

Foresight

A global infrastructure perspective

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Congestion charging could put North American city streets ahead

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The war against congestion in the US and Canada is unlikely to be won by dropping coins in a toll booth. Road charges are gaining popularity as a way to speed up traffic flow, clean up the environment and generate essential revenue to fund road and public transit infrastructure.

Ask any motorist in any North American city what their biggest worry is, and the overwhelming response will be congestion. It prolongs journeys, reduces productivity and pollutes the air.

Ask most politicians and transport administrators how best to solve congestion and the response is usually road tolling or banning cars.

But is placing tolls on individual stretches of highway really the answer? With dozens of alternative routes into most cities, a toll road (or roads) only serves to move the congestion to another part of town. Tolling also comes with high fixed costs to implement and administer, and, with gasoline tax revenue declining, will arguably struggle to raise the kinds of funds necessary to overhaul a creaking transport infrastructure.

Smarter cities lead the way

Rather than looking at tolling single roads, cities like London, Singapore, Milan and Stockholm have chosen to think bigger and introduce congesting charging across entire metropolitan areas — usually on working days and/or peak traffic hours. Electric vehicles,

motorcycles and hybrids, as well as taxis, ambulances and other emergency services, are typically exempt from the charge.

The results have been impressive, reducing journey times and accidents, and shifting substantial numbers of travelers to public transport.¹ Even the areas immediately outside the zones have only seen a minimal rise in traffic. And the significant revenue potential of operating these schemes have also meant substantial sums of money raised for investment in roads, bridges and public transit systems.^{2,3} In London, for instance, expenses are only approximately 33 percent of total revenues.⁴

Many of the initial fears have also proved to be unfounded. One concern was that the cost of a congestion charge would deter both commercial vehicles and shoppers from accessing parts of the city. This does not appear to have happened. Delivery vans, transport trucks and tradespeople have the opportunity to be more productive, as there is less traffic, enabling them to move between destinations more quickly. And retail activity has also remained largely at or above pre-congestion charge levels.⁵

¹ *Milan's Area C reduces traffic pollution and transforms the city center*, C40 Cities, March 2015.

² *Alternative Funding for Canadian Transit Systems*. Canadian Urban Transit Association (CUTA), 2016.

³ *Urban Road Pricing: A Comparative Study on the Experiences of London, Stockholm and Milan*, Edoardo Croci and Aldo Ravazzi Douvan, Working Paper n. 85, IEFE – The Center for Research on Energy and Environmental Economics and Policy at Bocconi University, February 2016.

⁴ Annual Report and Statement of Accounts 2014/15, Transport for London, 2015.

⁵ *Congestion charges and retail revenues: Results from the Stockholm road pricing trial*, Sven-Olov Daunfeldt, et al., Transportation Research Part A 43, 2009.

In London and Stockholm, there has been a noticeable increase in use of public transport, with the latter enjoying a marked rise in the ownership of hybrid and electric cars exempt from the charge, helping to make the air cleaner. Milan, formerly one of the most polluted cities in Europe, has also seen a dramatic improvement in air quality.⁶

Public acceptance of the schemes — considered to be a major obstacle — has actually been surprisingly positive, with drivers quickly adjusting to the new normal. Stockholm chose to significantly increase public transit availability during a trial run of the scheme, followed by a referendum, where citizens voted in favor of retaining the charge.

Visions of a fast-moving, connected urban landscape

While there can be significant up-front implementation costs, this method is relatively low-cost to operate, allowing for substantial revenue potential in the mid to long-term. In our City of Toronto analysis the main finding was that initial implementation costs were quite high. Once you recouped that, it's relatively low cost to operate. Stockholm initially experimented with cameras plus transponders that picked up radio signals in vehicles, but soon withdrew this latter approach due to the high cost.

Cities have had to prepare for the impact on other parts of the transport system; most obviously the public transit network. This means running extra buses and trains to cope with the surge in commuters choosing to leave their cars at home.

A slick system can also be part of the move towards connected traffic management. By recording every vehicle that enters the zone, city transport managers can quickly deal with jams, by communicating with drivers and opening, closing or changing the direction of lanes, to get congested areas moving again. GPS tracking technology on mobile phones is expected to be part of this connected system.

City-state Singapore is ahead of the game in this respect, with every domestic vehicle required to have an in-vehicle unit that is recognized when entering the cordon zone. This device communicates with electronic gantries and deducts the charge

automatically from a payment card. By 2020, this should be superseded by a GPS-based system that also covers parking.

In Moscow, which has not introduced congestion charging, drivers use a mobile phone-based system for parking that is cash-free, and instantly charges the vehicle owner for the time parked. These kinds of innovations help to bring down the cost of administering schemes, leaving more revenue available to invest in key transport infrastructure.

If one or more cities in a country were to adopt congestion charging, the management of the systems could be centralized or outsourced, further reducing the overall running costs.

Keeping a scheme on track

Given the high profile of congestion charging, the city authorities should be as transparent as possible, both in defining and measuring its effectiveness, and in outlining how the revenue is spent.

Clear targets — like reductions in traffic volume, average journey times, average vehicle speed and air quality — can help demonstrate the success of the scheme. Singapore, for example, adjusts its toll fees every 6 months to achieve desired traffic levels. It has even been known to reduce the charge. Imagine real-time adjustments.

The public will likely want to know that the money raised is ring-fenced to improve transport, and isn't just another stealth tax. Communicating how the revenue is spent can reassure citizens that their congestion fees are being used to benefit travelers. Transport for London, which runs the city's charging scheme, publishes an annual report on key performance indicators, including how much money is raised and where it is allocated. Transparency is key.

Road charges will inevitably face public, commercial and political opposition, especially in Canada. But the experiences of London, Milan, Stockholm and Singapore point the way to an enlightened future, where we can all gain more enjoyment from our cities, thanks to fewer vehicles on the roads, better public transport, up-to-date infrastructure and cleaner air. Congestion charging has the potential to deliver such benefits. It's now up to the relevant authorities be bold and embrace the opportunity.

⁶ *Alternative Funding for Canadian Transit Systems*. Canadian Urban Transit Association (CUTA), 2016.

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