

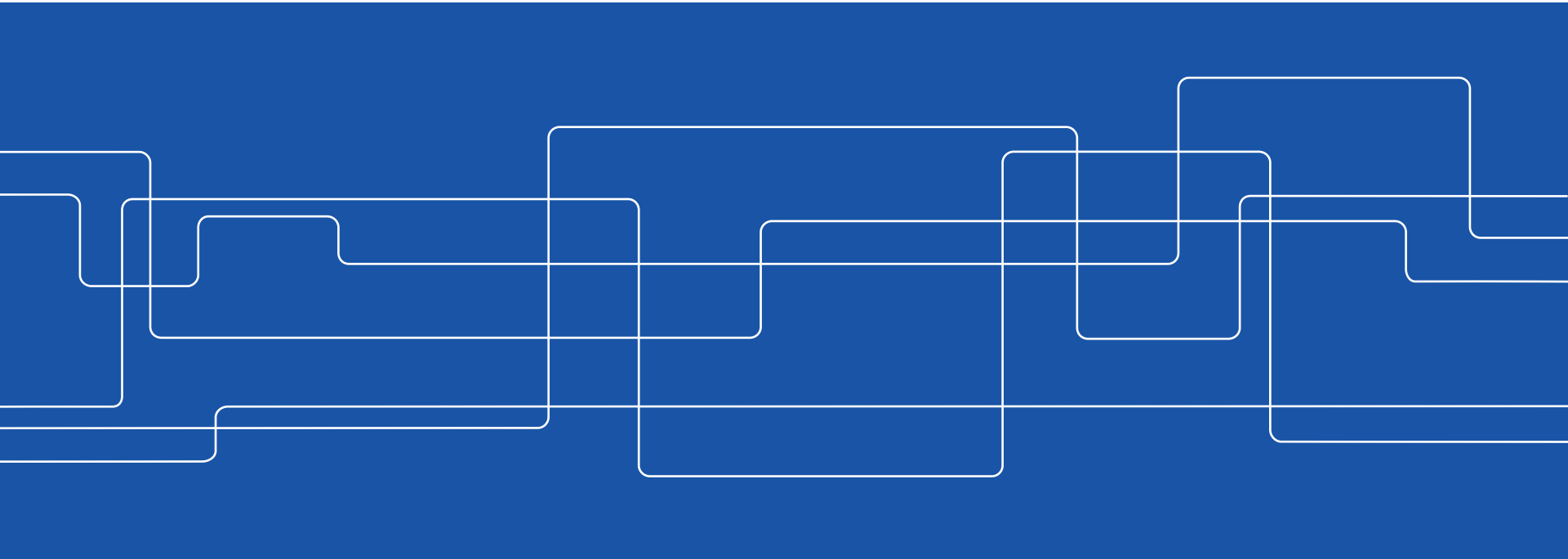


Congestion Pricing in Stockholm

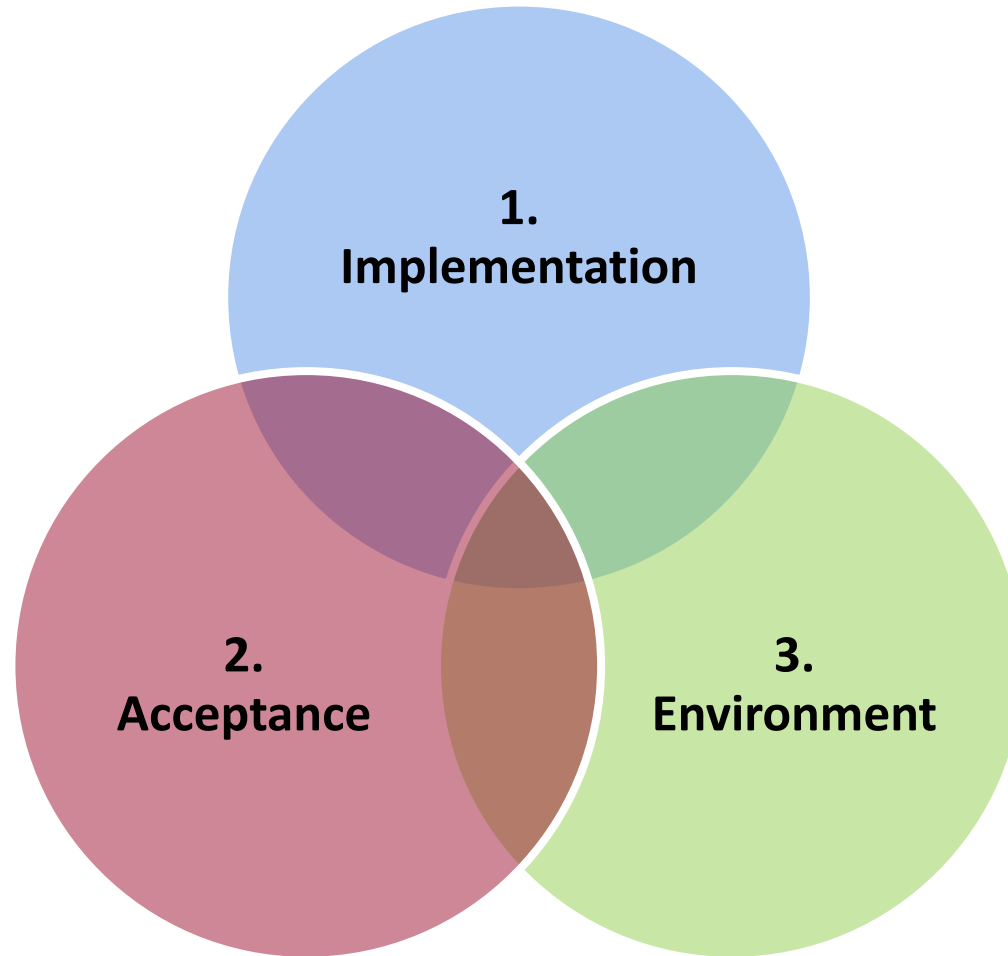
Joel Franklin

Assoc. Professor of Transport Analysis

KTH Royal Institute of Technology, Stockholm



A Story Told Three Ways



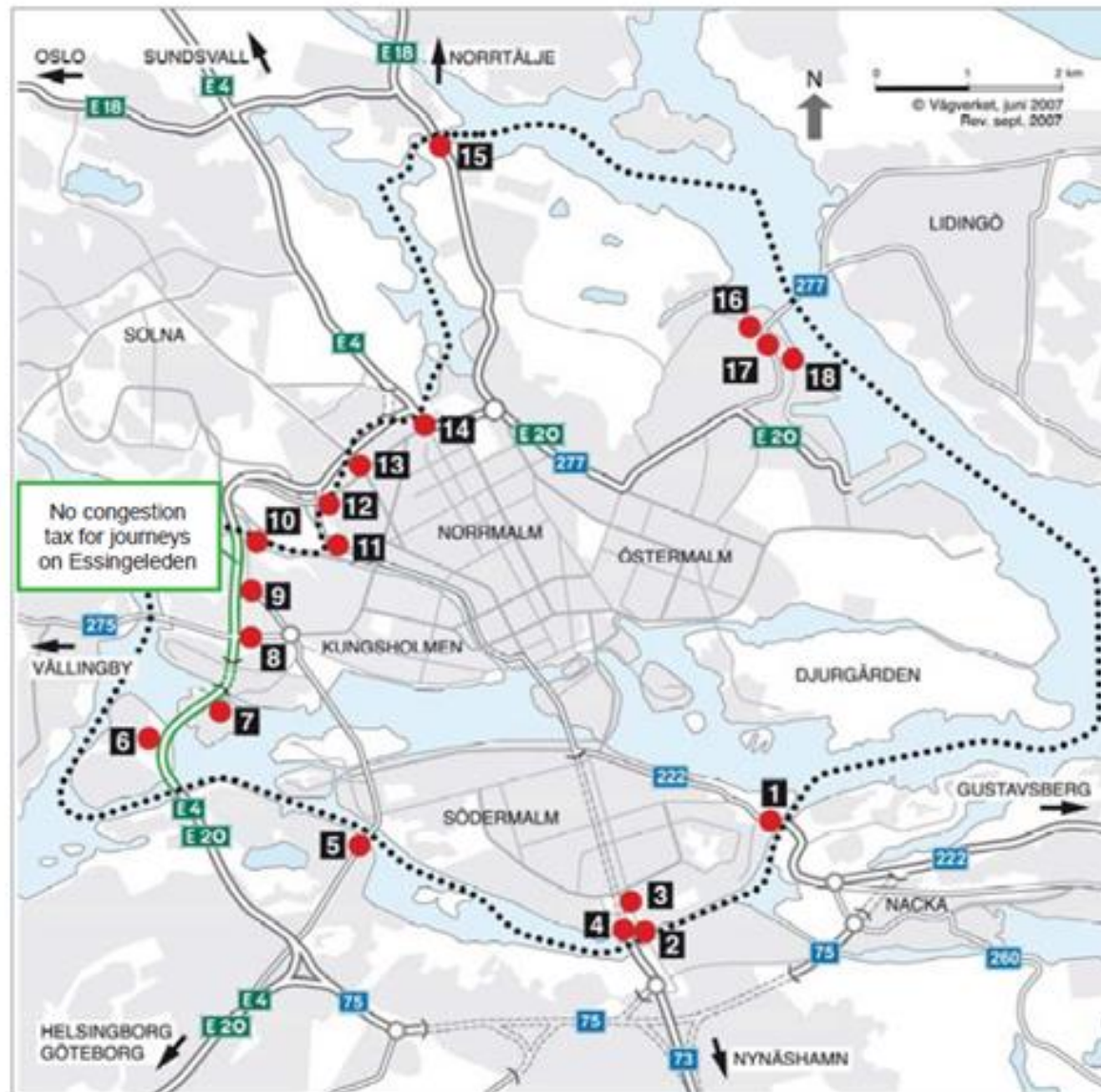
1. The Implementation

Or, what is the congestion charge?



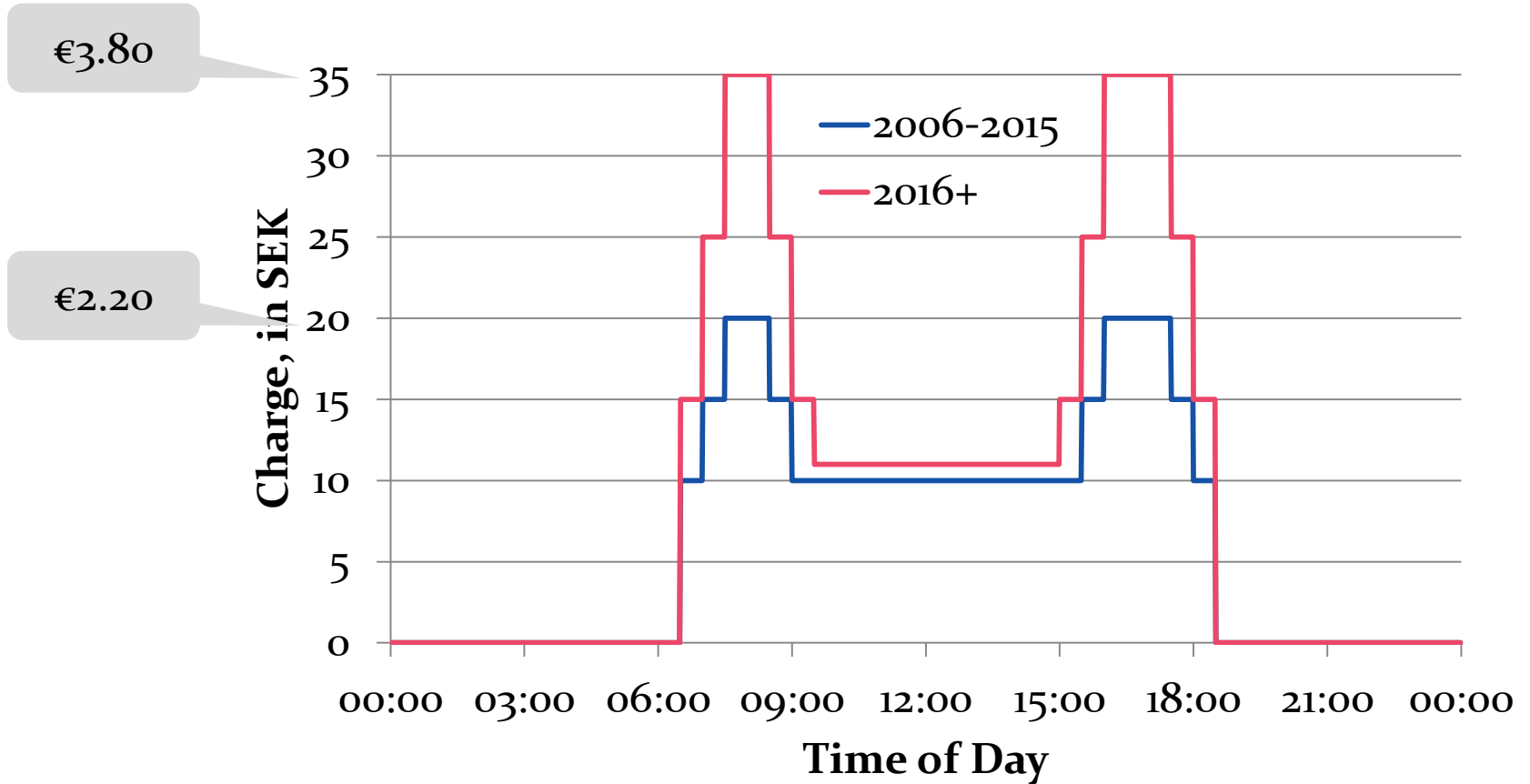
Congestion Charging Trial

January – June 2006



*Swedish
Transport
Administration*

Charging Levels



Effects on Traffic Volumes, 2005 vs. 2006



City of Stockholm (2006)

Effects on Travel Times, 2005 vs. 2006

244

J. Eliasson et al./Transportation Research Part A 43 (2009) 240–250

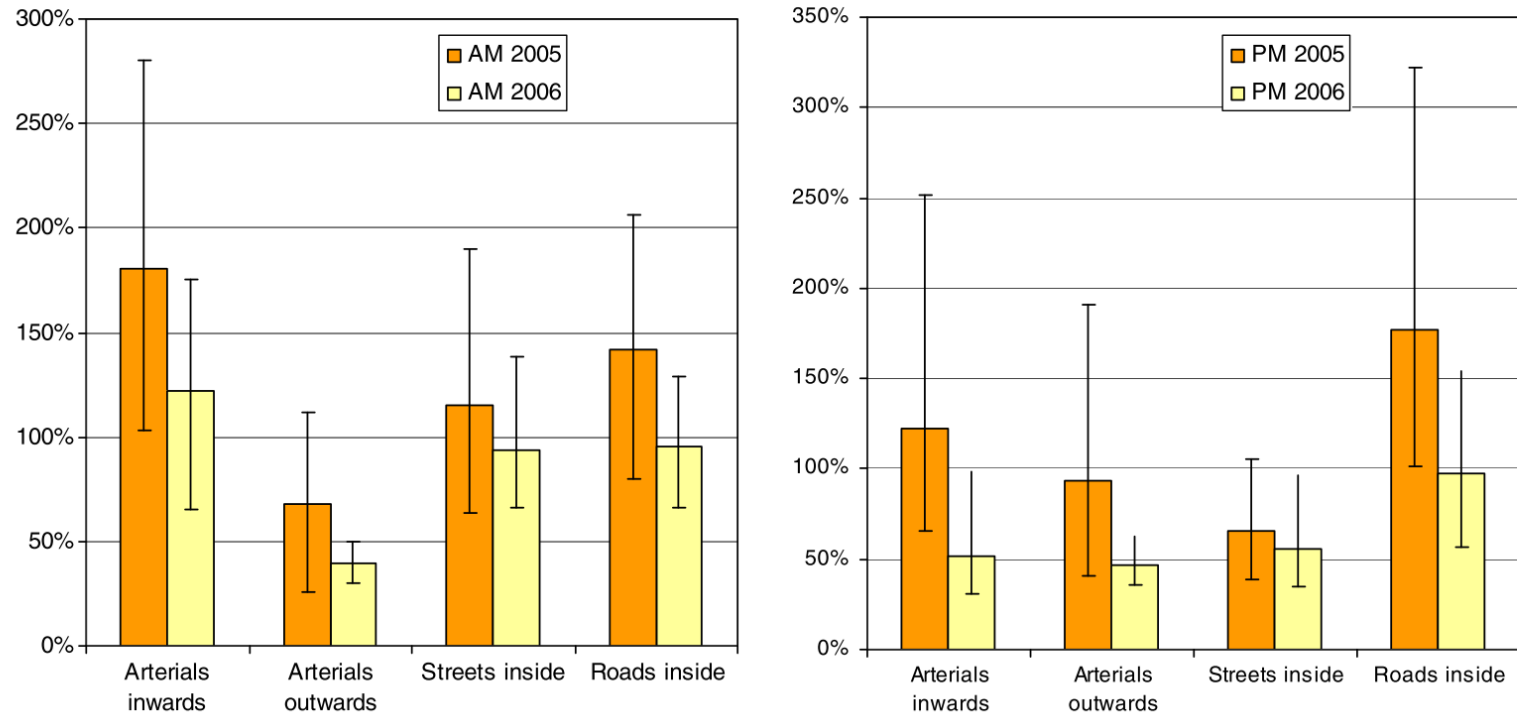
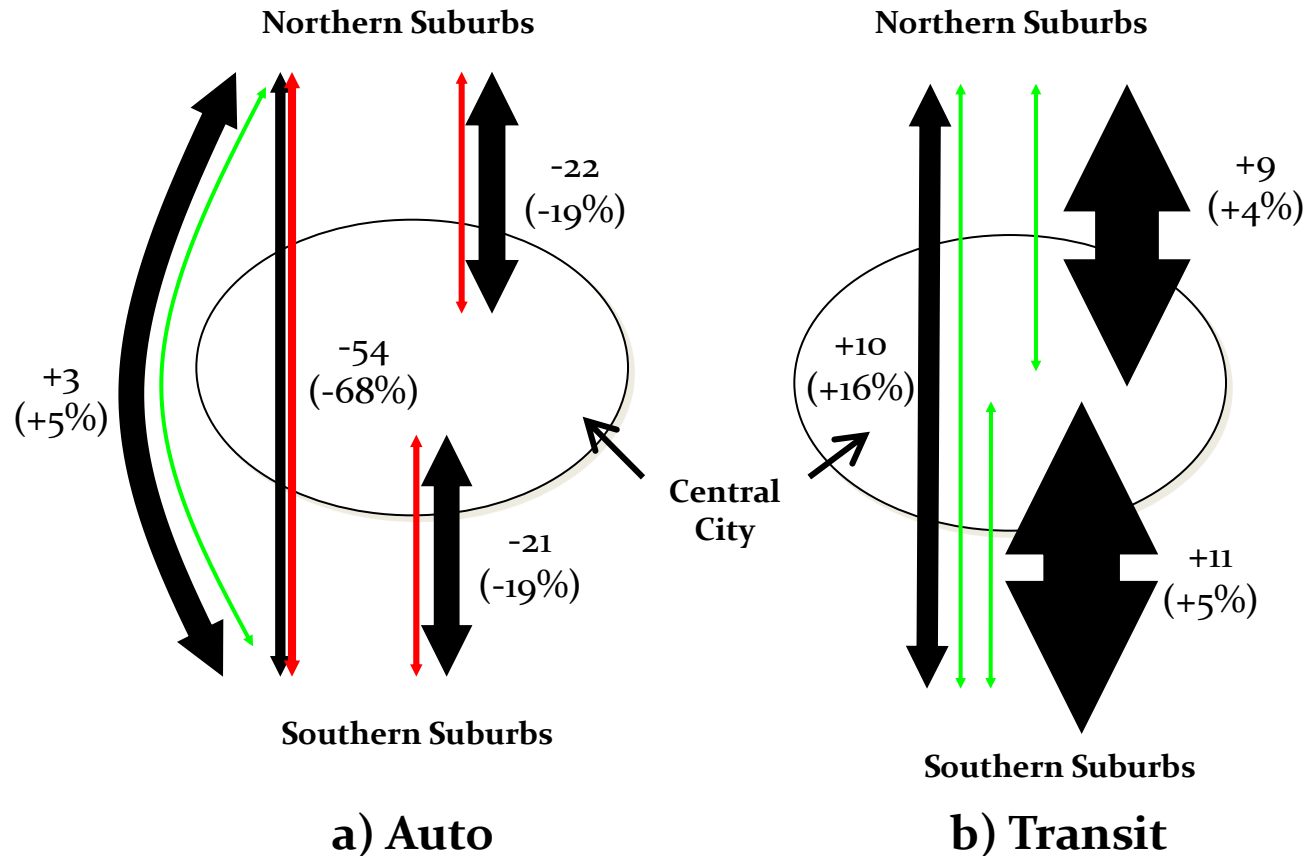


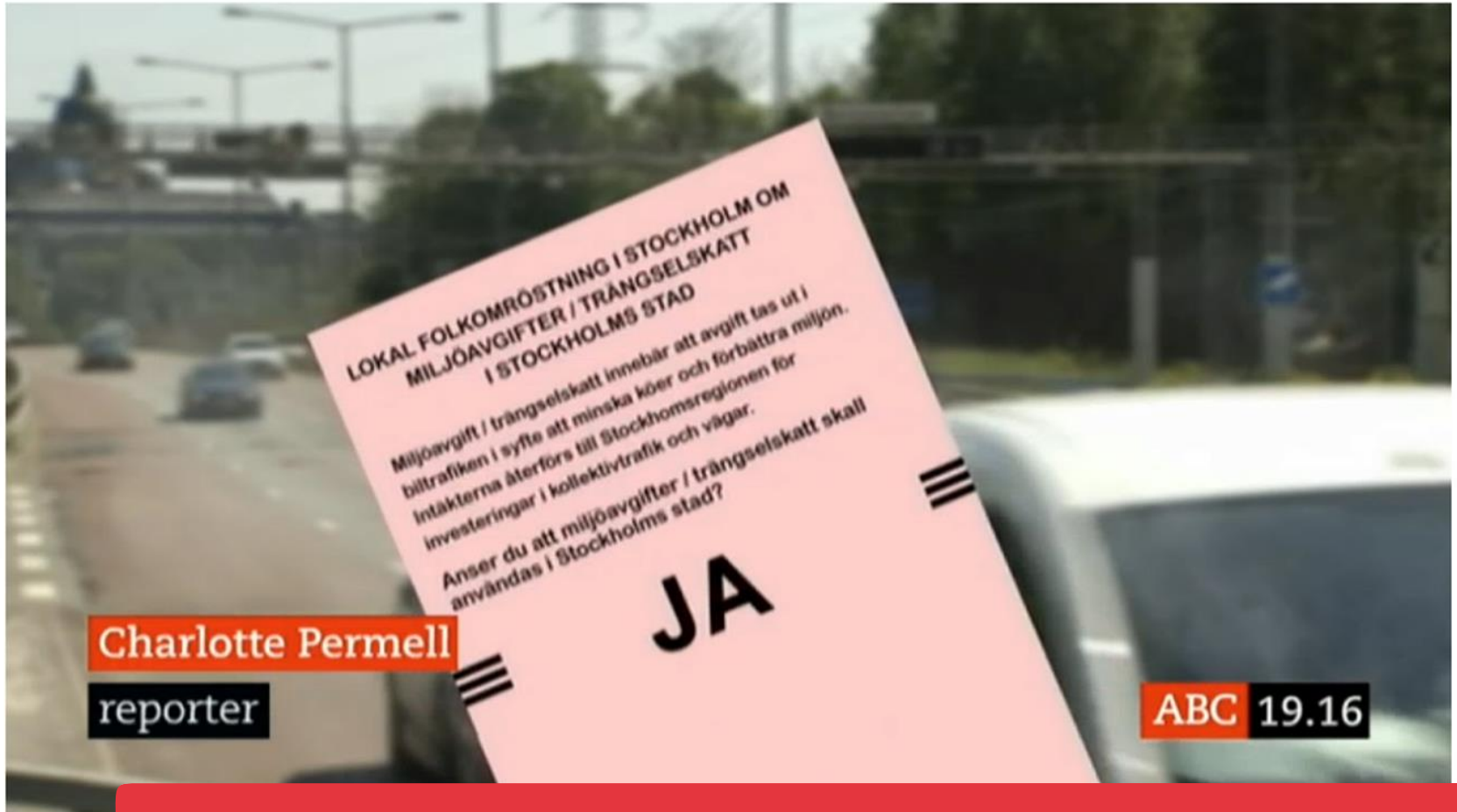
Fig. 4. Relative increase of travel times for various categories of links. 0% corresponds to free-flow travel time. The coloured bars show average travel times while the “error bars” indicate the worst decile and the best decile of the travel times distribution. Measurements were taken from all weekdays for 6 weeks in April–May. “AM peak” refers to 7.30–9.00, “PM peak” refers to 16.00–18.00.

Effects on Travel Behavior, 2004 vs. 2006

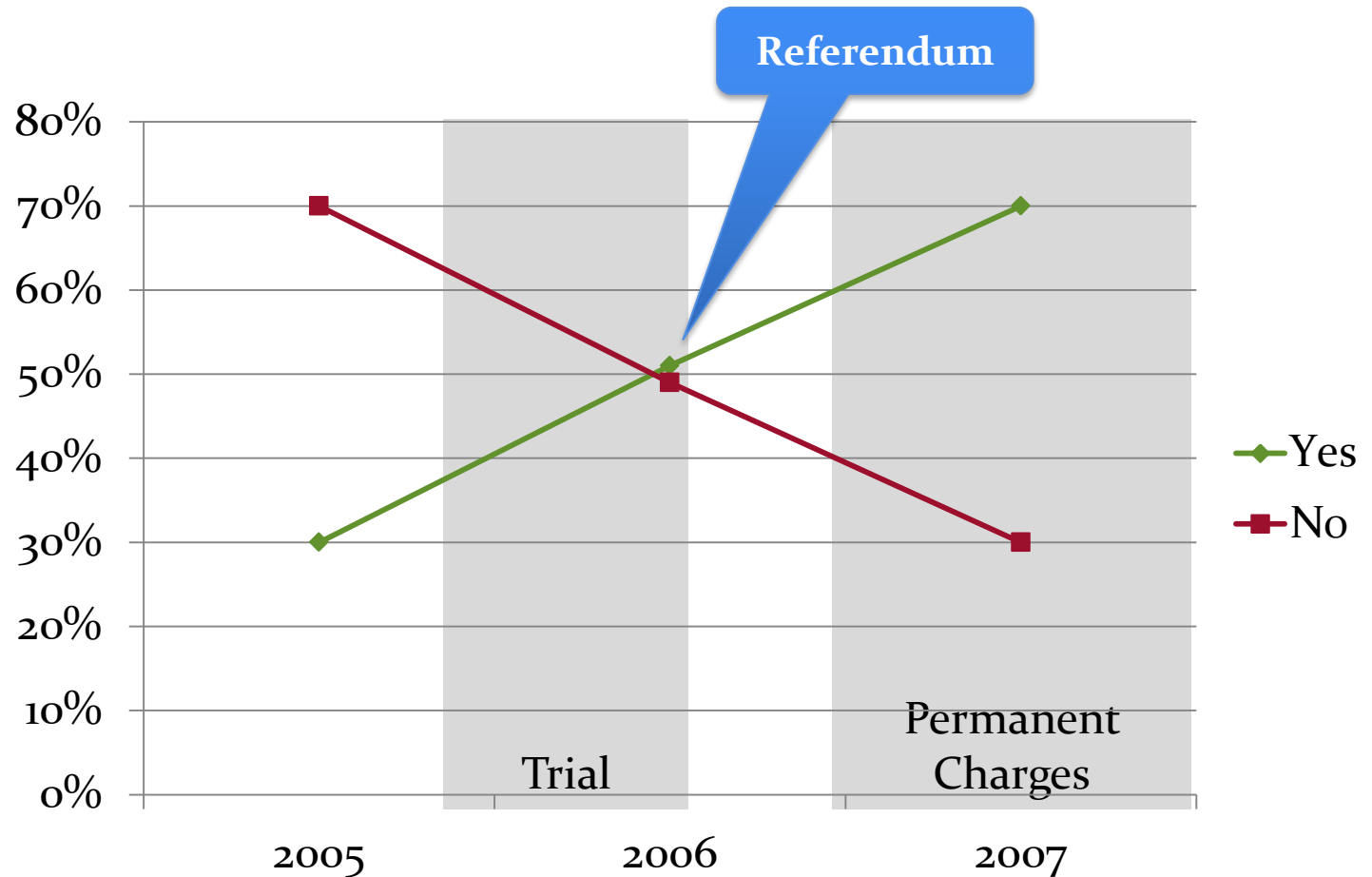


Franklin, et al (2009)

2. The Popular/Political History Swinging Support



Opinion Polling



Eliasson, 2008

Why did voters accept it?

Variability of Personal Experience



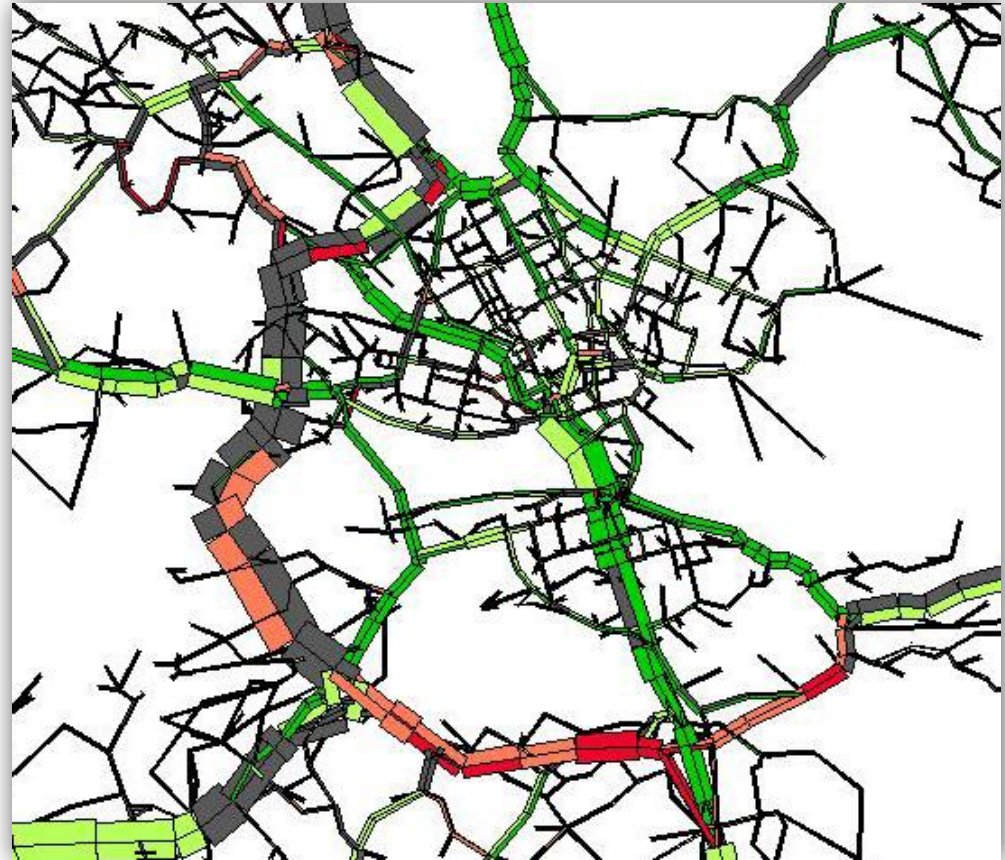
Why did voters accept it?

Collectively-Perceived
Effects vs.
Personal Experience



Why did voters accept it?

Network
Effects



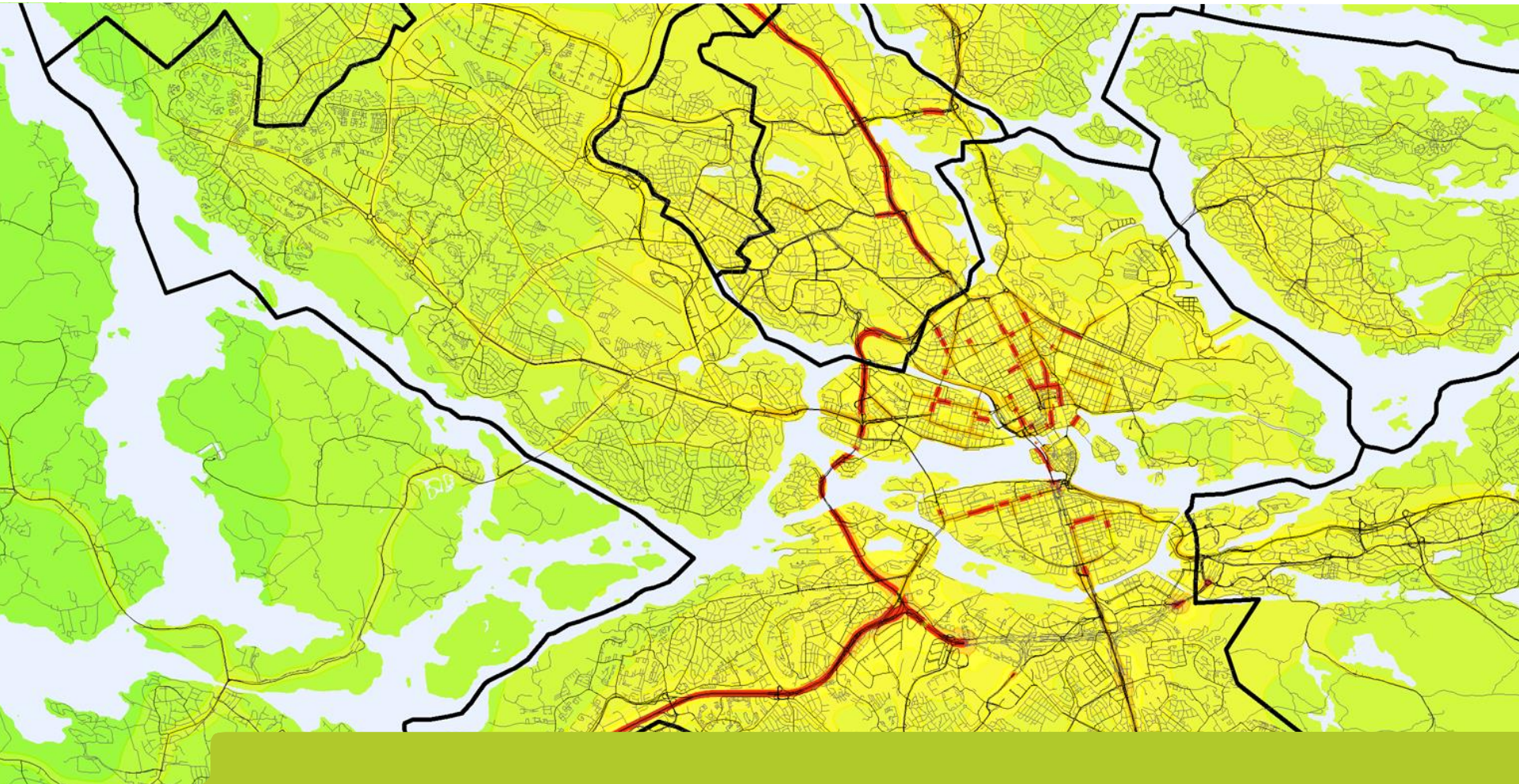
Why did voters accept it?

Long-Term
Re-Sorting

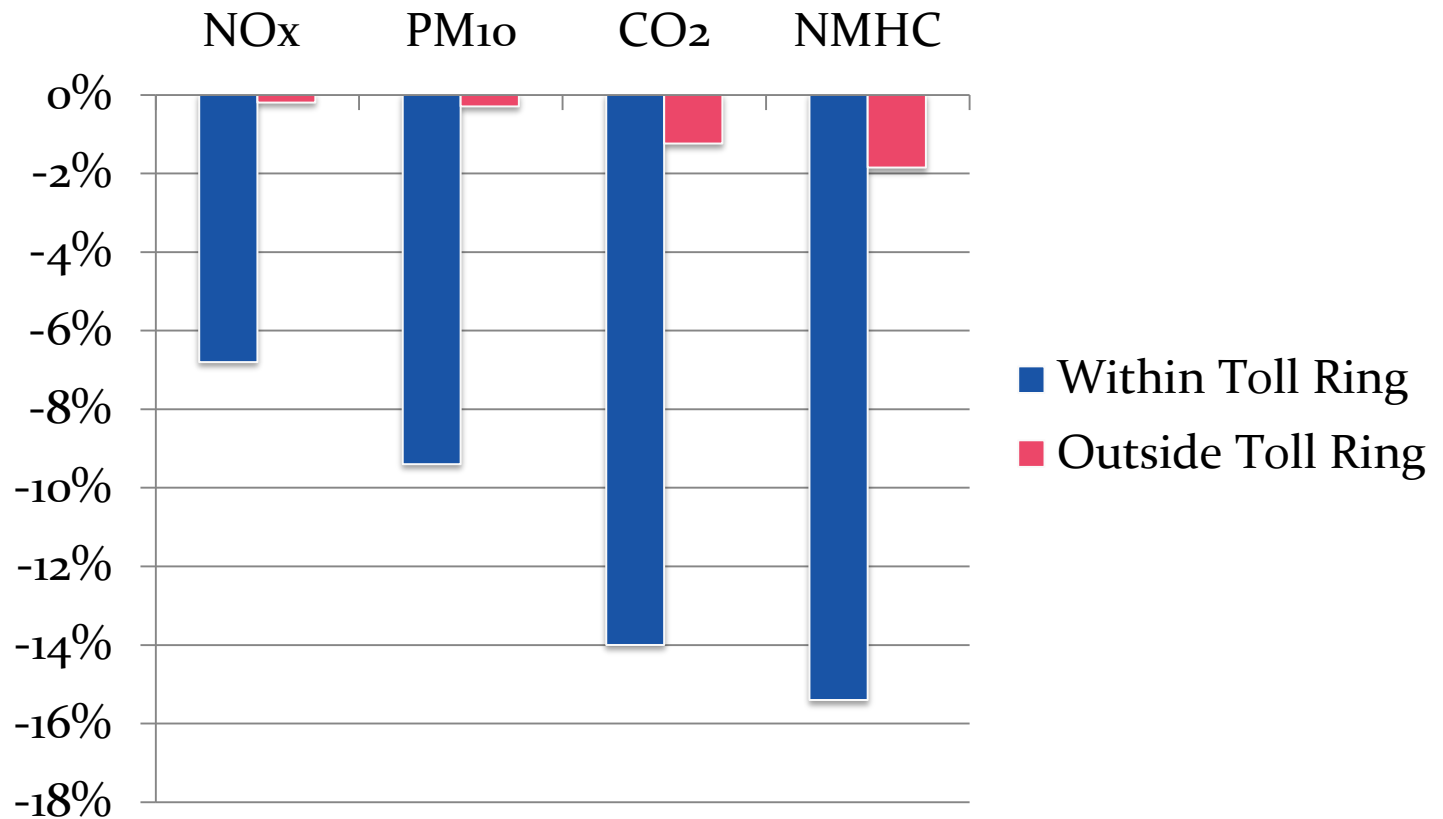


3. The Environmental History

Did congestion pricing matter?



Direct Effects of Congestion Pricing



City of Stockholm (2006)



Stockholm's Mix of “Green” Transport Policies

2005:

- Free Residential Parking in Central Stockholm for LEVs

2006:

- Congestion Charging Trial
- Low-Emission Vehicle (LEV) Exemption Starts

2007:

- Started National Purchase Rebate
- Congestion Charges Return, Permanently (with LEV exemption)

2008:

- LEVs are 28% of new vehicle purchases

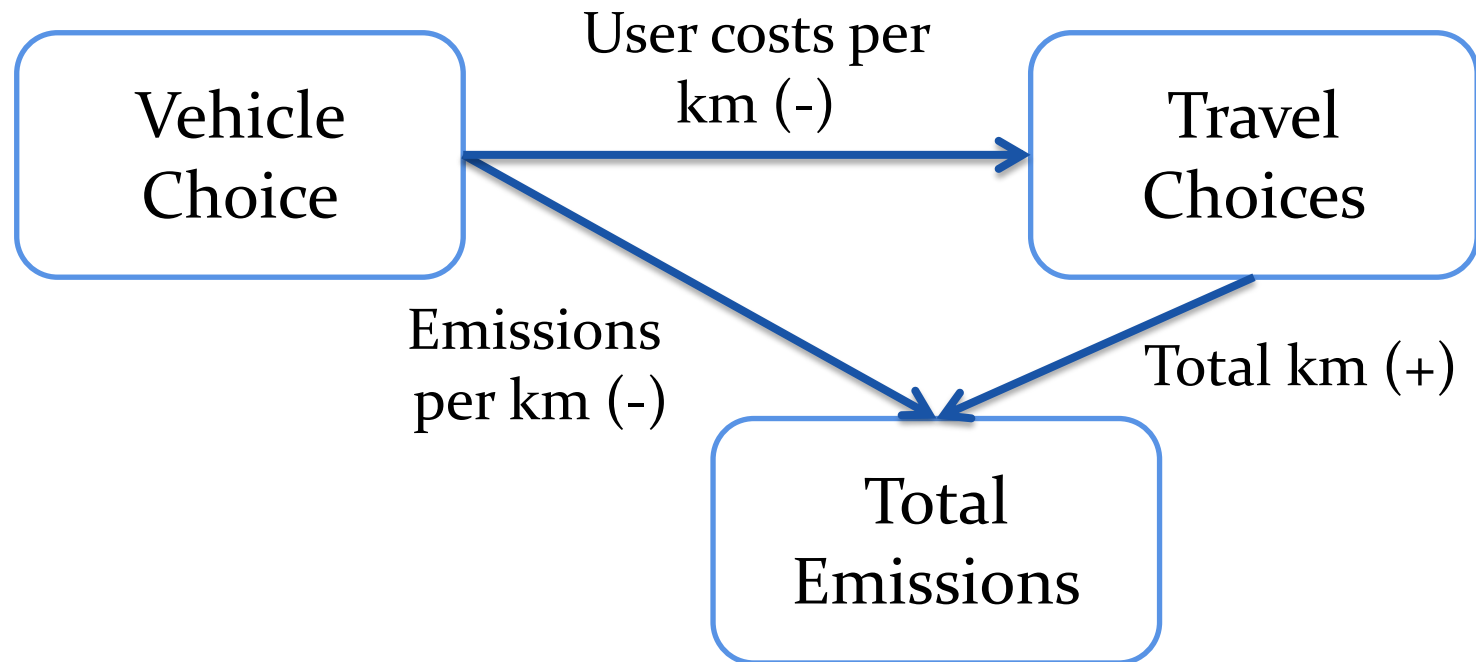
2009:

- **Stopped LEV Exemption for New LEVs**
- Stopped Free Residential Parking for LEVs
- Stopped National Purchase Rebate

2012:

- **Stopped LEV Exemption for Old LEVs**

Competing Forces



Data

Sweden's Central Bureau of Statistics' (SCB) vehicle registry data for Stockholm County, 2008

Vehicles

Make

Model

Year

Propulsion

Fuel Consumption

Emissions

Owners

Age

Gender

Income

Home Post Code

Work Post Code

No. Children

Travel

Annual
Kilometers
Traveled (AKT)

Key Findings

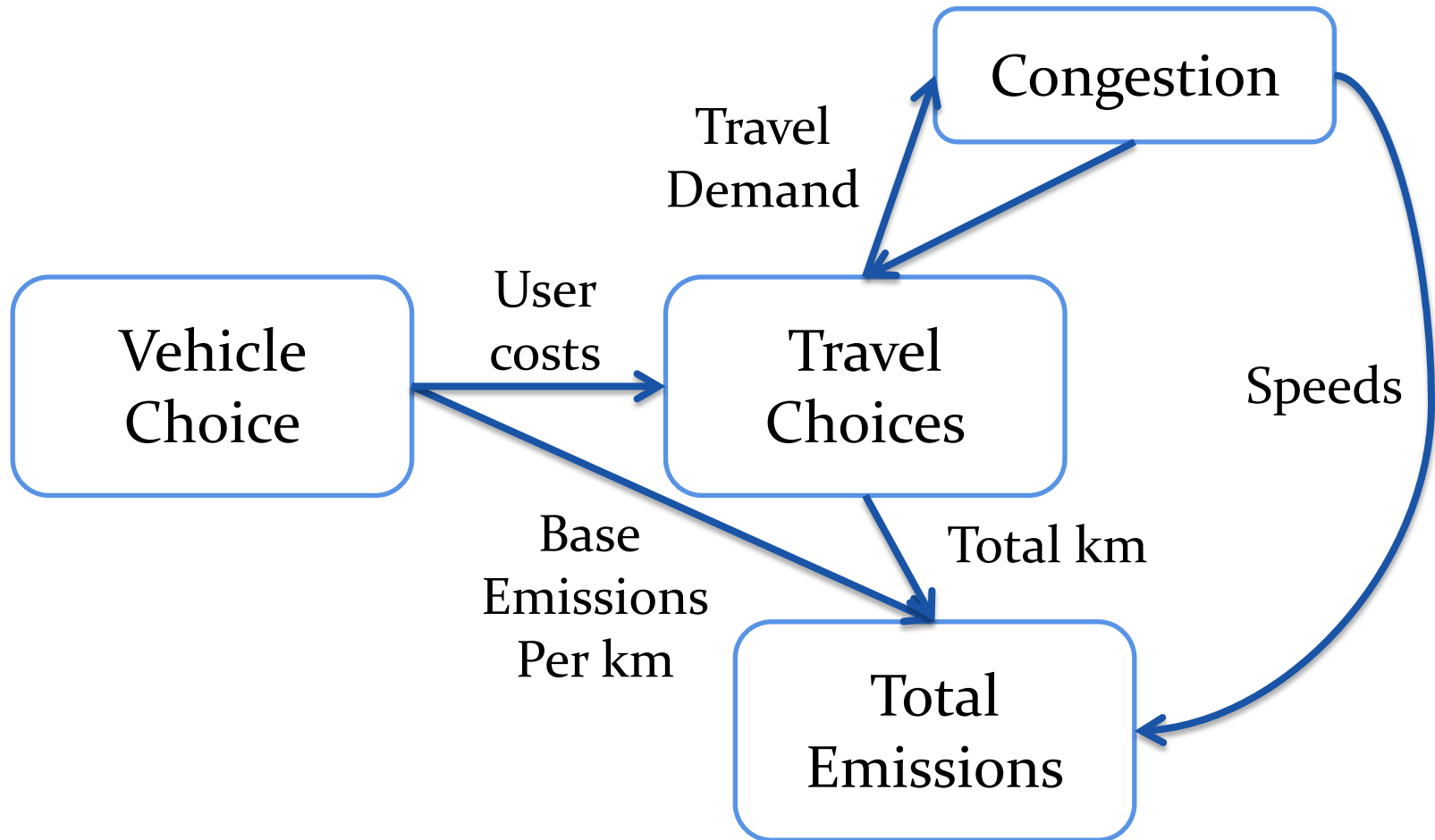
- LEV owners travelled further than Conventional Vehicle owners of similar characteristics (between 1.6 and 11.2%)
- Some difference is associated with the LEV exemption:
 - Large for inner-city residents: +10.4%
 - Not so much for suburban residents: +0.9%
- Difference is due to non-work trips?

Study on Rebound Effects

- Simulated effects on emissions:
 - Reduction due to vehicle technology:
-49.5%
 - Increase due to rebound effects:
+2.5%pt



Outlook for Research





Summary

- Had exactly the intended effect on *traffic*
- Unexpectedly strong *acceptance* after the fact
- Weak effects on *the environment* for the region
- Exemptions for Clean Vehicles may bring about long-term effects, but only if in place for longer

Thank you!

Joel Franklin
joelfr@kth.se