

Regulating Vehicle Access for improved Livability

Congestion charging

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 815008





KLARASTRANDSLEDEN 16.30 TISDAG 3 JANUARI



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Emission reductions



Driving Fee Rolls Back Asthma Attacks in Stockholm

Study estimates that without new "congestion pricing" policy, kids would have suffered 45 percent more asthma attacks.



	London	Stockholm	Milan	Gothenburg		
CO2	-16.4%	-13%	-22%	-2.5%		
				(region)		
NOx	-13.4%	-8%	-10%			
PM2.5	n.a.	n.a.	-40%			
PM10	-15.5%	-13%	-19%			

http://www.nber.org/papers/w24410.pdf







UK ► UK politics Education Media Society Law Scotland Wales Northern Ireland



https://www.lancaster.ac.uk/media/lancaster-university/content-assets/documents/lums/economics/working-papers/LondonCongestionCharge.pdf



Traffic effects of congestion charging

	London	Singapore	Stockholm	Milan	Gothenburg
Traffic volume	-16% (2006) -30% charge-able vehicles, +25% busses, +15% taxis, +49% bicycle -21% (2002-2008)	 -44% after ALS -10%-15% after ERP compared to ALS - 20%-30% for other extensions of the system 	-20% across the cordon	-34% (-49% in user of heavy polluting vehicles)	-10% across cordon, -2.5% vehicle-km in Gothenburg
Travel times	-30% delays	speed criteria charge levels between 20-30 kph and 45-65 kph	-33% in delays	-17% in congestion +7% bus speed, +4.7% tram speed	-10-20% reduction median travel time on corridors
Public transit ridership	+18%	n.a.	+5%	n.a.	+6%



Political starting points

Often there is a deep conflict between left and right political ideologies making change difficult

- **Right spectrum / car oriented** ٠ politicians will oppose charging because it is framed as a tax and limitation on freedom
- Left spectrum / environmentalist ۲ politicians will oppose charging because of equity concerns and that transportation should not be seen as a normal market places

Create a win-win situation so both sides can support

- The right / car oriented politicians get • improved travel times and travel time reliability
- The left / environmentalist politicians • get reduced flows, car dependency, GHG emissions, and improved air quality
- And they both get access to a revenue stream to make investments



Public acceptance

- Political and public acceptance are not the same thing
- **ALWAYS** low public acceptance before introduction
 - In a well designed policy, public acceptance increases after implementation even for those that drive and pay often
 - Partly because users see the direct benefits (less congestion)
 - But mostly because users see less disbenefits than they feared



Place	Before	After
Stockholm	21%	67%
Bergen	19%	58%
Oslo	30%	41%
Trondheim	9%	47%
London	39%	54%



Getting the process right

- Identifying political objectives and constraint
- Developing a comprehensive evaluation framework
- Having a model based iterative design process where a political level
 interacts with the technical level







What congestion charging can look like



Charge levels Stockholm





Auto Pay

The automated payment system will record the number of charging days a vehicle travels within the charging zone each month and automatically take payment from your debit card, credit card or via direct debit each month.

Pay in advance or by midnight on the day of travel

You can pay up to 90 days in advance. So, for example, you could pay for one day, a month or a year. Or you can pay after the journey on the day of travel.

By midnight the following charging day

You can only pay the following day online or by phone. If you travel on a Friday you have until midnight on the following Monday to pay.



	Engine class \rightarrow Euro levels \rightarrow	Gasoline							Diesel							Undersid / bit facel	Flantsia	
		6	5	4	3	2	1	0	6	5	4	3	2	1	0	Hybrid / bi-ruei	Electric	3000
	non-residents			€	5				€5			free ¹	free	fr				
	residents ²	€2			banned	€2			banned				free ¹	free	fr			
	commercial			€	3					€3						free ¹	free	N

banned⁴

banned'

£11.50 Pay online

£14

Auto Pay

Pay online

public service³

£10.50 Pay by

9

free

NA



Future readiness of mobility pricing

Emerging mobility services and technologies change transportation markets, city revenue streams, and effectiveness of existing policies

- Electric vehicles reduce fuel tax revenues and have (in many countries) close to zero marginal operating costs
- Ride hailing services (TNCs) increase vehicle kilometers and congestion levels, increase demand for curb side space, and reduce parking needs (and parking revenues)
- Automated vehicles, partly unclear, but prepare for increased vehicle kilometers

A need for curb space demand management and an opportunity for distance based charging. Parking policies, vehicle purchase/registration fees and fuel taxes will become less effective over time



Thank you for your attention

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10/24/2019