Centre for Transport Studies
STOCKHOLM

Inför trängselavgifter i Köpenhamn: Erfarenheter från Stockholm

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(1)
The basics:
How and why it works

Why congestion pricing?

- Road congestion cannot be solved by investments in roads or transit alone
  - Scarcity of urban land
  - Financial constraints
- Need to use road capacity efficiently
  - A price (rather than a queue) will prioritize most ”valuable” traffic (freight, commuting)

- Congestion pricing and investments are ”substitutes”
  - in the sense that they reduce the the ”need” for the other
- … but generally speaking, growing urban regions will need both

- Only introduce congestion pricing when it’s needed
  - cheaper and more efficient ways to get revenues or reduce carbon emissions

It works.

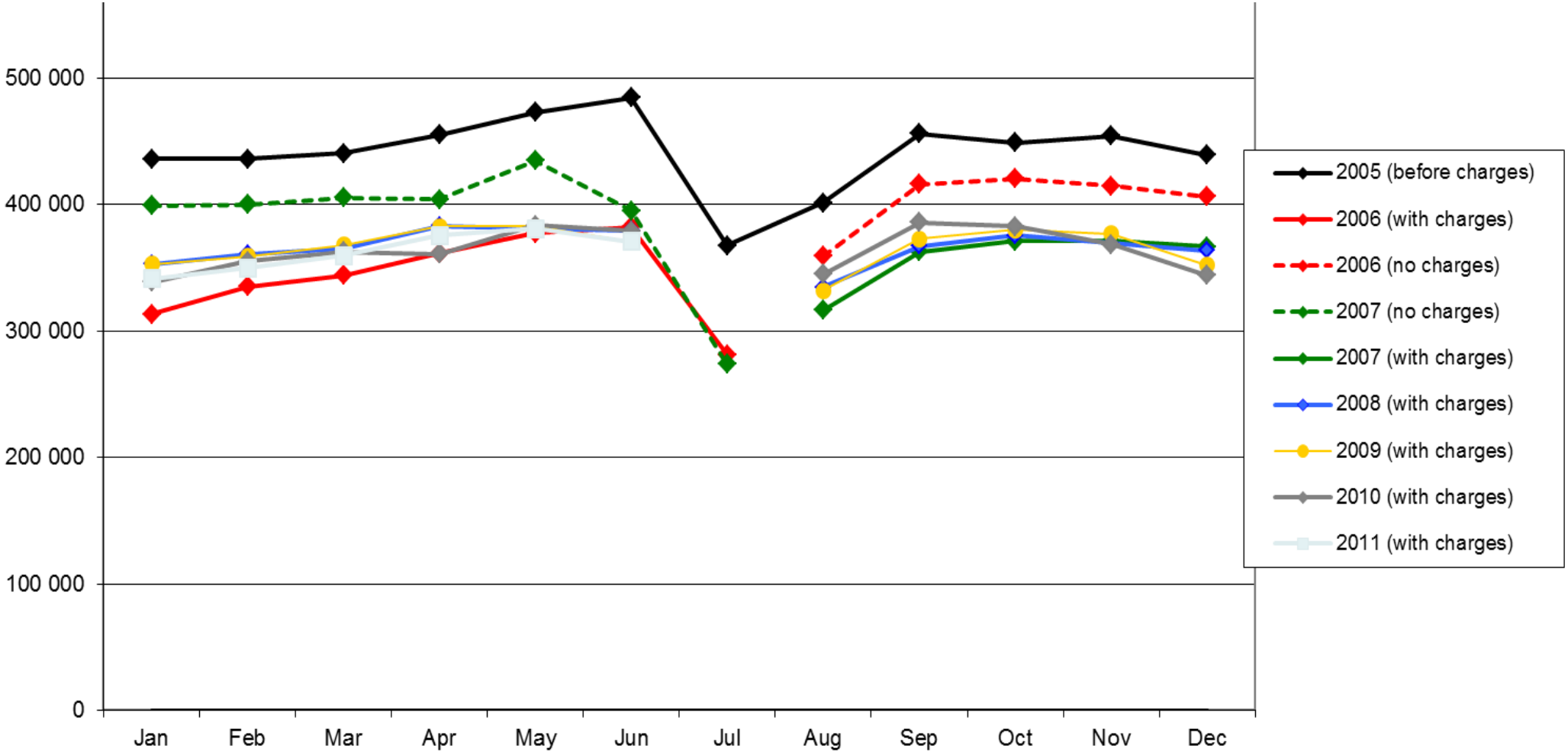

TISDAG
Bröder som spelar bröder
NÖJE, S/24
metro
STOCKHOLM
Daniela slår ett slag för vårens mode
NYHETER, S/03
KLARASTRANDSLEDEN 16.30 MÅNDAG 2 JANUARI
KLARASTRANDSLEDEN 16.30 TISDAG 3 JANUARI
KLARASTRANDSLEDEN 16.30 MÅNDAG 9 JANUARI
LUGNT PÅ KLARASTRANDSLEDEN. Lugnt på Essingeleden. Lugnt i kollektivtrafiken. Ingen visste i går med säkerhet vart stockholmarna tagit vägen.
Stockholmare, vart tog ni vägen?
VAR TREDJE BILIST ställde bilen inte tänkt åka tåg i dag i alla Mellan klockan 6.30 och 18.30 klockan 6.30, då skatten börjar tas

”Stockholmers, where did you go?”


DAGENS NYHETER.
Var fjärde bil försvann
Skane Roslags Norr

”Every fourth car disappeared”

Effects are persistent



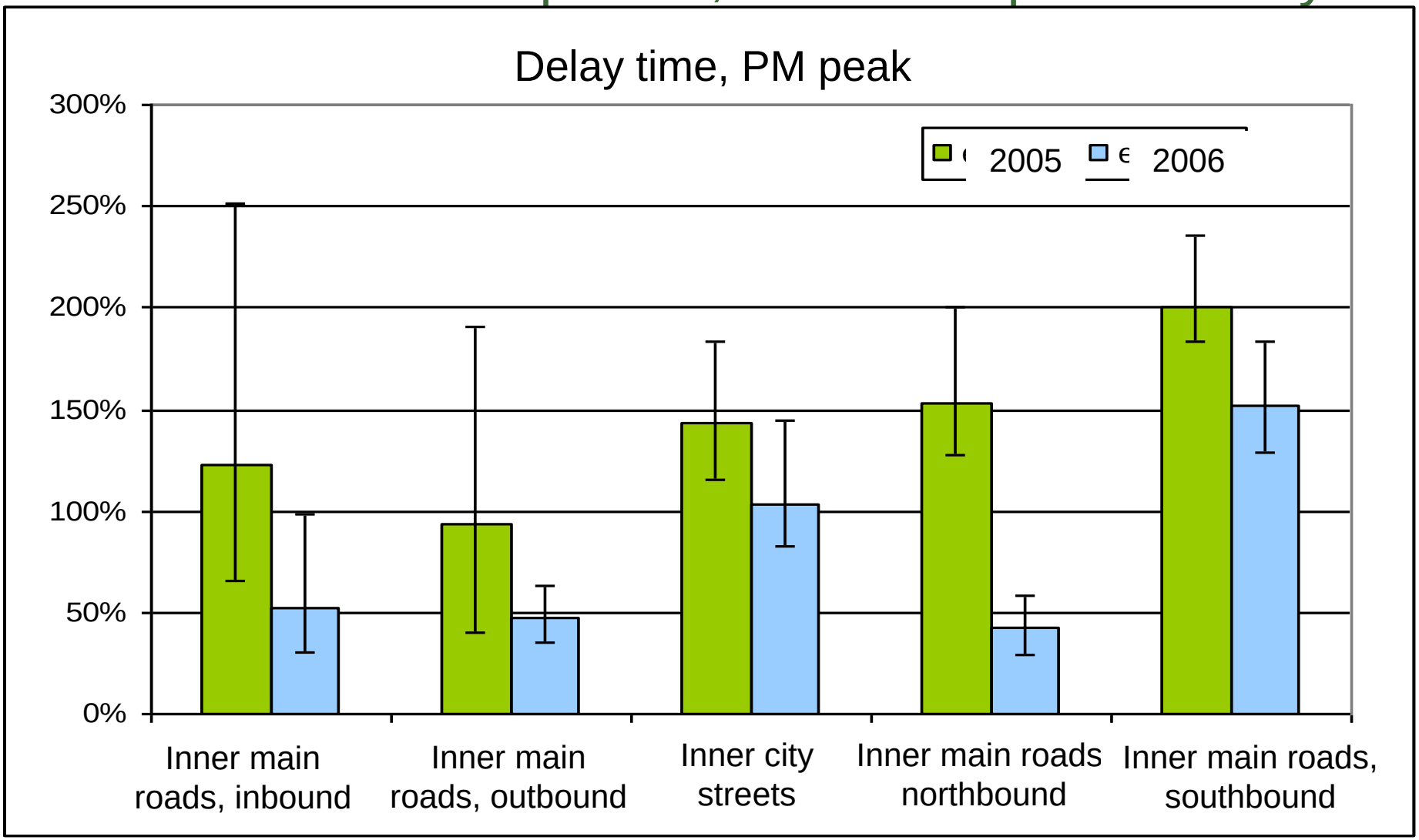
Are drivers ”getting used to” the charges?

- Traffic across the cordon a few percent higher
- Are the charges losing their effectiveness?

- NO: after controlling for population, inflation, changed tax regulations, fuel prices etc….

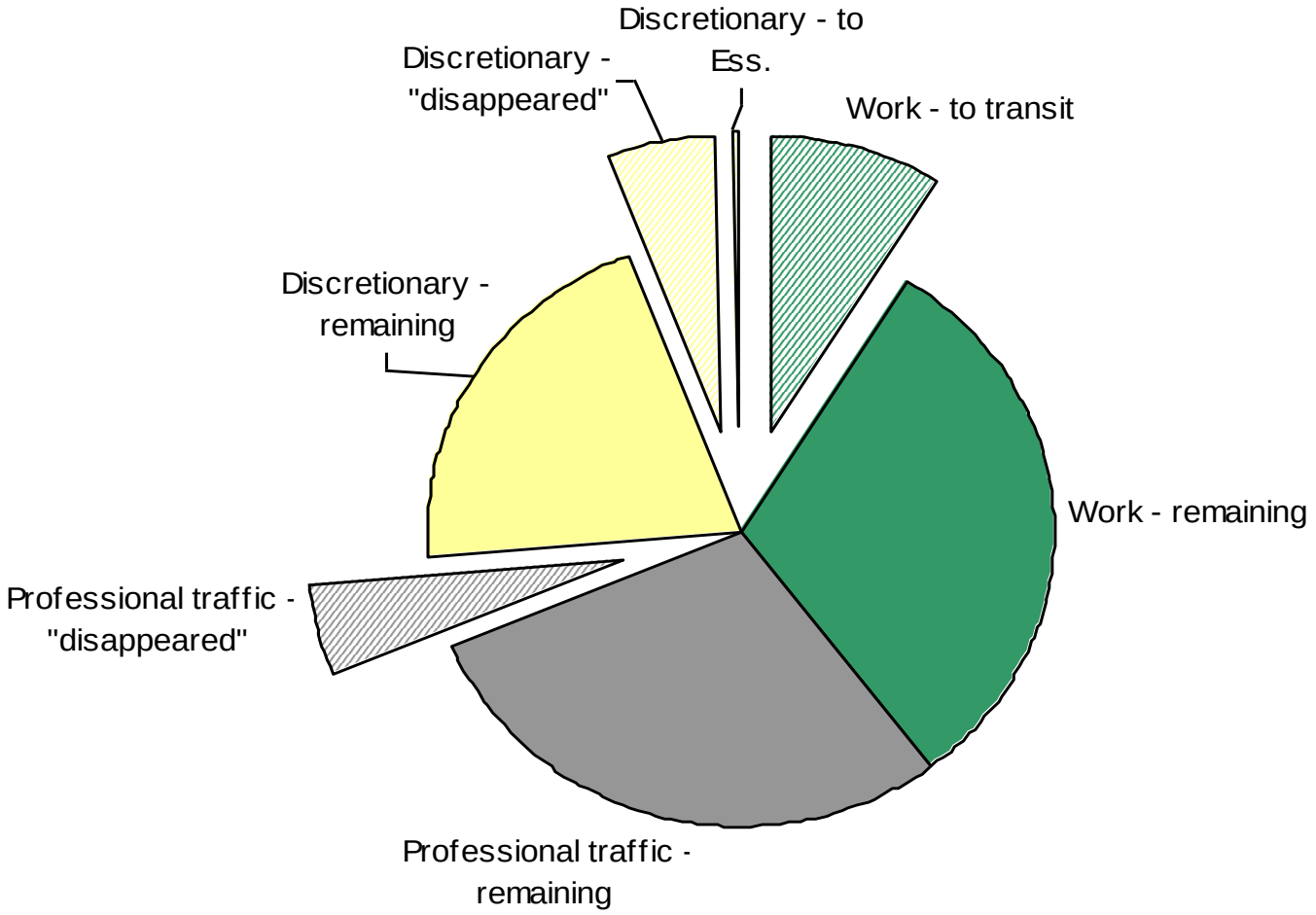
- … the toll elasticity is *higher* in the long term than in the short term (-0.86 compared to -0.70)

30-50% less queues; increased predictability



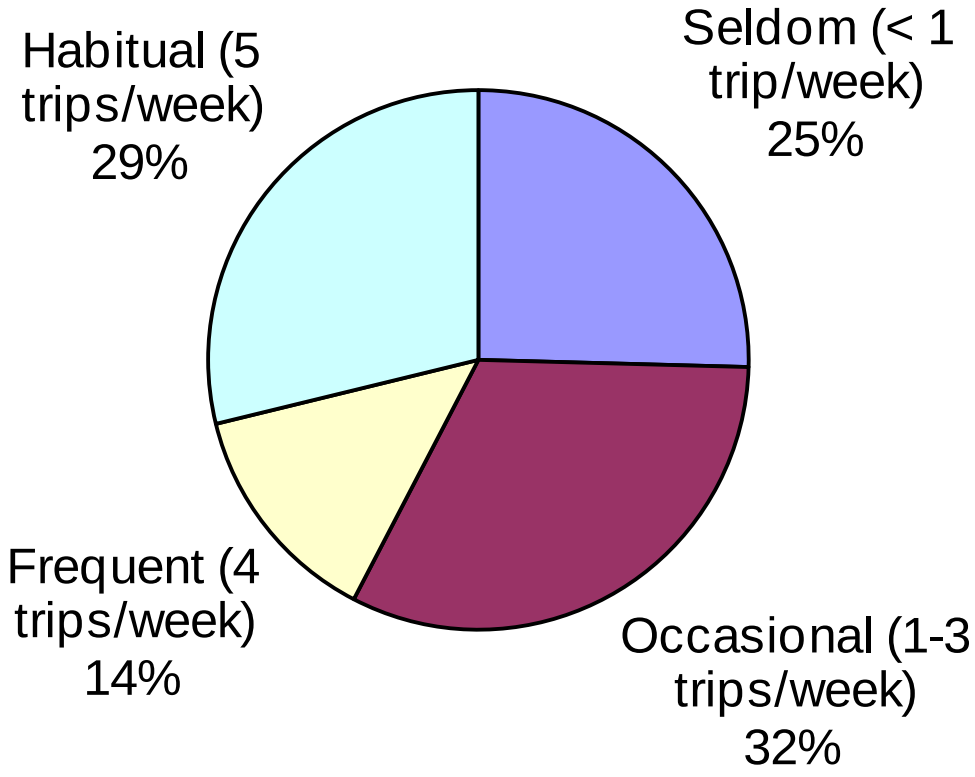
There are many ways to adapt – not just mode and route choice

… and traffic isn't just work trips



People change from day to day

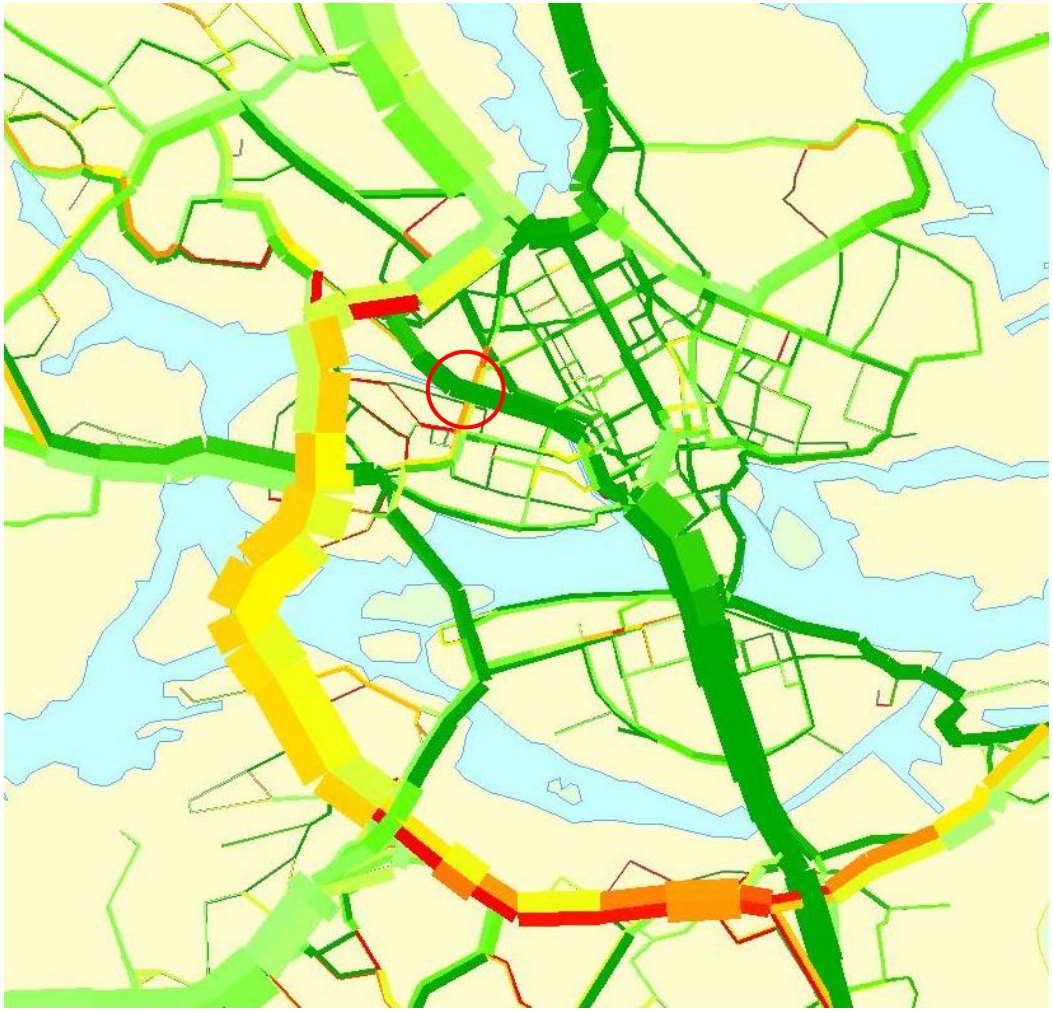
and over longer periods they move and get children and grow older and…

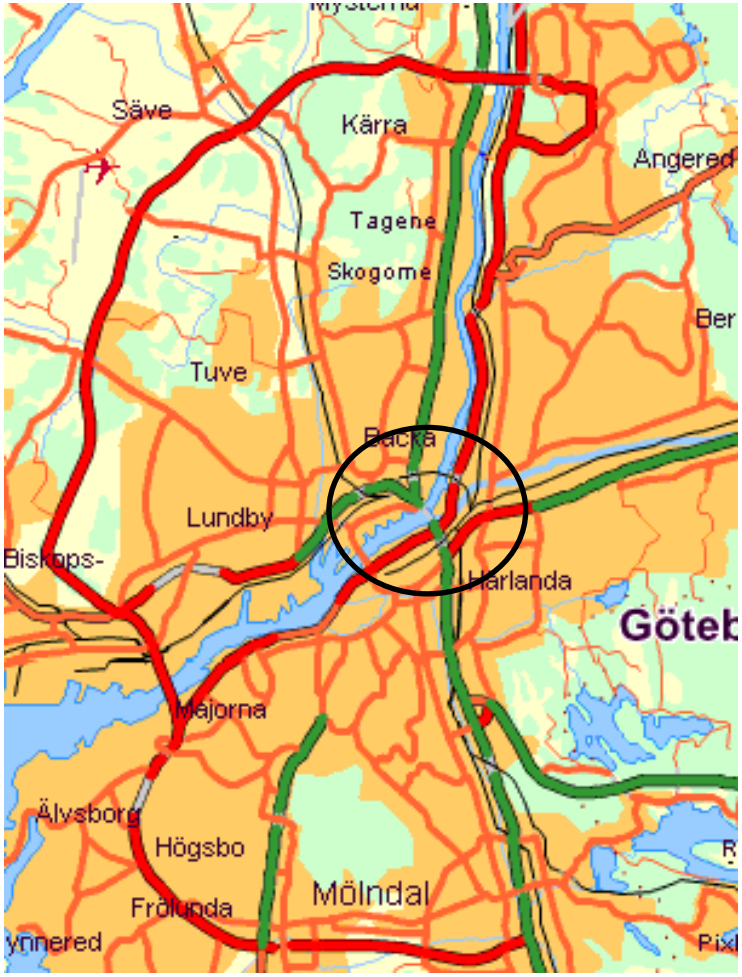


Private cars across cordon

(2)
Designing congestion charges

Designing charges is difficult





Setting up a design process

- Define the purpose(s)
  - Easy to communicate later
- Designing congestion charges is a job for experts
  - Keep politicians away from design details
  - Force them to talk about purposes, goals, constraints
- Design and forecast carefully
  - Use a good transport model (a speech of its own…)

Effective or simple?

- Singapore and “value pricing” are “complicated” designs – that work
- A simple system may be nearly as good as a first-best one
- Don’t make it too simple – need to achieve benefits!

- The lure of simple systems is strong – be wary

(3)
Acceptability

Support decreases with detail, increases with familiarity

Who accepts congestion charging?

Accept when

- Care about environment
- Trust government
- Ride transit / bicycle
- Revenues are earmarked

Disprove when

- Feel over taxed already
- Distrust politicians
- Drive much car
- Poorly educated

Matters less:

Age, gender, income, family size, employment, work time, attitude to allocation principles, pricing in other fields or income distribution

Conclusions

- Congestion charging is a complex mechanism. Very few “get it”
- Judge it by its look: A market distorting tax. An attack on car drivers. A project for the environment. Or climate change.

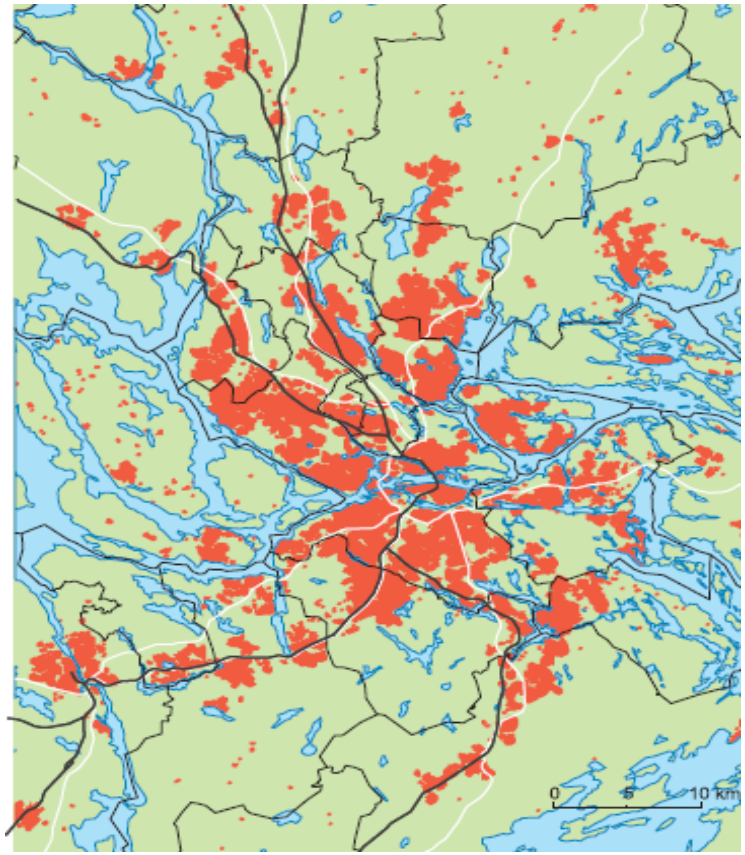
- But it’s neither!
- Congestion charging is about spending less time in car queues & making travel times more predictable.
- All other benefits (and costs) are small in comparison.
- But public opinion is generally formed around all those other things.

Reservbilder

Why a ”success”?

- The technical system worked
- Information had worked – people knew what to do
- Visible congestion reductions
- Extensive scientific evaluation
- Clear objectives – that were reached
- ”Fair and efficient” design that was consistent with the stated objective
- Political acceptance: revenues part of ”investment package”

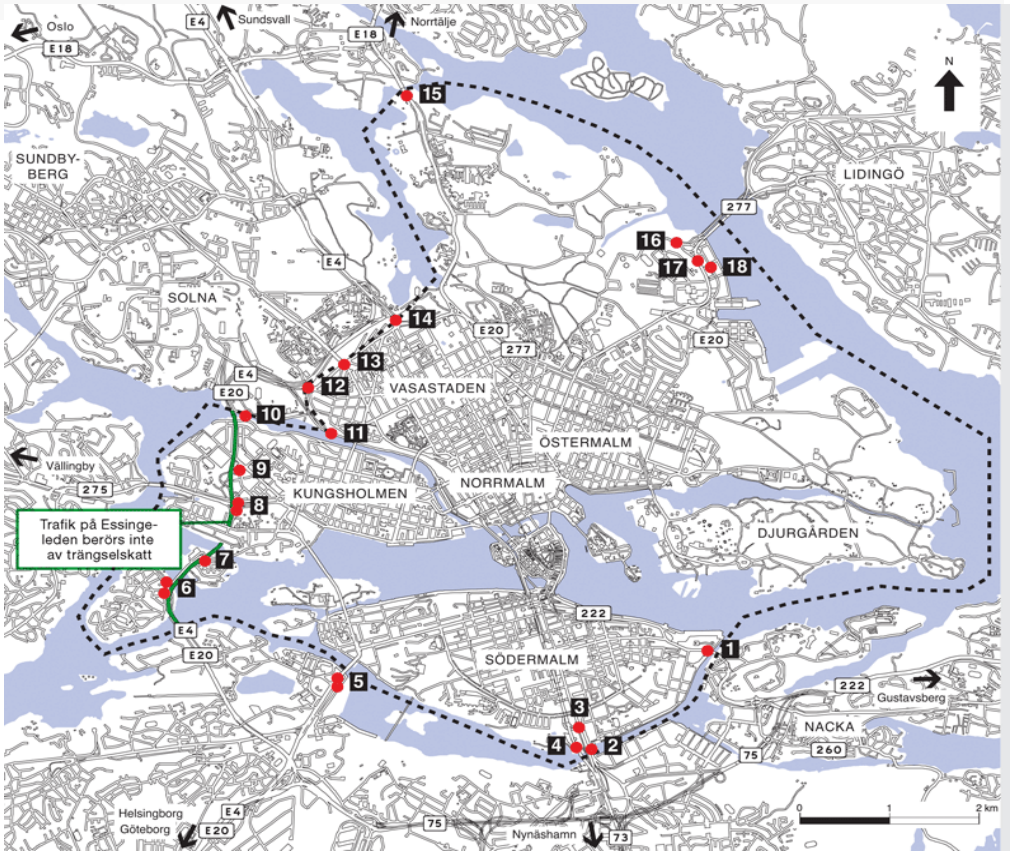
Stockholm – a city on water



High congestion levels despite road investments and very efficient transit system

Simply not enough land for more roads or railways!

The Stockholm congestion charges



- Introduced 2006
- 1-2 € per cordon crossing, depending on time of day
- Higher charge during rush hours (AM and PM peaks); no charge evenings/weekends

Traffic effects

Essingeleden – Södra länken

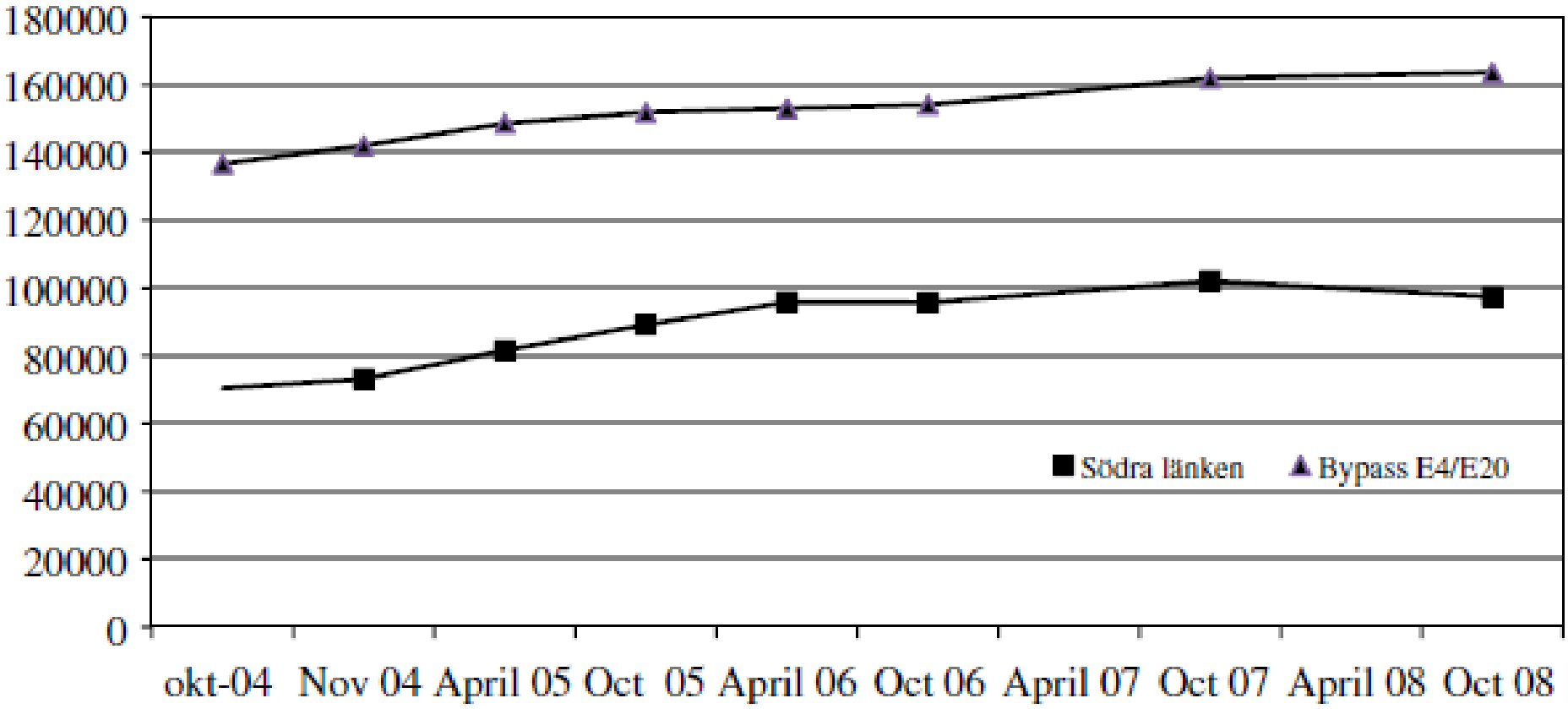
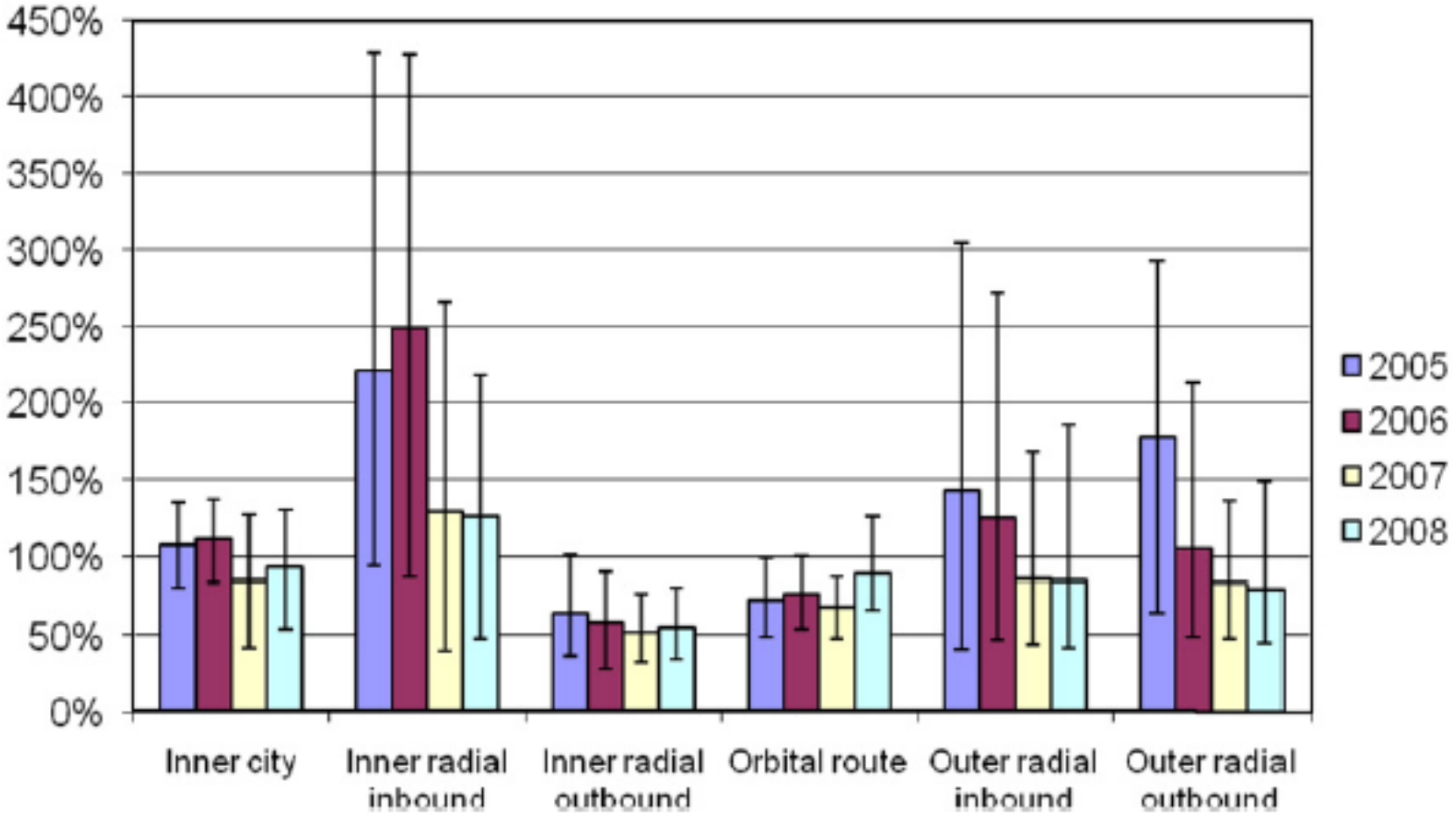


Fig. 2. Traffic volumes from 2004 to 2008 on bypass E4/E20 and Södra länken, free of charge.

Travel times autumn 2005-2008



Costs and benefits

CBA results – overview

million Euro per year	
Time gains	56
Reduced emissions	10
Increased traffic safety	14
Operational cost	-24
Increased public transit revenues	20
Necessary increase in public transport capacity	-7
Decreased revenues from fuel taxes	-6
Marginal cost of public funds, shadow price of public funds	13
Total socioeconomic surplus, excl. investment costs	**76**

Investment cost 210 million Euros –

annualised cost 16 million Euros (assuming 20 years lifetime)

Social and financial surplus – if the system is run for more than 4 years

- The congestion charge gives a **financial** surplus of around 550 mSEK/year (net of running costs)
- … and a **social** surplus of around 700 mSEK per year (net of running costs)
- Investment+ first year running costs were 1900 mSEK
- Both financially and socially profitable in around 4 years

Acceptability

Attitudes change after introduction

”Charges heading for the ditch”

”Bypass threatened by chaos”

”Charging chaos continues”

”Stockholm loves the charges”

”Charges a success”

”Thumbs up for the charges”

Political acceptability

- Political acceptability is different from public acceptability
- The latter is neither necessary nor sufficient for the former

Decisive factors:

- Power over revenues and system design
- What happens to national grants to regional infrastructure

Technical system

Toll gantries

- Free-flow identification (no ”toll plazas”)
- Monthly bill is sent to vehicle owner
- … or charge drawn automatically from pre-specified account

Unstable political, institutional or legal situations increase costs

- High political risk is costly
  - Will push risk onto contractors…
  - …who will require risk premium…
  - … and try to build ”too” fool-proof system

- Get legal conditions clear early
  - What is a valid ”proof of passage”?
  - What possibilities to appeal must exist?

Cost drivers in Stockholm

- The political context
  - “We all though this was the biggest political suicide in history. The Lib/cons. could just stand back and watch the Left-Green coalition commit it”(Gunnar Söderholm, Stockholm City)
- Political risk => Administrative risk => Commercial risk
  - “I told IBM several times: ‘It is fully possible that this all goes to hell. But if it does, I will make sure that you are going down with me.’ ” (Birger Höök, Road Administration)
- Insurance costs
  - Risk reduction by e.g. redundant components

Be aware of cost drivers

- Choose service targets cost-efficiently
  - Identifying 99,9% of passages rather than 97% makes no difference for drivers' behaviour
- Choose cost-efficient payment channels
  - monthly bills rather than single transactions
  - personal support (telephone, shops…) is expensive
- Align costs and risks in functional procurements
  - Example: customer service response time