TRANSPORTATION

Who Should Pay For Infrastructure?

The most daunting impediment to efficient financing is public misperception.

BY RICHARD M. BIRD AND ENID SLACK

Most popular discussion of infrastructure spending amounts to little more than a plea for someone else to pay the bills. Although there are some reasons for higher-level governments to provide some local infrastructure projects, in the end the bill must be paid either by user charges or by taxing someone. In such cases, it is preferable for users to pay whenever that is feasible. But governments seldom do this, instead relying on taxes.

In this article, we draw heavily on our recent book, *Financing Infrastructure: Who Should Pay* (McGill–Queens University Press, 2017), to discuss why users should pay, why they seldom do, and how we may do better on this in the future.

WHY USERS SHOULD PAY

Consumers should pay directly for many services furnished by the public sector, particularly such congestible services as roads or water and sewerage provided to easily identifiable users. Charges are especially desirable for congestible infrastructure because they both signal where new investment is needed and provide funding for it.

User charges are superior to taxes for three reasons. First, charges do not distort behavior, whereas taxes do. Under a system of charges, payments are based on use of the services. One pays for what one receives. In contrast, taxes always are based on something else—sales, income, or property values—rather than the quantity of services consumed. One can alter one's taxes by changing behavior to alter one's tax obligation rather than any of the services that the taxes fund. Economists use the term "distor-

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tion" or "deadweight loss" to refer to the loss of sales, income, or property value that results from people changing their behavior in response to taxation.

The second reason that charges are superior is that they send correct signals to consumers about the true costs of the services. When user charges for services fully cover the marginal social cost of providing them, people buy such services only up to the point at which the value they receive from the last unit they consume is just equal to the price they pay, so that resources are efficiently allocated. Moreover, providers that are financed by full-cost pricing have an incentive to adopt the most efficient and effective ways for providing the service and to supply it only up to the level and quality that people are willing to pay for.

The final reason charges are superior is because they allow political decisionmakers to assess more readily the performance of service managers—and citizens to do the same with respect to the performance of politicians.

Why are these services usually funded by taxes? / Despite the benefits of user charges, public infrastructure is often funded in whole or in part by taxes. Advocates of this financing offer two economic justifications for this: such infrastructure can better achieve economies of scale through taxpayer-funded large projects, and infrastructure is subject to market failures that necessitate taxes for efficient provision.

For example, public water supply is often considered to be a "natural monopoly" because the average (and marginal) cost of supplying a unit of water declines as output increases. As a result, pricing water at marginal cost would result in an unsustainable deficit, which would discourage the undertaking of water projects.

However, according to a 2008 paper by Celine Nauges and Caroline van den Berg, relatively few water systems seem to operate in the decreasing-cost range. When users do not pay the full costs, taxpayers must make up the difference through taxes that distort behavior and impose deadweight losses. Moreover, because pricing services below cost artificially inflates the demand for more infrastructure, the total distortionary effect of such tax finance tends to increase over time.

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Although economies of scale may sometimes be important, they never tell the whole story when it comes to who should pay, how much, and when. Externalities may at times raise more complex issues. However, according to a 2009 paper by Ian Parry and Kenneth Small, the external benefits associated with infrastructure investments are often highly case-specific and difficult to measure. It is seldom obvious who, if not users, should pay how much for them.

Efficient pricing / In principle, *all* costs relating to the services provided to users, including those related to investment (amortization, interest), should be covered. If all inputs are secured from competitive markets (that is, correctly priced in economic terms), then full-cost pricing will send the right market signals to users and managers. This financing also will provide enough money to furnish the service at the economically correct level—that is, the level at which the benefits to society are at least equal to the social costs of providing the service—without additional budgetary support.

User-charge financing is the best way we know to ensure that those responsible for providing public services are not only adequately financed but also encouraged to do so in the economically most efficient way possible. In effect, a public provider financed by full-cost pricing is like a business enterprise in a perfectly competitive market, whether the provision of services is organized and run by a government department, an independent agency, or by a separate public utility enterprise (or, indeed, a properly regulated private company).

For such pricing to do the job properly, however, three important conditions must be satisfied. First, because good user charges should match the specific costs and benefits associated with services received by each individual user, considerable institutional, administrative, and legal preparation as well as substantial (and accurate) accounting information are required to design and implement a good system of user charges (as Bernard Dafflon describes for Switzerland in a 2017 paper). Few if any jurisdictions in North America come close to meeting this condition.

Second, people need to understand and accept the case for charging properly for public services—something that is now demonstrably not the case for the most part.

Third, given the technical and political costs of designing and implementing an economically sound charging system, it is worth the effort of doing so only when it really matters—that is, when such a system provides a net social benefit. Major expansions of public infrastructure investment would seem to be an instance where the potential benefits of pricing right are worth the costs of doing so.

Financing long-lived investment in infrastructure by borrowing is often sensible. However, borrowing—like public–private partnership arrangements—does not provide "free money." Loans must be repaid (and private partners rewarded) and the only way to do so is through user charges or taxes. Politicians, whose horizons are often relatively short, understandably prefer to shift costs to the future (or to another level of government). Harried local taxpayers are usually equally willing to put off to tomorrow (or, even better, to someone else) the pain of paying taxes for debt service. Borrowing—whether direct public borrowing or through (usually more costly) private partners—may be the best way to shift costs forward to the next generation to the extent that benefits from the project are estimated to flow to that generation. Borrowing may sometimes also make sense to "smooth" tax increases over time to match the expected benefit flow from the financed project. But it never lets one dodge the real question: who should pay?

WHY USERS SELDOM PAY THE RIGHT PRICES

Telling the truth about what needs to be done—relying on evidence, as academics like to say—is desirable in principle. But it is not easy to tell complex truths in ways that persuade people who are not ready to hear them. Correcting false beliefs is difficult. It takes careful planning, hard and persistent effort, and good leadership to persuade people that something they believe—for example, that user charges are often unfair, regressive, and just another name for taxes—is wrong. Advocates of more and better user pricing in the public sector face a tough audience.

Economic arguments about scale and externalities are often used against pricing. Such arguments seldom tell the most important story and are sometimes little more than assertions used to support a predetermined conclusion. Similarly, while there are some difficult technical problems in designing and implementing pricing schemes, many such problems are becoming easier to resolve. When, for instance, poor farmers in Africa can buy and sell on their GPS-equipped mobile phones, the scope for effectively pricing (say) road use is clearly much greater—especially in more developed countries—than it was even 10 years ago.

The main obstacles to more sensible pricing are now seldom economic or technical; they are political. Some opponents want to obfuscate what is going on, some have distributional concerns that they think justify underpricing public services, and some seem to think that services that are "public" enough in nature to be provided by the public sector should be provided freely to all.

For example, suggesting that transit fares should be higher during rush hours when congestion is higher is often viewed as being morally wrong, the equivalent of raising food prices at times of famine. In economic terms, however—that is, to ensure the best possible use of scarce resources—such proposals are right. Failing to vary prices to encourage more even usage of facilities over time inevitably increases the pressure to build still more public infrastructure to accommodate peak-demand increases.

Many jurisdictions now have the data available to price more correctly, which often means in a more time-sensitive way, if they want to do so. Airline pricing, for example, is already as complex and variable as anything that even the most finicky public pricing designer is likely to come up with. Firms like Amazon vary prices on a wide variety of items by the minute and no one seems to think anything of it. So far, however, governments have made little effort to join the ongoing pricing parade.

The reason is not inadequate economic understanding or lack of technical competence. Usually we do not price correctly because those in charge do not want to do so, or do not think they can sell the public on pricing, or perhaps both. Most people think, often correctly, that they have no choice but to pay high congestion prices. To keep their jobs, they must travel at peak hours. Yet economists argue that if correct prices were charged, over time employers would adjust working hours or pay to keep staff content. So in the end, on average, people would be better off.

The economists might be right. However, in the real world where most people aren't "average" in terms of where they live, where they work, the skills they have, their contacts, and so on, the lives of many of them may be drastically changed for the worse for years while such adjustments take place. People do not like change and they certainly do not welcome change imposed on them by others.

We might all be better off if road use and transit were sensibly priced. But to get there from here, some of us would have to change (and perhaps even lose) our jobs, our houses, and our way of life, perhaps forever. Visions of a perhaps slightly better earthly paradise in the future are seldom persuasive to those who see such costs looming before them.

Economists have tended to pay too little attention to such issues. One reason may be because they often perceive such problems as a transitional issue that in principle may be dealt with by providing an offsetting distributional transfer in some compensatory way. In practice, however, no government at any level anywhere has done much to provide such offsets directly to those affected.

Given the resistance that user-charge proposals frequently generate, whether reasonable or not, it is not surprising that politicians generally prefer to avoid imposing charges.

And even if a distributional offset were to be provided, many people would still be unhappy because how people view change depends not simply on the nature and size of the change but also on who decided it and how. Were *they* consulted? Were *their* views visibly considered? Is the proposal consistent with *their* view of the world? Some may think, for example, that public services should be provided free for all either as a matter of right or because they have already been paid for by general taxation. Or they may think that it is not fair to charge them for new infrastructure when in the past others seemingly got similar services for free. Or they may simply not believe that governments will (or perhaps can) deliver the promised benefits or that government should be in the business for which they, the people, are being asked to pay.

Given the resistance that user-charge proposals frequently generate, whether reasonable or not, it is not surprising that politicians generally prefer to avoid imposing charges. And even if they do so, the user-charge system they end up putting in place is often so hobbled and complex—with cross-subsidies here, special concessions there, and a complex financing structure that shifts costs outside the circle of direct beneficiaries (e.g., to the future)—that it is never quite clear who is paying how much for what. Local politicians—who must literally live with their constituents, employees, and suppliers—may be especially tempted to charge too little and in the wrong way. It is much easier to ask for transfers from higher-level governments than to deal with outraged neighbors.

HOW TO DO BETTER

Economists often assert that, as Philip Bazel and Jack Mintz state in a 2015 paper, "a user-pay model would work to eliminate political influence, create revenue for infrastructure renewal, and facilitate an optimal allocation of infrastructure resources." They are right in principle, but no one seems to be listening. As with free trade, what economists say is not very persuasive to people who see some policy as adverse to their immediate direct interests. They doubt that it will be sufficiently beneficial in the long run to make the pain of adjustment worth bearing.

Faced with such resistance, economists often respond that better data, more transparent processes, a simpler and more understandable pricing system, and more education will, over time, lead more of the public to see the light. Desirable as more transparency and education are, however, on their own they are unlikely to offset the evident distrust many people feel with respect to direct charges for public services. To sell user charges, much more attention needs to be paid to the "transitional" issues that affect people's lives in a salient fashion and appear to shape their reaction to proposed changes.

Preferring the status quo / People assess possible changes against their perception of present reality. Reactions to change are often anchored to the status quo. As everyone in the budgetary game knows, for example, what matters is often less whether what is proposed is "right" in some conceptual sense than precisely how and in what way it will change whatever it is we are now doing.

User charges have a big hurdle to jump in this respect, especially if they are charged for something that people now perceive to be free. Nothing is free when it comes to using scarce resources, of course. But no one now has to pay out of pocket for pulling out of the driveway onto a city street, let alone pay more for doing so in a congested downtown area or at peak hour. Persuading people they should pay in money as well as time for the privilege of being stuck in rush hour traffic is not an easy sell.

Most people think that the cost of using their automobile is only what they pay for fuel and any parking charges. Few account for the much larger private costs of operating and maintaining a vehicle, let alone providing home storage for it and the more esoteric opportunity costs of commuting time. And perhaps only the odd economist even thinks of the additional costs that one's commute imposes on everyone else.

Even when charges already exist, as they usually do for parking and water, it is often as difficult to raise those charges to reflect true costs or alter them for congestion as it is to launch a new charging system. Public pricing systems are sticky in the sense that prices tend to stay where they are first set. Moreover, public services are often priced like postage stamps, with everybody in the jurisdiction paying the same price regardless of how much it costs to provide each individual the service in question. Because people tend to anchor to the status quo and changes are difficult to make, it is best to get the pricing system right in the first place.

Unfortunately, governments almost never face a clean slate even with respect to brand-new infrastructure projects because the services such projects provide have their own pricing (or non-pricing) history. Moreover, sometimes people may frame proposed changes against some conception of a past "golden age" (or an equally idealized future) in which government services are free for all and somehow magically supplied without anyone explicitly paying for them.

Folk justice / Another important policy concern is the perceived unfairness of most user charges. Some may think that charging for services is just another way for government to take away their hard-earned money.

In a 2013 book, Steven Sheffrin suggests that the relevant frame within which many people think about such matters is closer to what he calls "folk justice" than to the effect of policy change on income distribution that is usually the focus of technical analysts. A critical aspect of folk justice is the extent to which people believe that their voices have been heard and respectfully considered in developing and implementing any proposed policy change.

For changes to be acceptable in a democratic system, enough people to constitute a supportive coalition must come to believe that the change will make them visibly better off.

Policymakers and analysts who wish to change pricing policies need to focus more on what really shapes people's views about prospective changes than on how consistent the results may be with utilitarian, Rawlsian, or other philosophical equity constructs. Simply asserting (or even demonstrating) that a given change will make people in aggregate better off in terms of some abstract index of welfare is not persuasive to those who do not accept (or understand) the standard of comparison. For changes to be accepted in a democratic system, enough people to constitute a supportive coalition must come to believe that the change will make them visibly better off in terms of their own values and beliefs. Reaching this goal is not easy.

Few people seem bothered by the fact that one store charges more for bread than another, but many appear to think that water should be the same price for everyone. Even if people accept not only that the real costs of providing services to different people are different but also that people may choose to have somewhat different levels of service or different degrees of access, when it comes to changing public prices the discussion often focuses on the distributional effects. The real reason for opposition may be different—workers may fear losing their jobs or homeowners may fear the value of their houses will fall—and the net result of any distributive effect on inequality or poverty may be miniscule. But demonstrating concern for, and providing solutions to, the perceived regressive effects of charging for public services may often be a necessary condition for successful reform.

Opposition to charges that originates from such concerns can be difficult to counter. Making payments more convenient, measuring costs and benefits carefully, making people aware of them, and—in cases where the distributive effect is sufficiently significant to warrant explicit attention—providing adequate compensatory offsets through direct transfers (e.g., adjustments in welfare payments and income-related tax credits) are familiar responses.

Sometimes such measures—to which few governments have paid sufficient attention in practice—may do the job. Still, getting a majority on board may be difficult. People tend to focus on clear and understandable truths: we all need water and to get to work on time; the public sector is supposed to serve all the public, not just those who can pay; and raising the direct cost of accessing any public service places a larger relative burden on the poor. They find it more difficult to understand that subsidizing services provides the greatest benefits to those who use the most—who are seldom the poor—and that underpricing encourages more use, leads to increasing demands for still more service, and is a waste of scarce public resources.

Separating (unbundling) the financing issue as clearly as possible from the basic provision issue by subsidizing directly those in need who are adversely affected may help. Water, for example, may be considered by many to be a "social" rather than an economic good.

Nonetheless, it is critical to separate the structuring and financing of such "social" characteristics as universal access and distributive and health concerns from the basic costs of setting up and running a good water system. Only when subsidies (whether for distributional or other reasons) are clearly distinguished from questions of basic financing can the provision of public utility services—including investment in infrastructure—be made transparently financially sustainable while still providing the right incentives to users, utility, and government. When subsidies are needed, they should go directly to those targeted—that is, specific consumers—and not be offered to suppliers or to all consumers as is commonly (and usually ineffectively and inefficiently) done.

Such things are easy for economists to say and have often been said. But they are seldom easy to estimate precisely. Even when good estimates can be made—in a policy context that seems increasingly to be influenced more by the instantaneous, strong, and simplistic opinions of the many than by the best reasoned (and hence generally complex and nuanced) conclusions of experts—those who believe they already know the answer are unlikely to be swayed.

The line between nudging people to do the right thing in their own interest and Machiavellian maneuvers intended to get them to go along with what someone else has decided is good for them (or perhaps simply good for the "nudger") is sometimes thin. To influence behavior (or sell ideas) requires governments to spend more time and effort understanding what their citizens want than most governments can or want to do. Simply being fully transparent and open to public scrutiny is unlikely to be good enough.

As studies of tax reform have shown, the line between idea and implementation is seldom short or straight. Gathering the evidence (preferably from credible independent research), getting the problem placed on the public agenda, devising solutions for the problems seen as relevant by those affected, then waiting until the time is ripe for reform—which may require a crisis—and then mustering sufficiently strong coalition support to get a change through, and finally sequencing and bundling implementation so that it becomes a reinforcing rather than conflict-causing process usually takes a lot of time and effort. Sound reforms can seldom be accomplished quickly or easily.

CONCLUSION

The best chance to make better use of user charges is probably when, as now, new infrastructure investment moves close to the top of the political agenda. Only when something new is on the horizon can people perhaps see that they are being asked to enter into a contract in the form of agreeing to pay for some new benefits that they can credibly see coming down the road. So long as charging more means asking people to pay more for what they already get (or perhaps for services that are deteriorating as more users crowd in), the prospects for success are slim. Unless people think it is necessary for their own welfare to pay more for a service they want and need, they are unlikely to support radical changes in the status quo. Those proposing changes need to tell a sufficiently strong and convincing story that resonates with people's values, ideas, and interests.

Most people think they already pay too much to government. If they are to pay more, they need to be convinced that they gain from doing so. They need to believe that they are paying for something that they not only need but want. Not only should all revenues from user charges go explicitly and strictly to providing the designated services, but such payments should be transparently separated from any other payments to government agencies such as property taxes or such other charges as water and sewerage bills.

Moreover, prolonged, detailed, credible, and patient interaction between policymakers and those who are expected to pay is essential. Policy advocates must visibly and adequately respond to at least the more thoughtful criticisms they receive, and politicians must be prepared to carry the ball in public. None of this is easy. But the effort may be worthwhile when the stakes are as high as they now are when it comes to how best to finance the substantial infrastructure investments being discussed and planned.

The user charge system emerging from the invariably long and usually contentious political process just described may be far from any theoretical optimum. But even user charges that are at best halfway to perfection—for example, simply more rational parking charges and enforcement on city streets instead of optimal congestion tolls—will usually be a better and more sustainable way to finance new urban infrastructure than funds obtained either from on high (federal grants) or from such seemingly free revenue sources as public–private partnerships (PPP).

In the end, users or taxpayers must always pay, and user charges (whether channeled through PPPs, governments, or utilities) are, whenever feasible, the best way to pay for new infrastructure. Some costs may be recouped from non-residents and future residents, and intergovernmental transfers and borrowing (directly or via PPPs) may be appropriate financing tools to cover such costs. But at the end of the day, the most efficient and arguably the fairest way to maintain, renew, and expand public infrastructure is simply to charge users the right prices. R

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