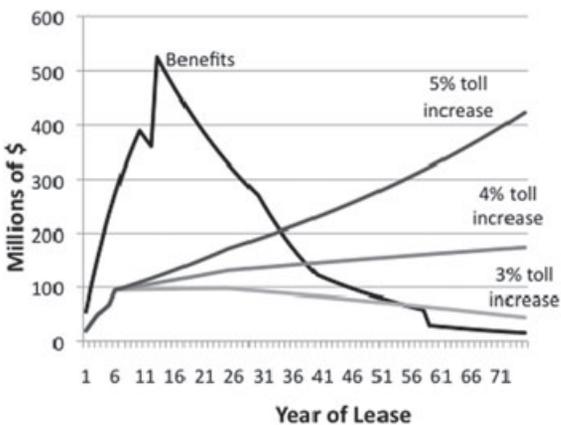


Figure 3 Costs and Benefits of ITR Lease with 4 Percent Discount Rate

come late. Figure 3 shows the distribution of costs and benefits with a discount rate of 4 percent. The burden imposed on the future is lower if a higher discount rate is employed, but even with a 4 percent discount rate, it is clear that the lease shifts costs decisively to the later decades of the lease, while the benefits are enjoyed primarily early in the lease. Notice that the vertical scales of these three figures are different.

The higher the discount rate employed, the less the ITR lease appears to cheat future generations. However, employing a high discount rate reflects an initial normative judgment that the analyst does not care much about future generations and considers their well-being less important than that of the present generation.

Evaluating Intergenerational Consequences

A large number of government programs at all levels effectively shift the cost of current government operations into the future or capture future revenues to help balance this year’s budget, raising important questions about intergenerational justice. Federal budget deficits accumulate year after year, adding to government debt and imposing a burden on future taxpayers. According to an influential report issued in 2010 by the Pew Center on the States, state pensions are underfunded by more than \$2 trillion. By underfunding pensions, states have shifted the cost of current personnel compensation into the future. Meeting the obligations that states have entered into will require significant infusions of cash, to be paid long after the pensions obligations have been accrued. States have “securitized” the future proceeds of the 1998 Tobacco Master Settlement Agreement, collecting immediately the present net value of the future stream of benefits that the tobacco industry has agreed to pay to the states (Onsager and Runde 2011).

Determining what one generation owes to another is a complicated question that a number of prominent philosophers and political theorists have investigated. Rawls (1971) argued that one generation should endeavor to leave the next at least as well off as before, with enhanced capital accumulation if possible. By this standard, a policy that shifts benefits from the future to the present, and costs from the present to the future, is unacceptable. Rawls would approve of constructing the Hoover Dam, which cost a lot of money at the time it was built and was largely paid for out of current revenues. Visitors to the Hoover Dam are told that it is expected to last about 1,000 years, meaning that the generation that built the dam provided a valuable gift that will benefit many future generations. Barry (1997) argued that one should think of future generations as if they were other people at the same time, deserving to be treated with the same rights and respect as other contemporary persons. That is, we should not discount the interests of people because they will live in the future. By this standard, it is as reasonable to shift costs of current consumption to future generations as it would be to force your next-door neighbor to pay for your vacation. Cowen and Parfit (1992) rebutted arguments that it is reasonable to shift costs to the future because people in the future will be richer than we are. They contended that people in the future will not necessarily be richer, and that even if some people in the future are richer, not all people in the future will be better off. To the extent that asset leases serve as a means of shifting the cost of current consumption to future generations, they rest on dubious ethical ground.

Viewed from the perspective of fairness to future generations, the ITR lease is insupportable. It funds a significant program of road building that provides benefits to the present generation but manages to shift the cost into the future. It deprives future governments of a potential revenue source, but it provides no compensating tangible benefit or new offsetting revenue source. It allows the current government and citizens to enjoy new roads while having to pay for

only a fraction of their cost. It is easy to see why current politicians view asset leases with up-front payments as wonderful, allowing them to spend today without raising taxes or appearing to incur debt. In short, the ITR lease is a great deal for current residents of Indiana, but it offers little to those who will live in Indiana in future decades. The politicians who approved the deal will be able to point to gleaming new roads and bridges purchased with the proceeds of the lease, and these will provide benefits for decades. Current residents will bear little of the cost of those improvements.

During the first 25 to 35 years of the lease, it will be popular. Tolls will rise modestly at first, but drivers will have the consolation of being able to drive on the roads built with the up-front payment. Indeed, most residents of Indiana will not pay the tolls because the ITR skirts the northern border of the state and thus is not useful to them. The contract with the private operator prohibited toll increases until 2010 and allows residents with a transponder to avoid paying the higher tolls until 2016. After that, the tolls will begin rising and presumably will keep rising at a brisk pace to allow the operator to recoup the cost of the up-front payment and to make a profit on the deal. After 35 years or so, the greatest portion of the benefits from Major Moves will have been used up, and the roads built from the up-front payment will be nearing the end of their useful life. The tolls on the ITR still will be rising, and roads and bridges still will need to be renovated and built, but there will be no revenue from the ITR available to help.

Even though the distribution of costs and benefits from the ITR lease is unfair to future generations, still, it is better than with some other leases. The two major leases executed in Chicago, for the Chicago Skyway and the city's parking meters, do far less to protect future generations and spend much of the up-front lease payments to solve current budgetary problems. The Office of the Inspector General of Chicago issued a report blasting the parking meters deal for bringing in far too little money compared to what the city sacrificed. The report also criticized the speed with which the plan was adopted and the lack of deliberation and analysis (Office of the Inspector General 2009).

The political logic of exchanging an up-front payment today for future revenue makes a great deal of sense from the standpoint of elected officials. Asset leases with up-front payments offer officials the possibility of providing benefits to constituents without raising taxes or taking on new debt. Rational voters might be concerned about the future cost of leasing deals, but there is ample evidence that people tend to discount future costs and benefits excessively (Frederick, Loewenstein, and O'Donoghue 2002). Leasing deals tend to be negotiated by the governor or mayor and presented to state legislature (or, in Chicago, the Board of Aldermen) as a take-it-or-leave-it proposition. In Chicago, the deals were approved so quickly that there was no time for thoughtful consideration and practically no opposition.

Alternative Approaches

Although major leases of existing assets in the United States have been tied to up-front payments, there is no necessary connection between leases and an initial payment. A lease could be structured to provide payments to the government throughout the life of the lease, not just at the outset. Such an arrangement would avoid

major shifts of revenue across time. Shifting responsibility for toll setting to the private operator achieves the major advantage of leasing—that it can greatly increase revenue by taking responsibility for setting tolls away from politicians. In addition, not having to make interest payments on the up-front payment will quite likely leave more money available to be transferred to the public over the term of the lease.

The lease of the Pocahontas Parkway in Virginia provides an alternative model that does not shift revenue across time. The Pocahontas Parkway is a toll road near Richmond that was completed in 2002 and controlled by a quasi-public entity. The traffic estimates used to justify construction turned out to be too optimistic, and the tolls were never sufficient to pay the costs of the bonds issued to pay for construction. The shortage of toll revenues required the state to pay millions of dollars a year to avoid a default on the bonds, which ratings agencies downgraded. In 2007, an Australian toll road operator—Trans-Urban—made a bid to lease the Pocahontas Parkway for 99 years. The bid included an up-front payment of \$500 million, sufficient to pay off all outstanding debt on the toll road and to reimburse the state for money it had paid to help the beleaguered toll road stay afloat. Further, the bidder agreed to complete a section of the toll road that would link it to the Richmond airport. Finally, the lease agreement allowed the state to claim a share of future toll revenue, provided that the parkway turns a profit someday.

The lease of the Pocahontas Parkway enabled the state to rid itself of a money-losing asset and, at the same time, protect the interests of future residents of the state. The up-front payment was not designed to augment current revenues of the state, and it does not convert future revenue to present revenue.

French toll road leases are structured similarly to the ITR, but the up-front payments have been far smaller. In a comparison of American and French toll road leases, Bel and Foote (2009) found that the primary reason for the smaller payments is that the European leases cap toll increases at less than the rate of inflation, thus reducing the amount that the private operator will be able to collect in tolls over the duration of the lease. By limiting the ability of the private operator to increase tolls over time, the lease protects the interests of future drivers, while simultaneously reducing the amount of money the government can earn from the lease.

The major asset leases discussed in this article vary on important dimensions in ways that affect the degree to which they shift resources across time. Table 3 compares the lease arrangements according to key variables such as the length of the lease, the size of the up-front payment, and the use of the up-front payment. In the table, the individual cases are ranked approximately according to the extent to which they transfer future revenue to the present, with those shifting the most to the present listed first.

Yet another alternative that was not considered for either the Chicago Skyway or the Indiana Toll Road was for the city or state to maintain control of the road and aggressively raise tolls itself, thus retaining a larger share of the revenue. In its analysis of asset leases, the U.S. Government Accountability Office (2008) found that in neither Chicago nor Indiana was this option seriously considered.

Table 3. Significant Features of Four Asset Leases

	Term of lease	State shares in future revenue?	Rate of toll/fee increase allowed	Upfront payment	Use of up-front payment
Chicago parking meters	99 years	No	Large immediate increase, limited somewhat thereafter	\$1 billion	Pay current city expenses
Chicago Skyway	99 years	No	2 percent, rate of inflation, or rate of GDP growth, whichever is higher	\$1.8 billion	Mostly for current expenses; retire outstanding bonds
Indiana Toll Road	75 years	No	Same as above	\$3.8 billion	Ten years of road building; retire outstanding bonds
Pocahontas Parkway	99 years	Yes	Same as above	\$500 million	Retire outstanding bonds; reimburse state for expenses

Conclusion

There are laws in place to protect younger generations against the debts of their parents. Your parents can borrow money from the bank, but they cannot obligate you to pay it back after their death. The law does much less to prevent governments from imposing burdens on successor generations. The ITR lease and other long-term asset leases effectively allow current governments to borrow money, in the form of an up-front payment, and give the creditors the right to obtain repayment from future generations by granting them the right to collect 75 years of toll revenue. Such arrangements are a very beneficial for the current generation, but the benefit so obtained comes at the cost of future generations.

A number of measures hold out the possibility for protecting against potentially abusive long-term lease arrangements. First, states could adopt constitutional amendments prohibiting leases that last longer than 30 years, just as they commonly limit bonds to a 30-year duration. Leases are near equivalents of bonds, and they should be governed by the same rules. An important reason that 75- and 99-year leases have been popular is that they increase the amount of the up-front payment. Shorter-term leases, by contrast, reduce the amount of intergenerational cost shifting.

Second, before governments adopt lease arrangements, they should commission independent studies that address the issue of intergenerational fairness and estimate the extent to which the proposed deal shifts benefits to the present and costs to the future. The studies should use a low discount rate. No independent studies were performed prior to any of the major leases signed. It is possible that if the extent of intergenerational shifting had been understood in advance, opposition would have been stronger and leasing deals might have been structured to have more benign effects on future generations. The Government Accountability Office (2008) supported this idea.

Third, accounting rules should be changed so that accrual principles are employed with respect to long-term leases, and revenue shifted forward in time does not appear misleadingly on the books as a revenue increase. The increased revenue to the present government would be balanced by a debit to represent lost future revenue. Adoption of accrual accounting would help individuals understand that the up-front payment is not new revenue, just revenue shifted in time.

Arrangements that transfer future revenue to the present or shift burdens into the distant future are offensive to any concept of intergenerational fairness. Despite this, the incentives of politicians naturally incline them to policies that provide benefits today and defer costs to tomorrow. The public, which might take a longer view than politicians, does not understand the details of leases or other complex financial transactions and thus is poorly equipped to oppose them. But it might also be the case that if the public clearly understood that a transaction was shifting a burden to their children and grandchildren, they would be opposed. Short of the enactment of constitutional impediments to adoption of long-term financial arrangements, better public understanding of the consequences of long-term deals may be the best protection of future generations from the selfishness of the present.

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Appendix: Calculating Costs and Benefits

The benefits to the government and public of the ITR lease come entirely from the up-front payment received by the government upon signing the contract. It is conceivable that an additional benefit might be obtained from better roadway maintenance, but there is no way of knowing in advance whether the roadways will be better or worse maintained under private operation, so that potential benefit (or cost) will not be considered here.

The proceeds of the ITR up-front payment are to be used entirely for transportation improvements. Of the total received, \$500 million was set aside in a perpetual trust fund called the Next Generation Trust that would be invested.

Calculating the benefits of the up-front payment means estimating the value and incidence over time of the benefits received from both Major Moves and the NGT. I assume that all road construction projects financed either by Major Moves or the NGT have a 5.8:1 benefit–cost ratio, meaning that for every dollar spent, \$5.80 of benefit is yielded. This ratio is from Pereira and Andraz (2011), who estimated the state-specific benefits of highway investment in the United States.

For this analysis, I assume that 20 percent of total expenditures under Major Moves will be on bridges, and 80 percent will be spent on roads. Bridges provide benefits for 50 years and roads for 30 years. Even after 30 years, however, a road will not be completely valueless; to capture this, I assume that after 30 years, both bridges

and roads have a “salvage” value of 30 percent of their original value. Accordingly, 70 percent of the original value of roads is depreciated on a straight-line basis over 30 years, and the remaining salvage value is distributed over the next 30 years. The same is done with bridges, except that the initial depreciation is over 50 years, and the salvage value is consumed over the next 30 years.²

Funds deposited in the NGT were invested and income was reinvested. After five years, in 2011, income above the original \$500 million was withdrawn and transferred to the Major Moves construction fund. Every five years thereafter, income will be withdrawn and given to Major Moves. I have modeled the NGT in a way that distributes benefits later in the term of the lease. I have assumed that NGT balances earn 5 percent a year until they reach a value of \$1 billion in 2018. After that, I assume that an income of 5 percent of \$1 billion—\$50 million—is available for road building every year thereafter. The impact of this modeling choice is to reduce the front-loading of benefits slightly and reserve more of the benefits until the later years of the lease.

There are at least two ways of conceiving of the cost of the ITR lease. First, there is the cost to drivers on the ITR in the form of higher tolls. Lost revenue is the notion of cost employed here. Because the operator makes no further payments to the state after the initial payment, forgone toll revenue is the total amount of revenue that would have been collected minus operating costs. I estimate lost revenue using three different annual rates of future toll growth: 3 percent, 4 percent, and 5 percent.

Calculating revenue under the lease also requires estimates of future traffic growth and growth in operating cost. I use the Crowe-Chizek estimates for these as well.³ To estimate cost, I begin with initial values of revenue, general operating cost, and repairs and maintenance from the ITR at the outset of the lease. Revenue is increased each year for 75 years by estimated rates of traffic growth and toll rate increase. The operating expenses are also increased each year by rates as estimated by Crowe-Chizek.

Notes

1. Underscoring the uncertainty surrounding long-term projections, it appears that Macquarie-Cintra probably overpaid for the ITR lease. In 2011, reports emerged suggesting that the partnership operating the lease would not have enough cash to pay payments on the bonds it had issued to make the \$3.8 billion to Indiana (Holeywell 2011).
2. A 30-year depreciation of roads is common among states. In 1999, the Government Accounting Standards Board (GASB) issued Statement 34, which, among other matters, required state and local governments to begin to depreciate physical assets that they owned, including roads and bridges. The period over which governments chose to depreciate roads and bridges provides a useful estimate of how long they are expected to last, as GASB 34 asks governments to depreciate assets over their actual expected useful life. Virginia adopted a 30-year depreciation period for roads and 50 years for bridges. Michigan also adopted 30 years for roads and a range of 30 to 50 years for bridges, depending on the type of construction. Mississippi adopted 20 years for roads and 50 years for bridges. For GASB 34 information about Mississippi, see <http://www.osa.state.ms.us/downloads/gasb34infrastructure.pdf>; for Michigan, see http://www.michigan.gov/treasury/1,1607,7-121-1751_2194-12028-,00.html; and for Virginia, see <http://www.virginiadot.org/business/Gasb34-methodology.asp> (all accessed July 16, 2012).

3. The Crowe-Chizek report estimates that operating expenses grow at an annual rate of 5.1 percent; repairs and renovations grow at 2.5 percent; and traffic volume grows at 1.1 percent annually through 2030 and 0.55 percent thereafter. These assumptions generate a conservative, low estimate of tolls and a high cost of operation. For a critique, see Enright (2006).

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