To: Advisory Council
From: Sherman Lewis, Chair, Transportation Economics and Pricing Subcommittee

I've cut some ... from this article, **bolded** key points, and [inserted comments in brackets] below.

April 19, 2008, by the Toronto Star. Ditch the car -- but how? By Tess Kalinowski, Transportation Reporter

... **About two years ago, the Bay Area Rapid Transit (BART) system in California introduced fees at the busiest of its 43 stations, including the Berkeley station, where the municipality requested the charge as a greening gesture. "Our studies show it hasn't affected ridership at all and it contributes to operating revenue**," said spokesperson Jim Allison.

About 350,000 riders a day use BART trains, and the system maintains about 46,000 parking spaces, compared with GO's 205,000 daily riders and 50,000 parking spots.

"I can't believe we're in 2008 and we're not charging for parking, not even to get back the money to do the maintenance of the parking lot, let alone to try and make some money," says Rod McPhail, referring to GO and the TTC, which does charge for some lots but allows Metropass holders to park for free at many stations. "**Parking lots are the future intensification sites**," says McPhail, Toronto's director of transportation planning. ...

GO expects to spend $300 million in the next five years to add 2,500 parking spaces, in elevated parking structures rather than sprawling surface lots wherever possible. [A capital subsidy of more than $120,000 per space (Canadian dollar worth more than US $) and preempt intensification for direct social use.]

But every day, an unknown number of commuters drive to a station and drive right back onto the highway because the lots are full. [Proves that demand is strong enough to support a parking charge without oos of ridership. If proceeds are used to get riders, ridership increases.]

GO has always embedded the price of parking in its tickets, says Bill Jenkins, director of customer service. [That is, those who do not park pay for those who do.]

As its lots have filled, the company has redoubled efforts to persuade customers to walk, bike or take a bus to the station. Last year, it spent $6 million subsidizing a bus fare integration program that offers GO pass holders a deep discount on local transit fares. But of the 50 million people who rode GO last year, only 3.6 million took advantage of fare integration. [Why "only"? 3.6 million looks good to me.]

Research shows riders are aware of the program, but local transit can't deliver most passengers

within the 15 minutes they're willing to spend between home and station. "They're looking for shuttle buses, really, and they have to be direct to the station, and they have to be designed such that they will wait for and meet the train," says Jenkins. Regional transit agencies don't have the resources for that kind of service. But it's an idea that needs exploring, says former Burlington mayor Rob MacIsaac, who chairs the region's transportation planning body, Metrolinx.

While **23 per cent of Toronto commuters use transit,** Peel has the highest transit use among the nearby regions, at about 8 per cent. Halton's was only about 4 per cent in the latest provincial study. "The challenge of places like Burlington and Oakville is to intensify and create key corridors which are supportive of higher-order transit without disrupting the integrity of the neighbourhood behind," says MacIsaac. ...

Despite the bad press suburbs get these days, the people who live there enjoy the quiet of their labyrinth courts and crescents. Jenkins can pull up satellite images of GO stations around the region and point to the **physical barriers that have been designed to prevent transit users from driving or parking on those streets to access the station**. ...

Will more people take transit if they know they can get a parking space at the station? A pilot project in Oakland, Calif., using an interactive **Smart Parking reservation system at the Rockridge Bay Area Rapid Transit** (BART) station, found people rode transit more often when a sign on the highway told them there was a space available. Using sensor technology, the sign posted near the station exit informed drivers when there was room in the over-subscribed parking lot. Users also had the option of reserving a space online. A survey showed **transit use rose** by 5.5 trips per month for people traveling in the morning rush. It reduced overall vehicle use by 15.6 kilometers per month and lowered commute times by 2.6 minutes. Thirty per cent of respondents said the Smart Park system encouraged them to use transit rather than drive alone, and 49 per cent said they didn't use BART at all prior to the trial.

Fees introduced partway through the project -- $1 for a same-day reservation and $4.50 for spots reserved two weeks in advance -- did have an impact on attitudes. Only **64 per cent of those surveyed said they continued to use the Smart Parking system after the cost was introduced.** [Why "only"? 3.6 million looks good to me.]

But BART officials say **ridership has actually increased since the agency began charging.**

If you want to cut greenhouse gas emissions, you have to get parking capacity right, says one of North America's leading authorities on the subject, Donald Shoup. If you don't have enough parking, motorists will cruise around. burning fuel looking for a spot, says the UCLA professor and author of The High Price of Free Parking. Shoup studied a 15-block business area in Los Angeles and calculated the **search for parking** there produced 730 tons of carbon dioxide annually. Cities can avoid adding to congestion and pollution by properly **pricing curbside parking so there are always vacancies**, Shoup says.

His research is already inspiring experiments in places like San Francisco -- "one of the few cities that would let it happen," he said. "For a convention center or a concert hall, Los Angeles

requires as a minimum 50 times more parking than San Francisco allows."

City planners aren't trained in setting parking requirements, and that's why there are so many capacity issues, according to Shoup. Parking is such a major cost to suburban retailers, "**Even if you're too poor to own a car, some of what you pay (for supermarket food) goes into parking.**"

As for sprawling mall lots, Shoup agrees with Toronto's director of transportation planning, Rod McPhail, who sees that pavement as a land bank for the future. Condos are already being built on the outskirts of parking lots near malls such as Sherway Gardens in Etobicoke, says McPhail. Down the road, that's likely to influence the style of retailing and services offered in the area, potentially bringing it down to a more human scale than the current big-box craze. ...

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I've bolded key points. Note: authors engage in negative framing and overlook tax swap concept which is critical for equity and maintaining aggregate demand.

April 20, 2008, by the New York Times. Freakonomics; Not-So-Free Ride The trouble with negative externalities, By Stephen J. Dubner and Steven D. Levitt

Americans drive too much. This isn't a political or moral argument; it's an economic one. How so?

Because there are all sorts of **costs associated with driving that the actual driver doesn't pay**. Such a condition is known to economists as a negative externality: the behavior of Person A (we'll call him Arthur) damages the welfare of Person Z (Zelda), but Zelda has no control over Arthur's actions. If Arthur feels like driving an extra 50 miles today, he doesn't need to ask Zelda; he just hops in the car and goes. And because Arthur doesn't pay the true costs of his driving, he drives too much.

What are the negative externalities of driving? To name just three: congestion, carbon emissions and traffic accidents. Every time Arthur gets in a car, it becomes more likely that Zelda -- and millions of others -- will suffer in each of those areas.

Which of these externalities is the most costly to U.S. society? According to current estimates, **carbon emissions from driving impose a societal cost of about $20 billion a year**. That sounds like an awful lot until you consider congestion: a Texas Transportation Institute study found that wasted fuel and lost productivity due to congestion cost us $78 billion a year. The damage to people and property from auto accidents, meanwhile, is by far the worst. In a 2006 paper, the economists Aaron Edlin and Pinar Karaca-Mandic argued that **accidents impose a true unpaid cost of about $220 billion a year**. (And that's even though the accident rate has fallen significantly over the past 10 years, from 2.72 accidents per million miles driven to 1.98 per million; overall miles driven, however, keep rising.) So, with roughly three trillion miles driven each year producing more than $300 billion in externality costs, drivers

should probably be taxed at least an extra 10 cents **per mile** if we want them to pay the full societal cost of their driving.

How can this be achieved? Higher tolls, especially **variable tolls like congestion pricing**, are one option. This seems to have worked well in London but was recently quashed in New York City, where the political hurdles proved too high.

A higher gas tax might also work. If a typical car gets 20 miles to the gallon, then the **proper tax would be about $2 per gallon**. But with the current high market price for gas and the political hysterics attached to it -- well, good luck with that one.

This brings us to automobile insurance. While economists may argue that gas is poorly priced, that imbalance can't compare with how poorly insurance is priced. Imagine that Arthur and Zelda live in the same city and occupy the same insurance risk pool but that Arthur drives 30,000 miles a year while Zelda drives just 3,000. Under the current system, Zelda probably pays the same amount for insurance as Arthur.

While some insurance companies do offer a small discount for driving less -- usually based on self-reporting, which has an obvious shortcoming -- U.S. auto insurance is generally an all-you-can-eat affair. Which means that the 27,000 more miles than Zelda that Arthur drives don't cost him a penny, even as each mile produces externalities for everyone. It also means that l**ow-mileage drivers like Zelda subsidize high-mileage drivers** like Arthur.

Aaron Edlin first noticed this imbalance more than 15 years ago. "I was a graduate student at Stanford," he says, "and I drove maybe 2,000 miles a year. But I paid roughly the same $1,000 as if I'd driven 10 times as much, which was a huge portion of my budget." A few years later, Edlin was serving on the President's Council of Economic Advisers when he floated an idea that economists had long found attractive: **pay-as-you-drive (PAYD) insurance.** It seemed like an obvious solution. Since no one expects to pay the same price for, say, a 60-minute massage as they pay for a 15-minute massage, why should people pay the same for insurance no matter how many miles they drove?

"The objection within the White House," Edlin recalls, "was there wasn't good academic research on the subject."

Edlin and a few others, including Jason Bordoff and Pascal Noel at the Brookings Institution, have since done such research. It makes a compelling case that PAYD insurance would work well, reducing the carbon emissions, congestion and accident risk created by too much driving while leading drivers to pay the true cost of their mileage. Bordoff and Noel put the total social benefit at $52 billion a year.

The better news is that PAYD insurance is no longer just an academic exercise. G.M.A.C. has begun using **OnStar technology to offer mileage discounts**, and next month Progressive will roll out a comprehensive PAYD plan called MyRate. Progressive, the huge Ohio-based insurer that has long prided itself as an innovator, will first offer the plan in six states, having run

a similar pilot in three other states. Drivers who sign up for MyRate will install a small **wireless device in their cars that transmits to Progressive not just how many miles they drive but also when those miles are driven and, to some extent, how they are driven: the device measures the car's speed every second, from which Progressive can derive acceleration and braking behavior.** Which means that Progressive will not only be able to charge drivers for the actual miles they consume but will also better assess the true risk of each driver.

If PAYD is such a great idea, why has it taken so long? There are at least three reasons: the tracking technology has only recently become affordable; insurers were anxious about drivers' privacy concerns; and there was a substantial risk for whichever company was first to offer PAYD on a large scale.

Participation in the MyRate program is voluntary, and that's where the economics get interesting. As with most incentive changes, there will be winners and losers. The clearest winners are people like Zelda, who can drive the same distance they used to drive and pay less. What's less obvious is whether Progressive will be a winner; there are, in fact, a couple of situations in which Progressive could lose out. If all MyRate accomplishes is to give Progressive's low- mileage customers the rate cut they deserve, then Progressive is doing little more than lowering its own revenues. It could, of course, try to compensate by raising rates on all its high-mileage Arthurs, but then there's nothing to stop Arthur from buying his insurance elsewhere. (Of course, **losing its riskiest customers** to other companies might also prove profitable for Progressive.)

If, however, Progressive can corner the Zelda market by stealing millions of Zeldas from other insurers, then it could make a killing by being the first to sell **accurately priced insurance for low- mileage drivers.** The bigger goal for society -- and the wild card in this or any incentive shift -- is to create real behavior change. And that is always easier said than done. But if Progressive's PAYD insurance can induce some of its high-mileage customers to drive less and especially to drive more safely, resulting in smaller claims payouts for Progressive and fewer negative externalities for everyone, then it could truly be a win-win-win situation.

Except, perhaps, for Progressive's rivals.

Stephen J. Dubner and Steven D. Levitt are the authors of "Freakonomics." More information on the research behind this column is online at http://www.freakonomics.com

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