Achieving support for efficient solutions
A fundamental transport policy dilemma

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The Capital of Scandinavia

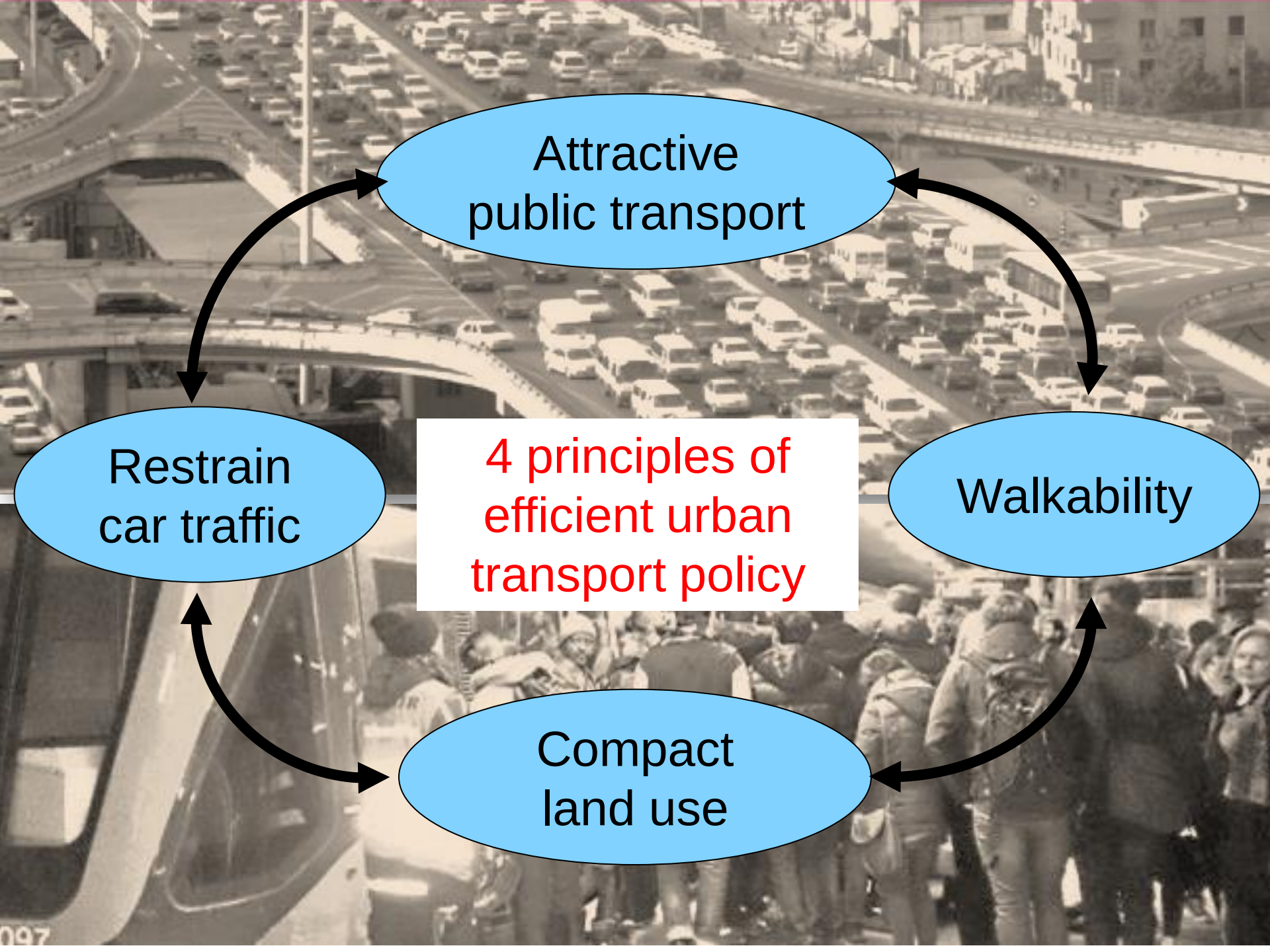
Cities keep growing;
Transport per capita keeps increasing

… due to increasing specialization in labour markets, production and lifestyles

Space is scarce
Congestion is inevitable

- **Promote space-efficient transport**
- **Handle externalities**

Stockholm


Attractive
public transport
Restrain
car traffic
4 principles of
efficient urban
transport policy
Walkability
Compact
land use

Why are efficient transport policies so rare?

E.g. …

- Congestion pricing
- Attractive public transport (esp. where it's most needed)
- Efficient parking pricing (and supply)
- Efficient public transport pricing
- Walkability (esp. where it's most needed)
- Etc…

- **Case in point: congestion pricing**

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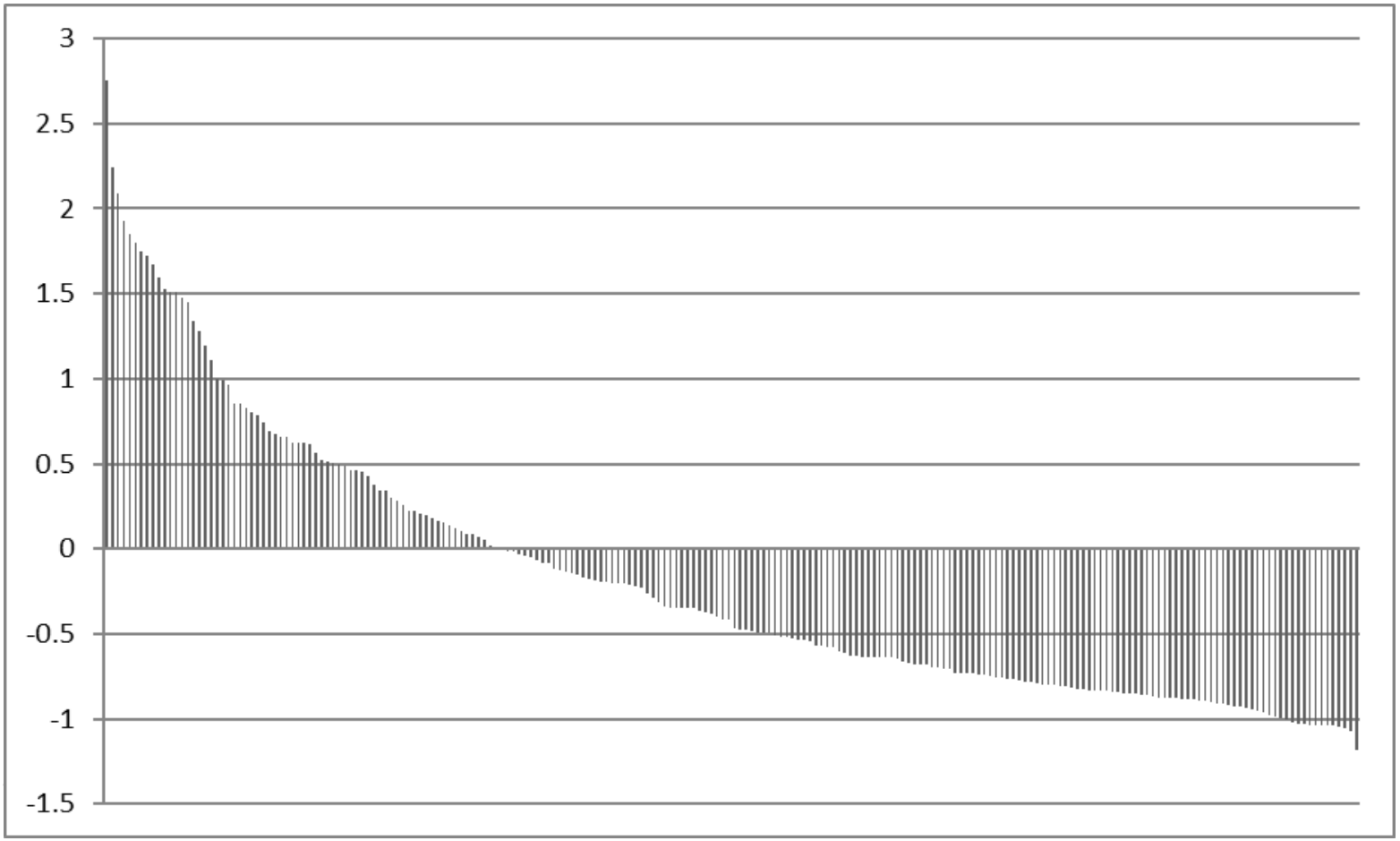
Are infrastructure investments chosen efficently?

Benefit-cost ratios of possible infrastructure investments in Norway

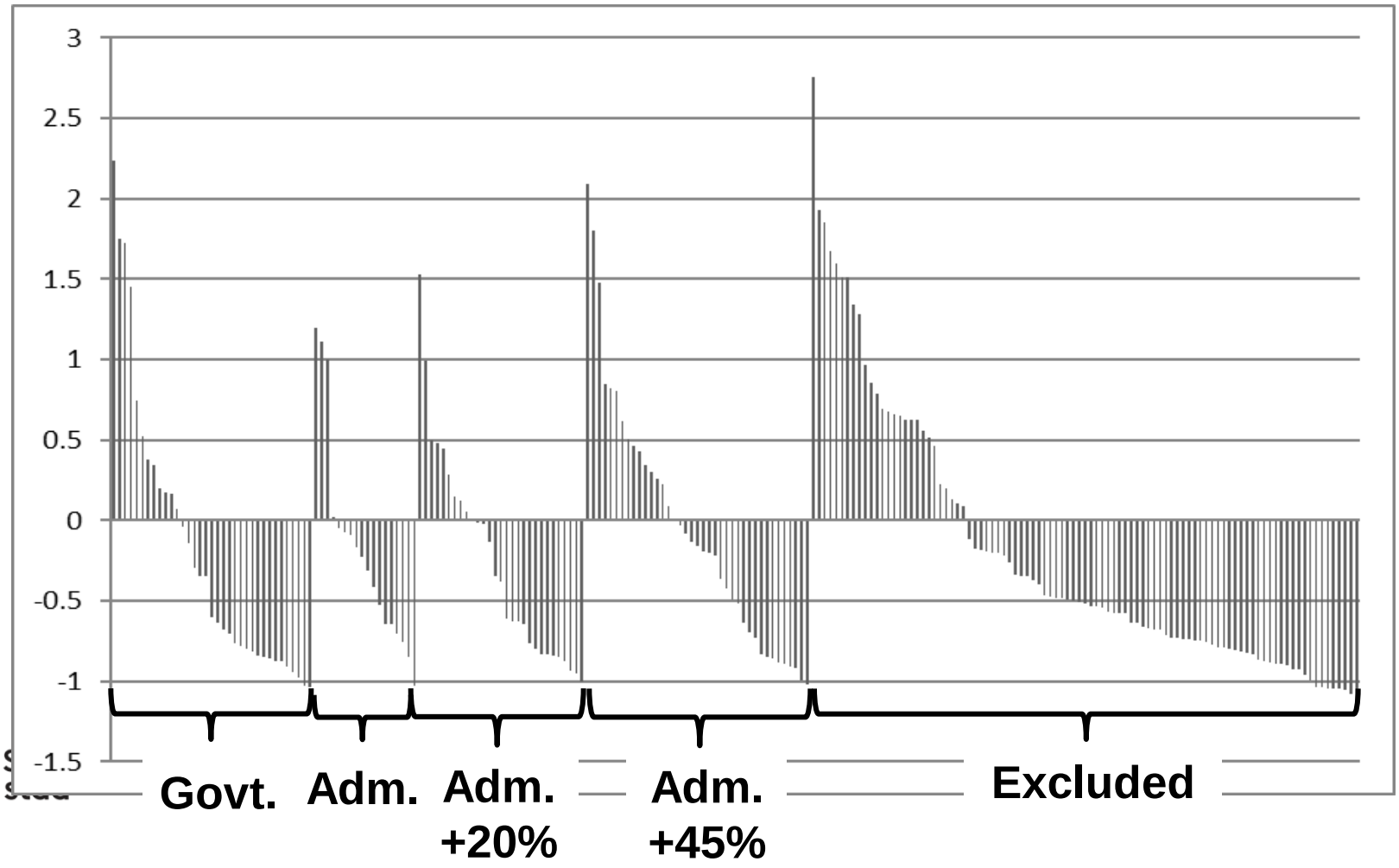


Eliasson, J., Börjesson, M., Odeck, J., Welde, M. (2015) Does benefit/cost-efficiency influence transport investment decisions? *Journal of Transport Economics and Policy* 49, 377-396.

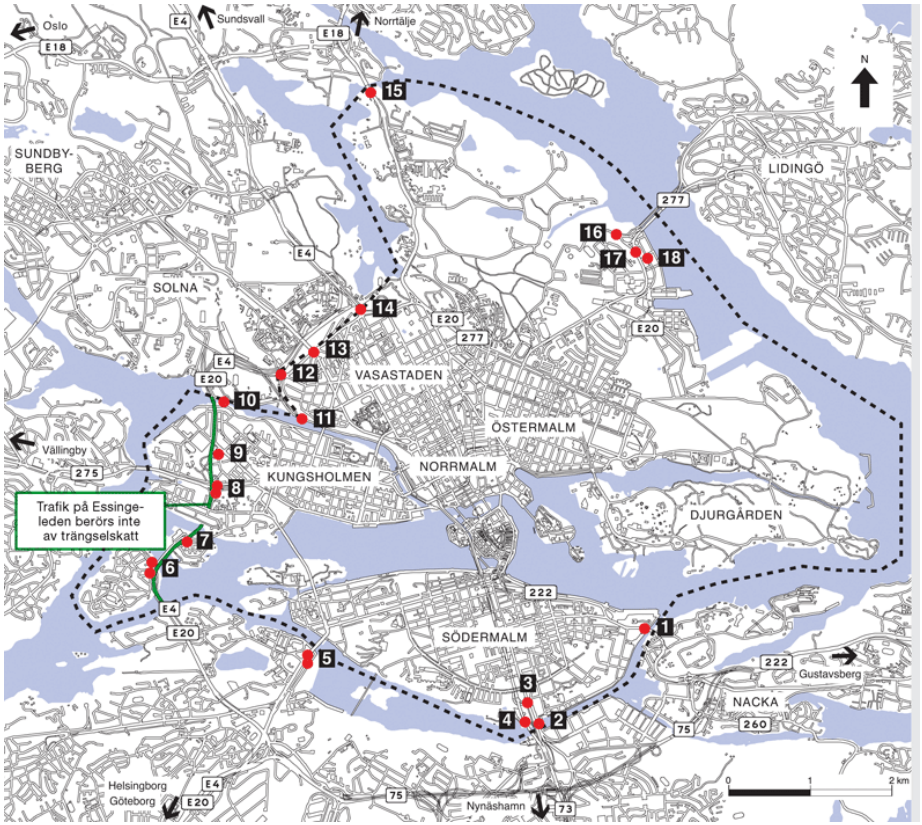
No.

(Statistically a random selection.)

Investments chosen by the government and the Road Administration



The Stockholm congestion charges



Introduced 2006 as a 7-month trial, permanent after a referendum

2 € per passage in peak hours, 1€ mid-day, no charge evenings/weekends

Revised 2016: 3.5 € peak, 1.1 € mid-day, new charge on Western bypass

Toll gantries

Free-flow identification (no ”toll plazas”)

Monthly bill is sent to vehicle owner,

or deducted automatically from pre-specified account

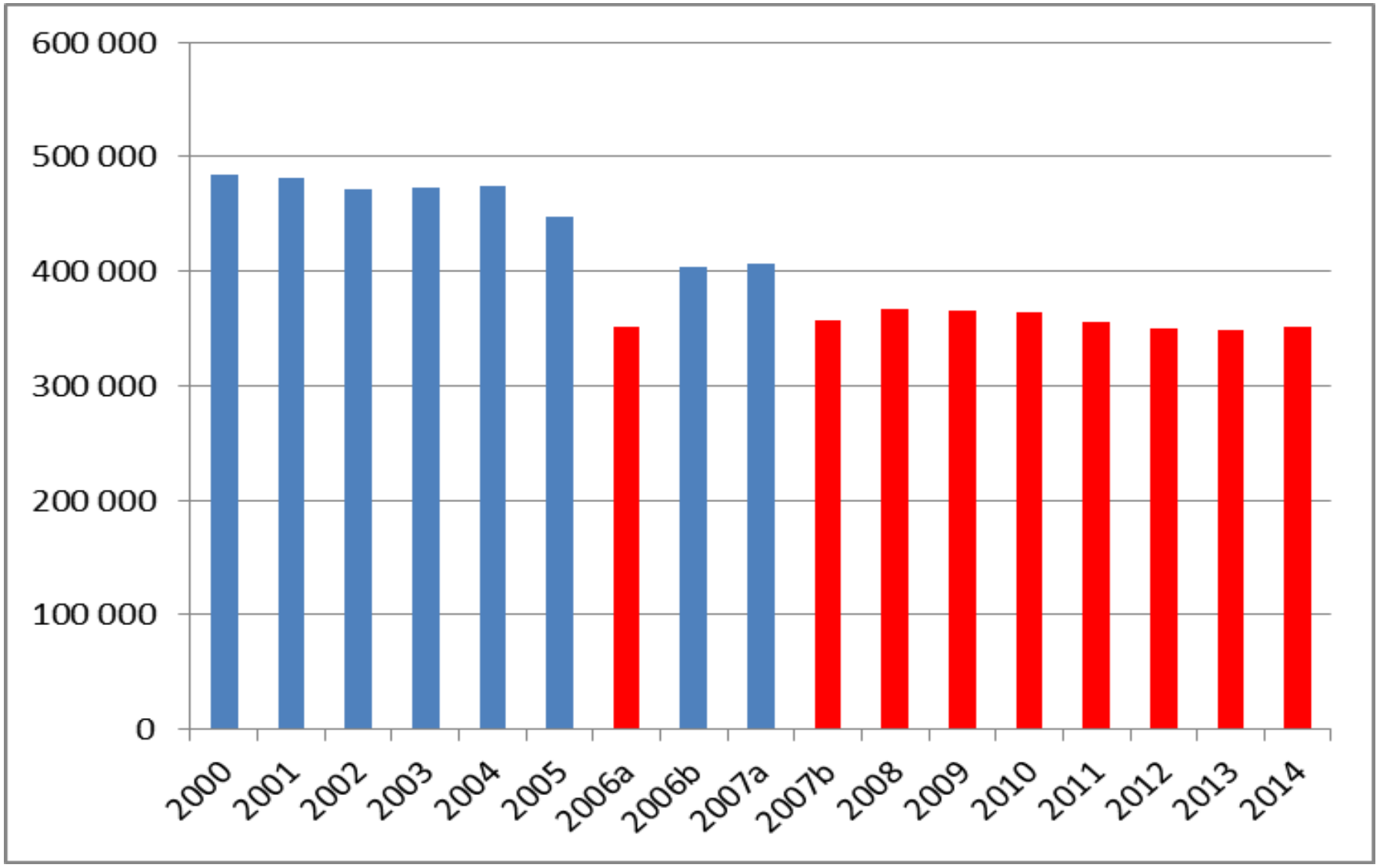
The two questions of politics

Will it work?

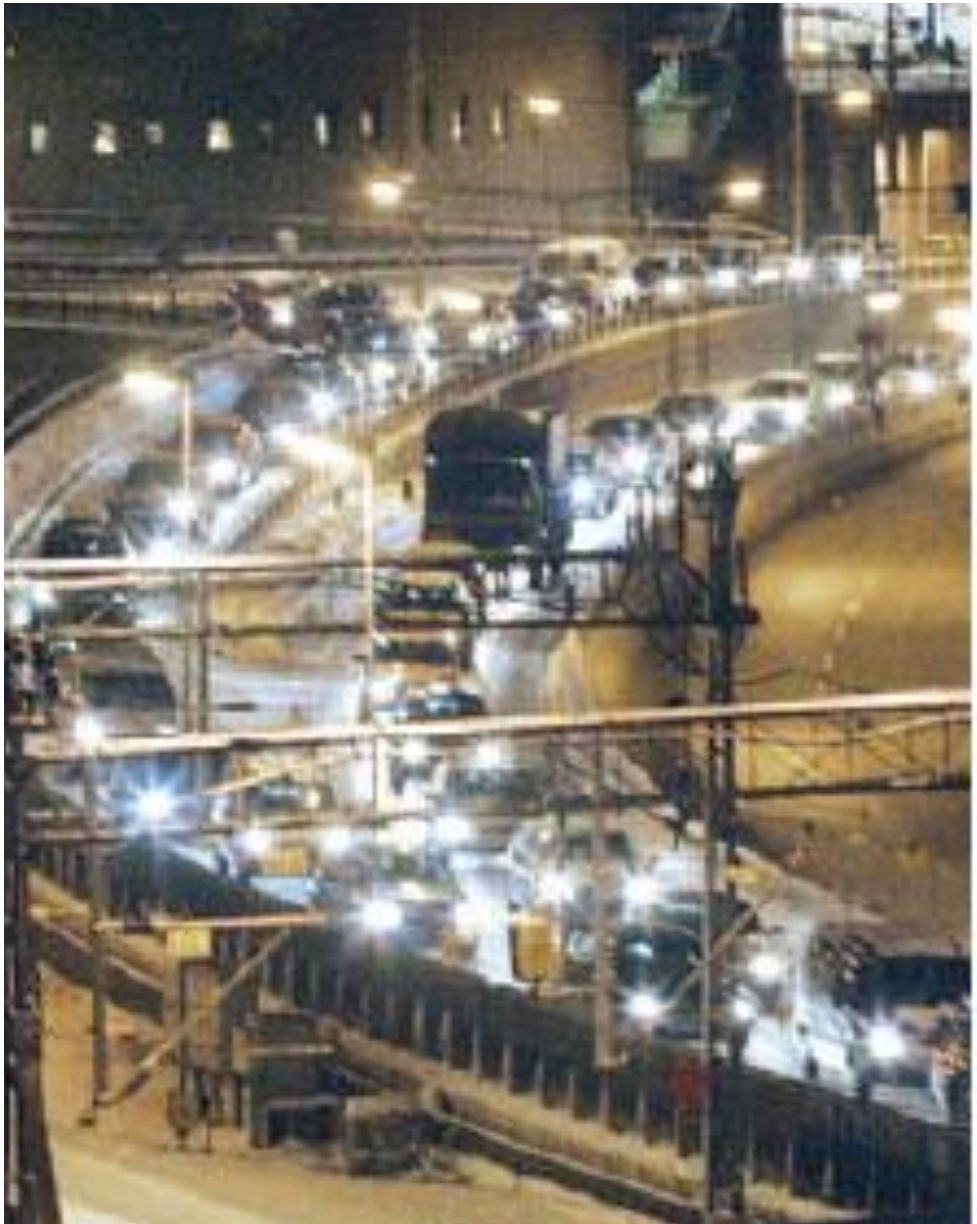
Will they hate me?

It works.

(≈20% persistent traffic decrease across cordon)

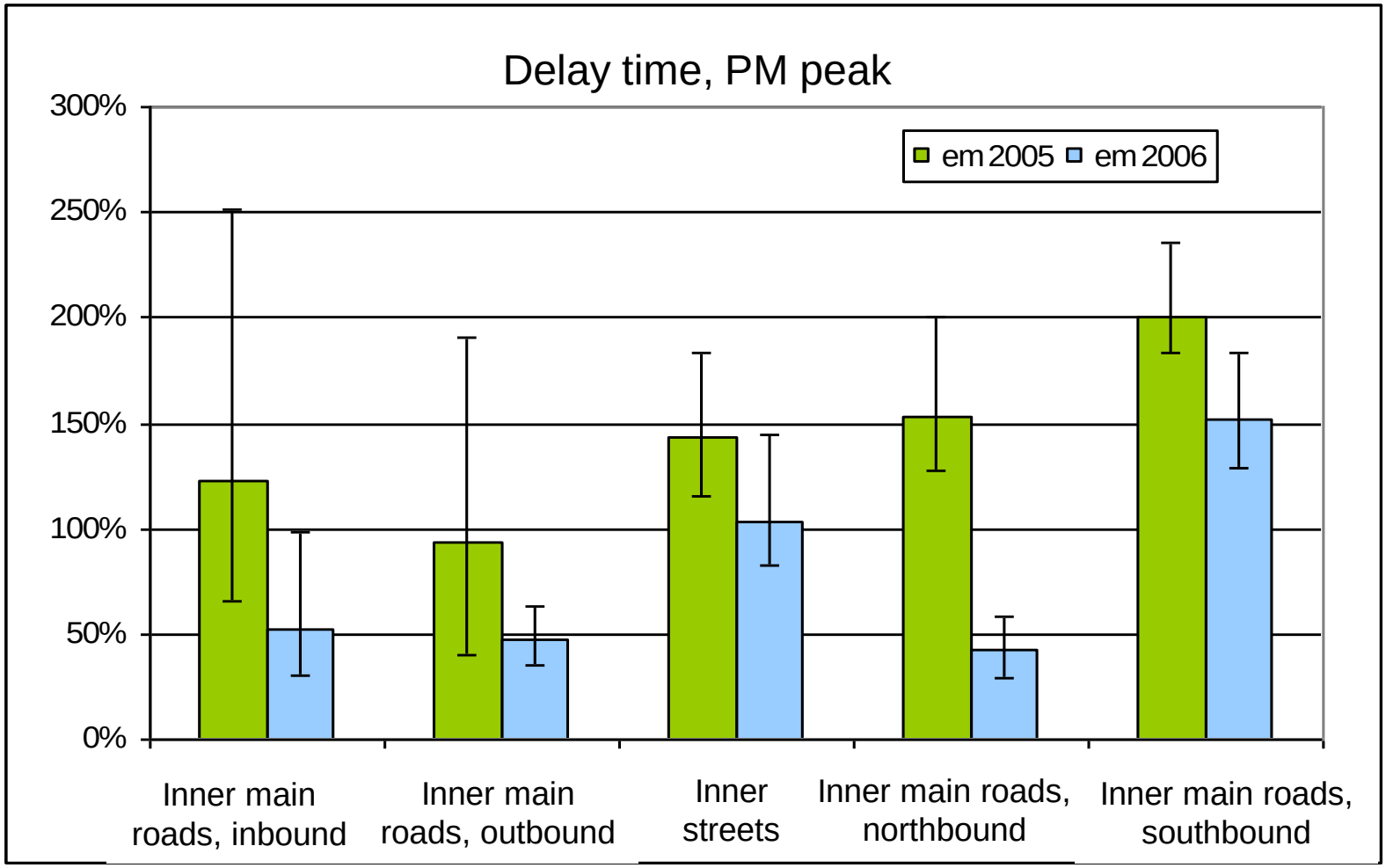


What 20% less traffic does to congestion



30-50% less time in queues, and less variability

April 2005/2006



Eliasson, J., (2008) Lessons from the Stockholm congestion charging trial. *Transport Policy* 15, 395-404.

Forecast compared to outcome (Stockholm)

	Forecast	Actual
Traffic across cordon	-16%	-20%
Rush hours	***-17%***	***-18%***
Public transport	+6%	+5%
Travel time gains:		
- links across cordon	282	294
- links within cordon	201	266
- links outside cordon	-87	460

Eliasson, J., Börjesson, M., van Amelsfort, D., Brundell-Freij, K., Engelson, L. (2013) Accuracy of congestion pricing forecasts. *Transportation Research A* 52, 34-46.

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Extremely positive cost-benefit analysis

		M€/year
Traveller effects	Time gains	54
	Reliability	8
	Tolled-off drivers	-7
	Paid charges	-80
	PT crowding	-2
Externalities	Reduced carbon emissions	6
	Reduced health-related emissions	2
	Increased traffic safety	12
Public revenues	Paid charges	80
	Increased PT revenues	14
	Decreased fuel tax revenues	-5
	Increased PT capacity	-6
	Operating costs	-20
	Marginal cost of public funds	12
	NET BENEFITS	**68**

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Eliasson, J. (2009) A cost-benefit analysis of the Stockholm congestion charging system. *Transportation Research A* 43(4), pp. 468-480.

So why is congestion pricing still rare?

- It works – congestion is reduced
- It's been tried in multiple cities, with similar results
- We can forecast effects reliably
- The CBA is extraordinary positive
- It yields revenues, e.g. for investments

- … and congested cities *still* do not introduce this??
- A number of answers…

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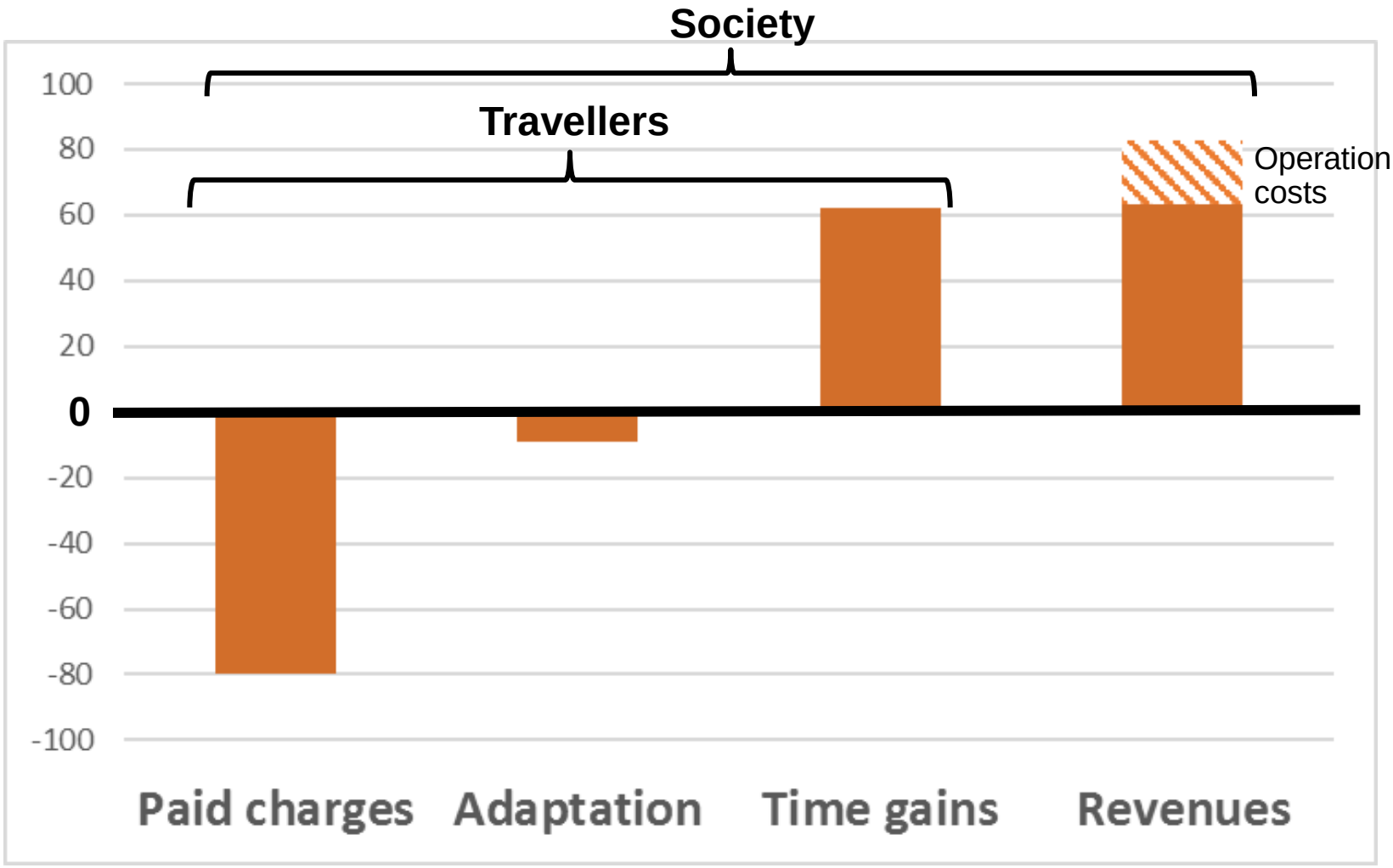
Costs & benefits of congestion charges



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Tolls paid = revenues (net of costs)

Adaptation loss < Time gains

Political support only partly about *public* support

- Who controls policy design?
  - E.g. congestion pricing requires *national* legislation, so city politicans get the blame while national politicians have the power
  - Public transport is usually *regional*; land use is controlled by cities or boroughs
  - Exemptions? Location of tolls?
- Who controls the revenues?
  - Revenues may end up in the region, city or national govt., depending on legislation
- Is it *really* good to have more money?
  - When negotiating about national infrastructure grants, it may be better to be broke…
- Do we trust future politicians if we give them a new tool?

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Estimating determinants of support for congestion pricing

Estimate (ordered logit):

Vote ~ α(self-interest things)*

+ γ(related attitudes)*

+ β(beliefs in pos./neg. effects)*

Studies in Stockholm, Lyon, Helsinki, Gothenburg

(similar results in other studies)

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Summary:
Determinants of public opinions

- **Consumer** perspective – self-interest [*political economists*]
  - How much one would pay
  - Time gains and valuation of time savings
  - Satisfaction with public transport
  - Gets benefits from revenues

- **Citizen** perspective – alignment with other attitudes [*psychologists, sociologists*]
  - Environmental concerns
  - Whether pricing is seen as a ”fair” allocation mechanism
  - Trust in government, attitude to public interventions
  - (*not* equity concerns)

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Attitudes to allocation mechanisms

”A ferry gets full every morning – excess demand takes long detour. How should the ferry capacity be allocated?

Do you think it’s fair to use…”

- **Pricing –** set a fare to make supply meet demand
- **Queuing –** first come, first served
- **Judgment of ”need” –** transport administration allocates tickets based on their judgment of travellers’ ”need”
- **Lottery**

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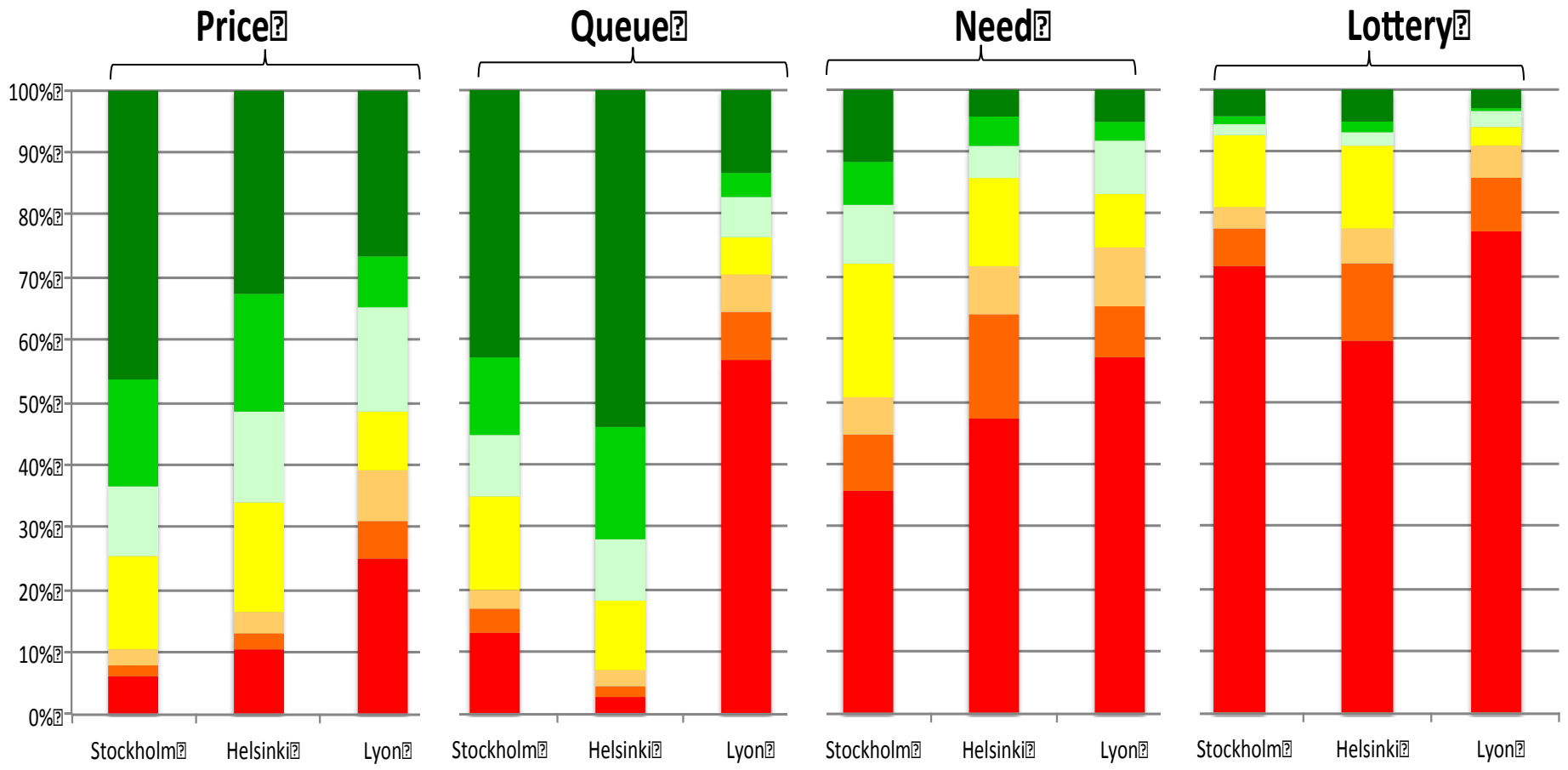
Perceived fairness of allocation mechanisms



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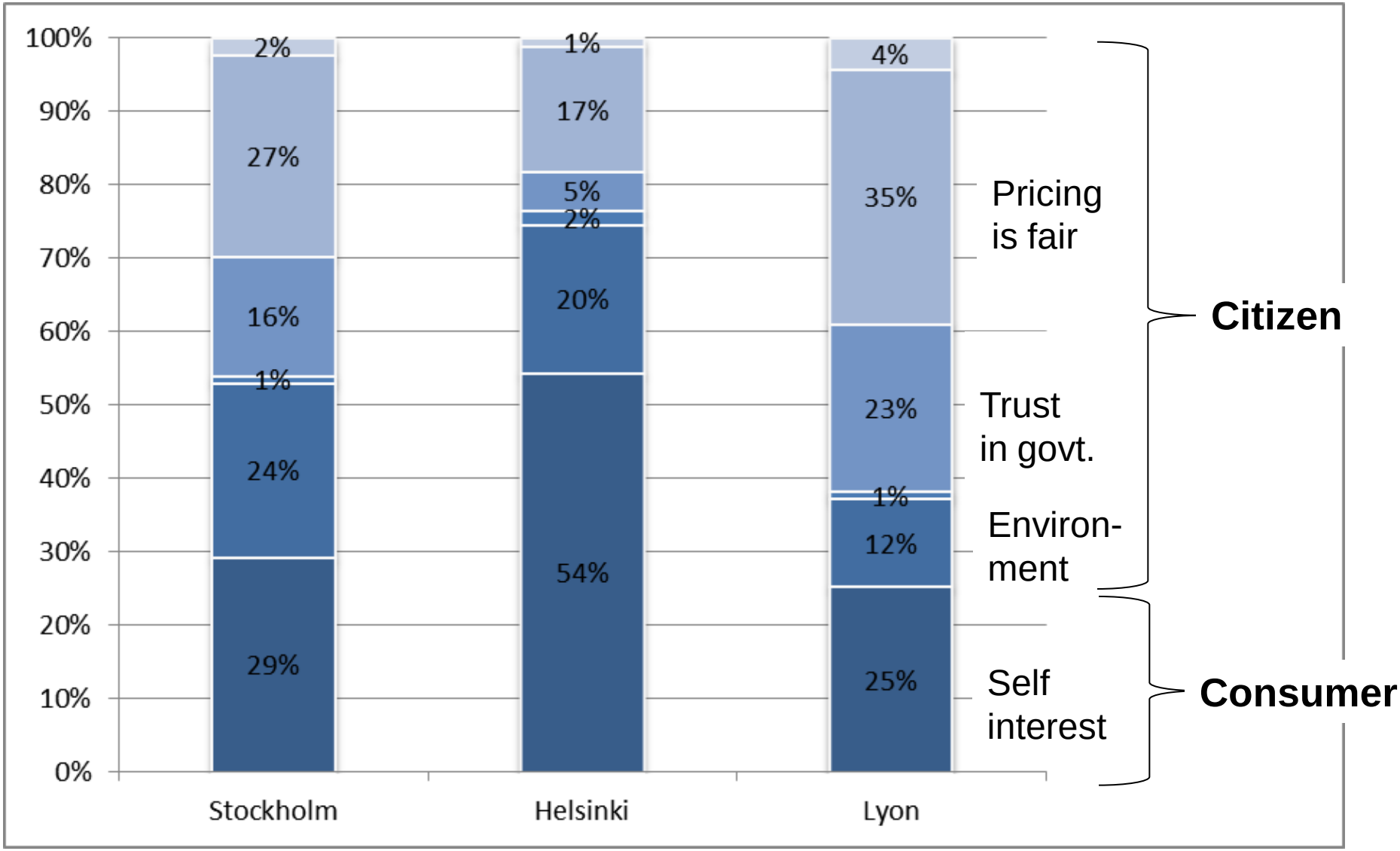
Relative explanatory power of variables



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”

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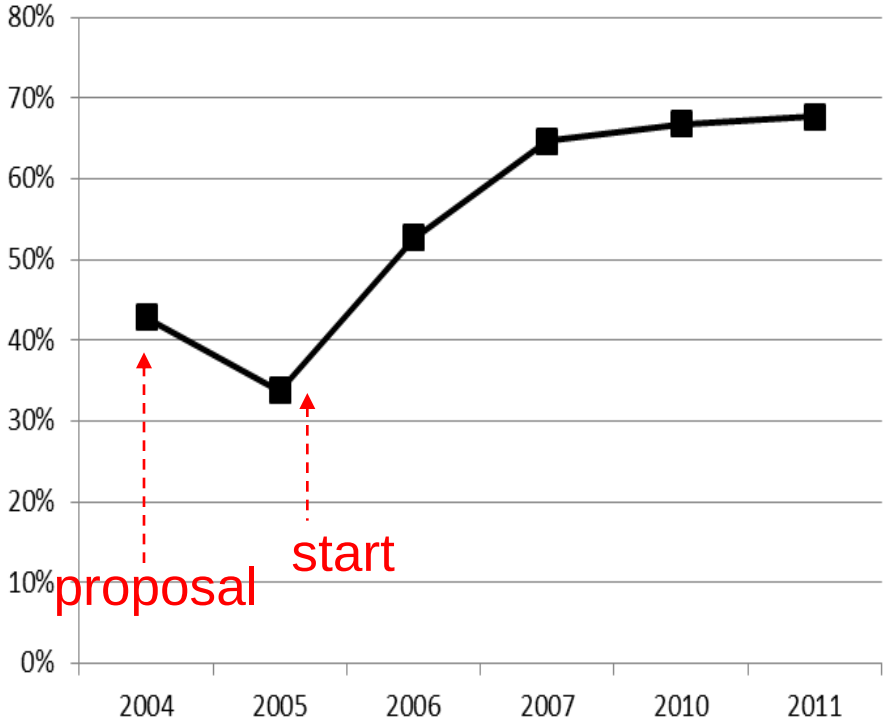
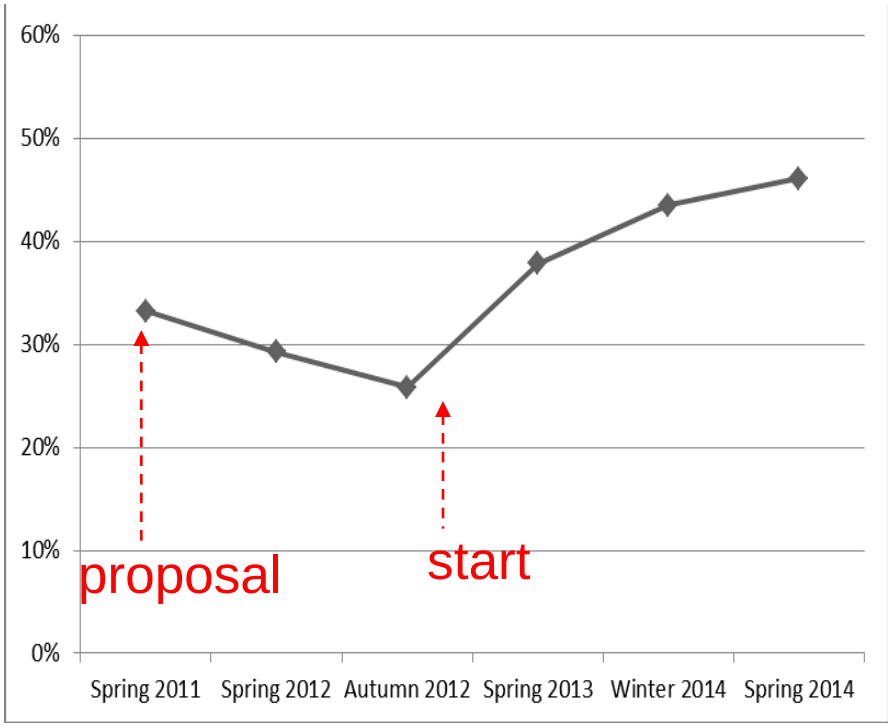
The valley of political death

Stockholm



Gothenburg



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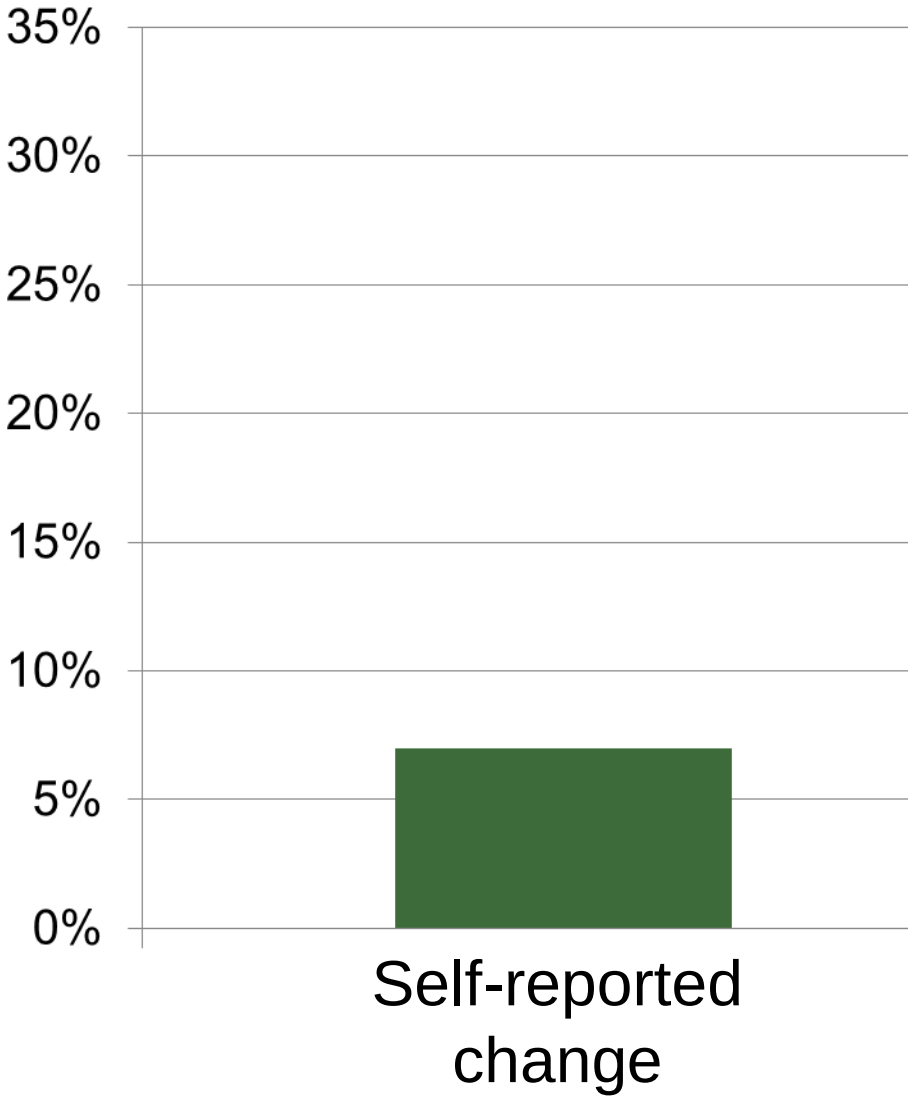
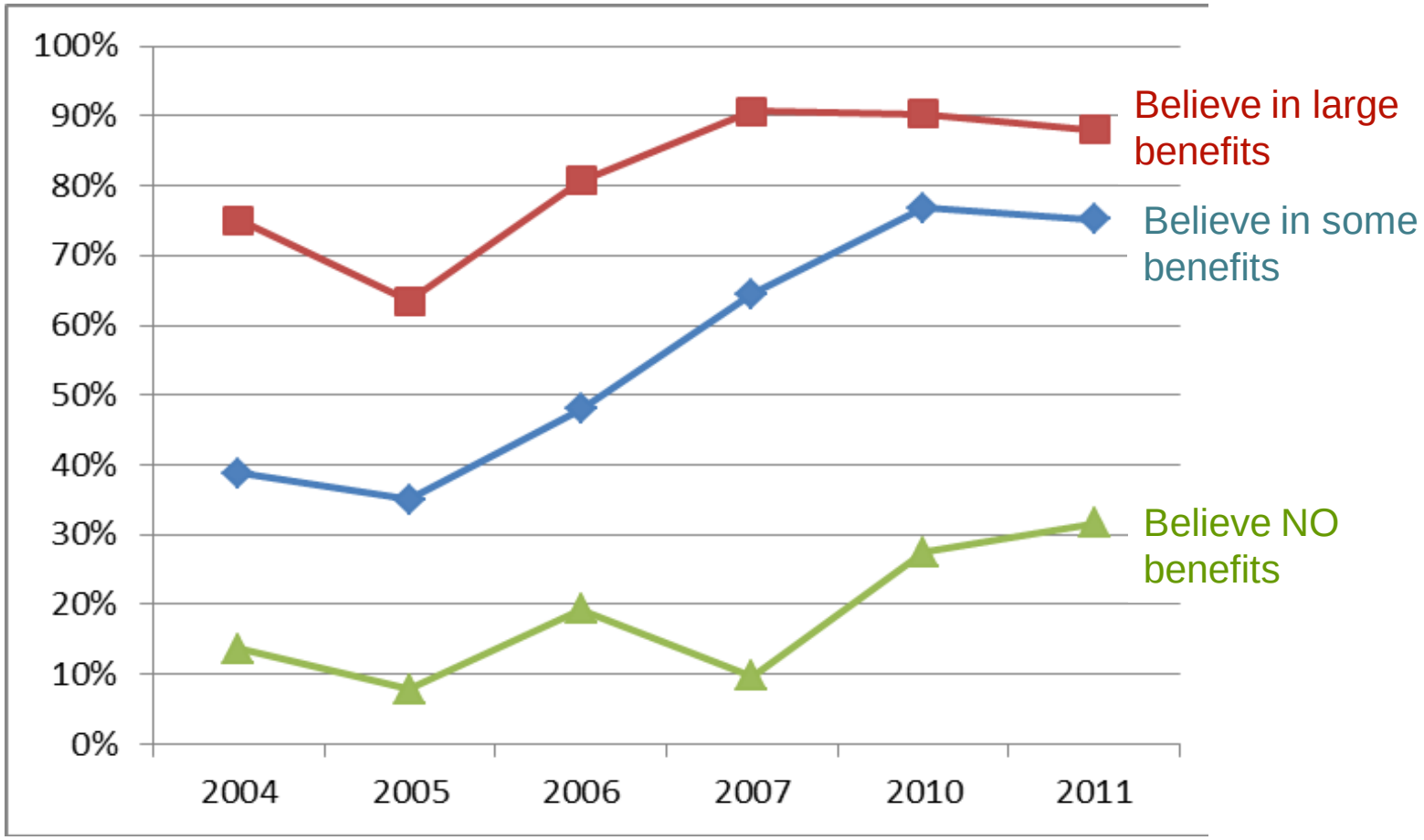
”How much less do you drive across the cordon compared to before the charges?” (2005=>2006)



Support vs. beliefs in positive effects



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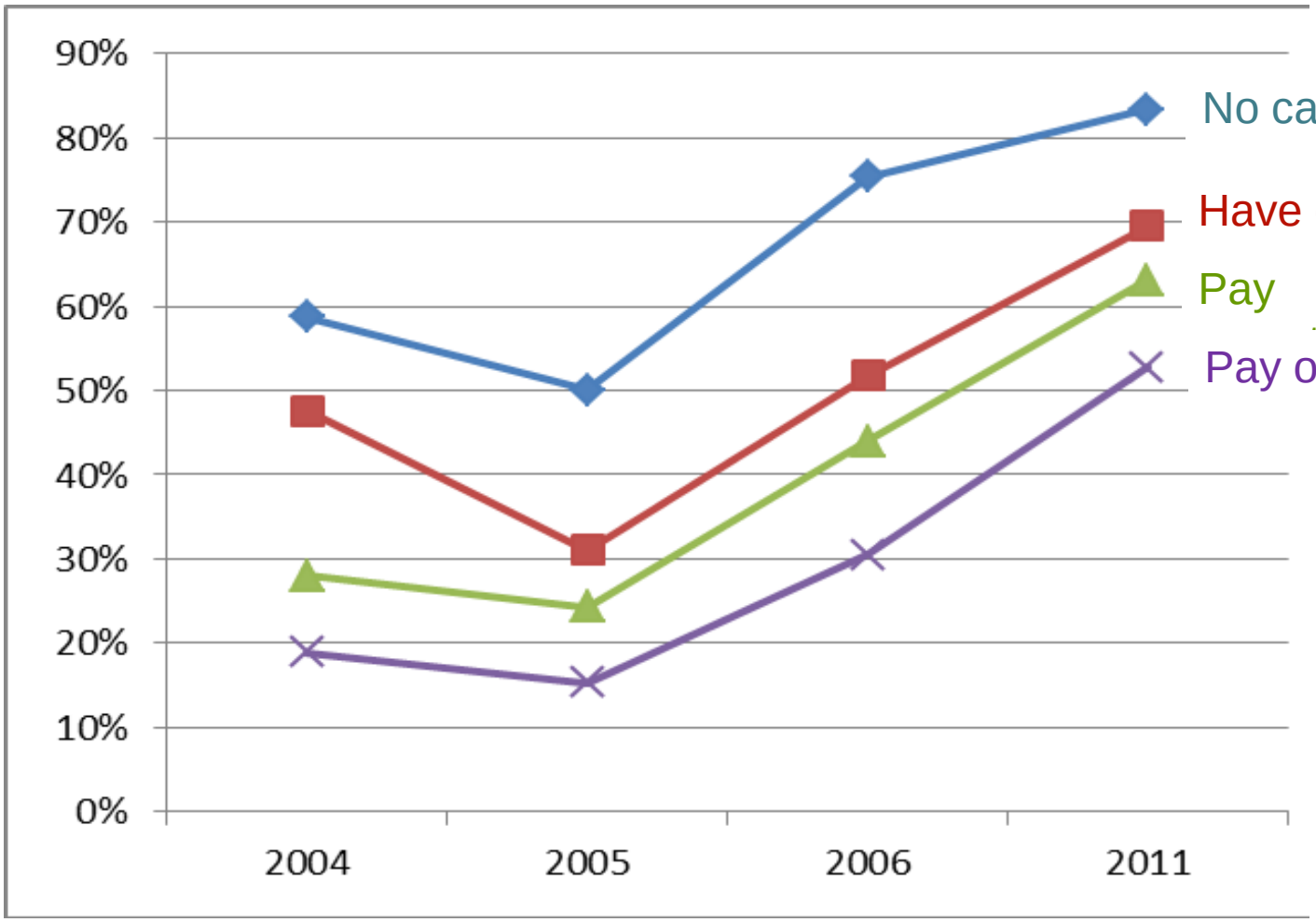
Support vs. how much people are affected



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Formation of new attitudes

- New attitudes formed by associating to attitudes to ”similar” issues
- What is ”similar” depends on **framing**
- New attitudes are less stable – more easily re-framed

- Politics often a **battle of framing**
  - which existing attitudes and values should a new issue associate to
  - Gaining political ground often requires re-framing of issues

- Status quo bias & loss aversion very common

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Before/after study in Gothenburg
Short term: right before and a year after start

Vote ~ α(self-interest things)*

+ β(beliefs in pos./neg. effects)*

+ γ(related attitudes)*

+ ”before/after” dummy

Alternative explanations of attitude change:

- Changes in beliefs & attitudes captured as variables
- Reframing captured by change in γ
- Loss aversion captured by change in α
- Status quo bias captured by ”before/after” dummy

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Before/after study in Gothenburg

Vote ~ α(self-interest things)*

+ β(beliefs in pos./neg. effects)*

+ γ(related attitudes)*

+ "before/after" dummy

- Beliefs & attitudes didn't change (much)
- Parameters unchanged before/after $\rightarrow$ no reframing
- $\rightarrow$ No loss aversion
- Very large status quo bias ("after" constant) !
  - People simply do not like changes!

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Börjesson, M., Eliasson, J., Hamilton, C. (2016) Why experience changes attitudes to congestion charges: the case of Gothenburg. *Transportation Research A* 85, 1-16.

Framing and re-framing congestion charges in Stockholm in 4 acts

- 1970-1995: ”*Congestion charges gives efficient resource allocation*
  - Very few care about efficiency (except transport economists)

- 1995-2002: ”*Congestion charges is an environmental measure”*
  - Many care about this → increasing support

- 2002-2007: ”*Congestion charges will save/destroy the world”*
  - Intense political controversy tries to reframe CC in opposite directions → increasing polarization

- 2007-now: ”*Congestion charges is a transport planning tool”*
  - Very little emotions; broad acceptance

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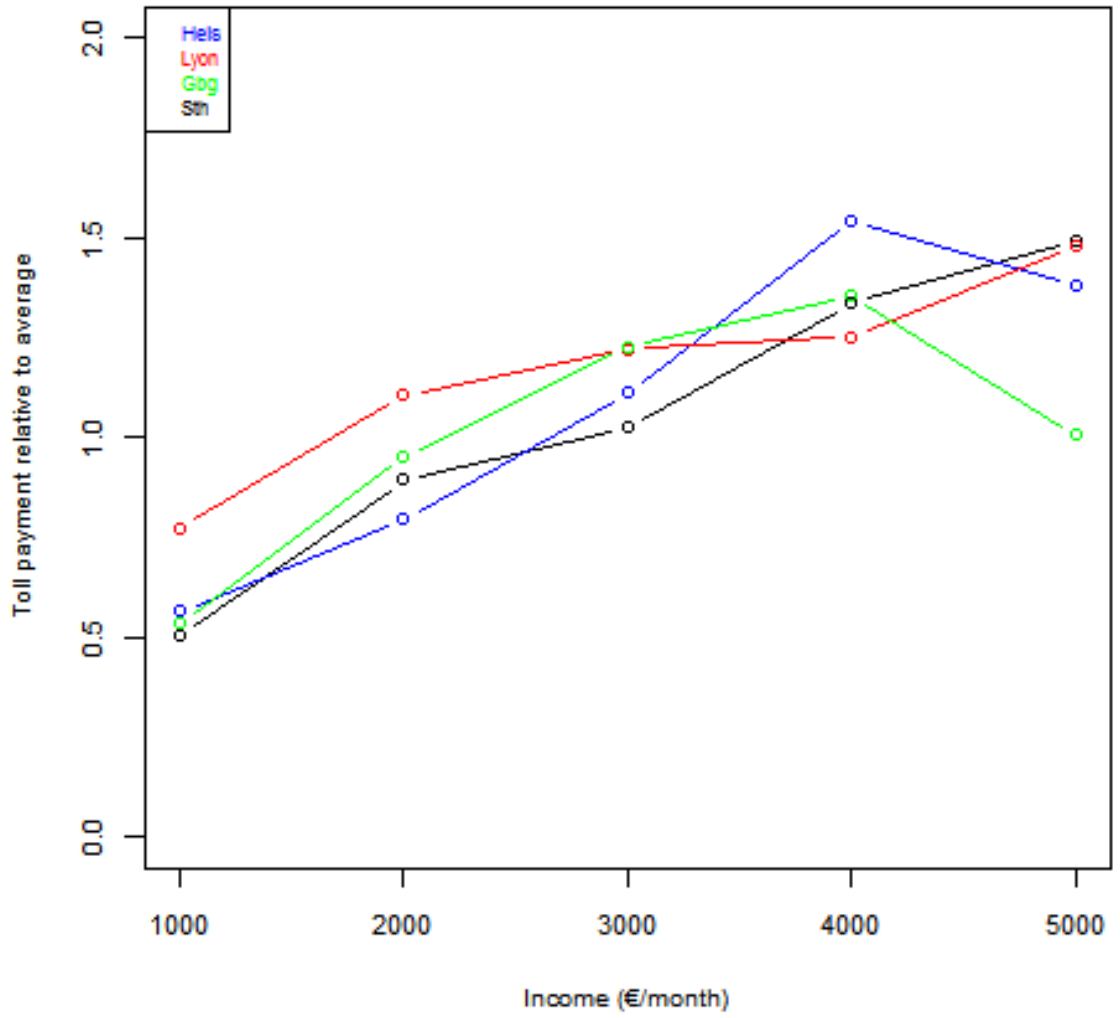
Eliasson, J. (2014) The role of attitude structures, direct experience and framing for successful congestion pricing. *Transportation Research A* 67, 81-95.

Toll payments per income group: Rich pay more

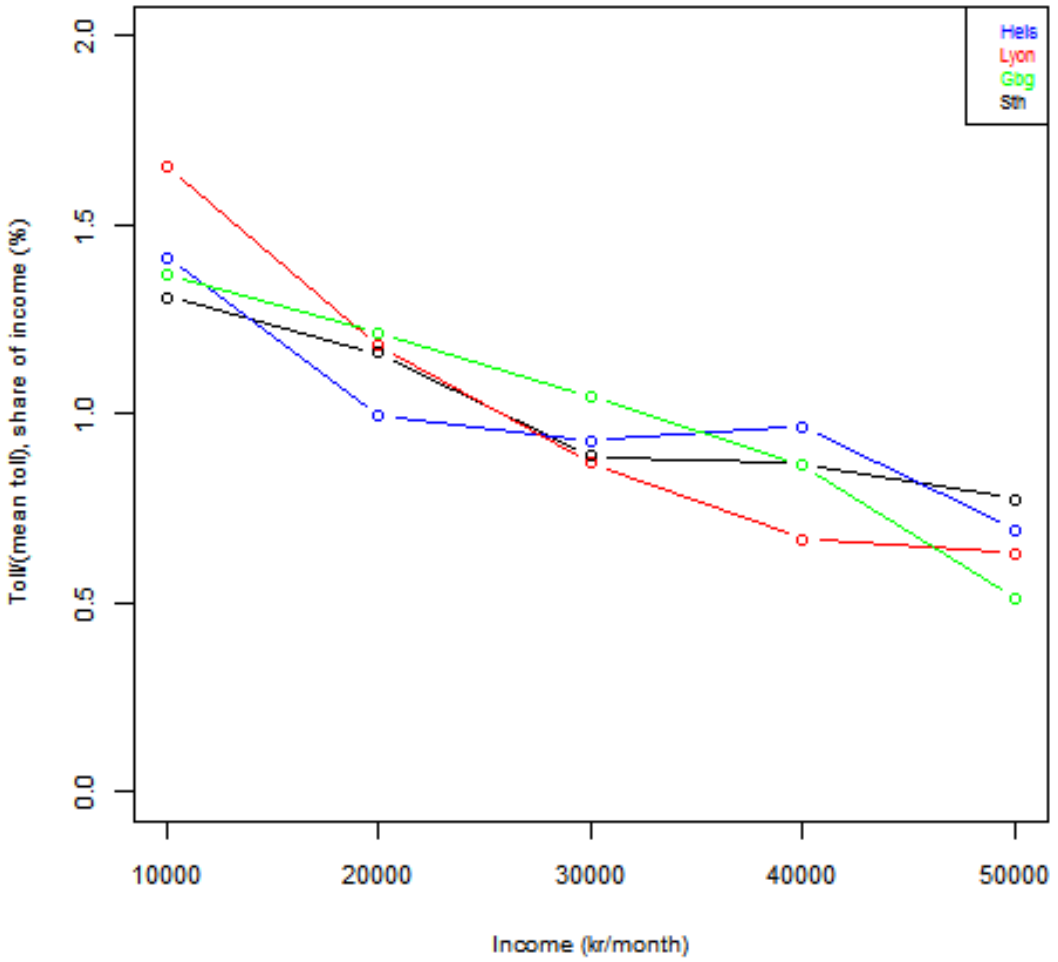


Hels
Lyon
Gbg
Sth

Income

Normalized by average payment

… but the poor pay a larger share of their income



Hels
Lyon
Gbg
Sth

Income

Normalized by average payment

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What does ”fair” or ”equitable” mean?

- Rich pay more – but poor pay larger share of their income
- Problematic if the purpose is to **generate revenues**
  - Regressive tax
- Acceptable if the purpose is to **correct prices**
  - Prices are usually the same for everyone, for efficiency reasons and to avoid paternalism
  - Increased economic equality usually achieved by taxation and welfare systems

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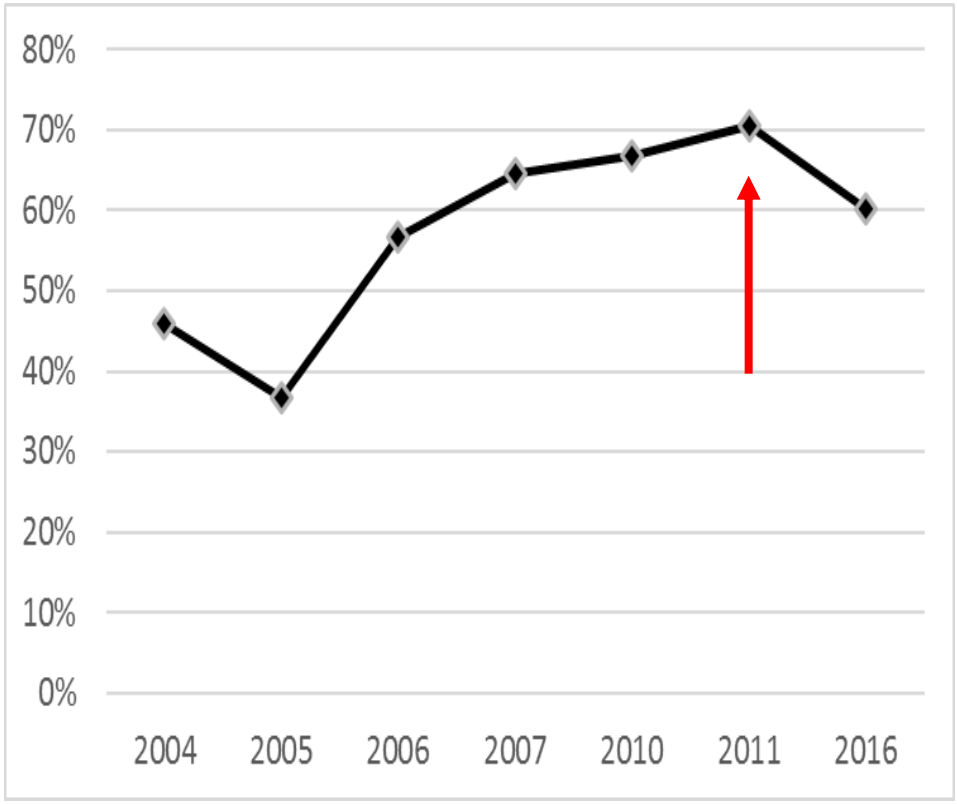
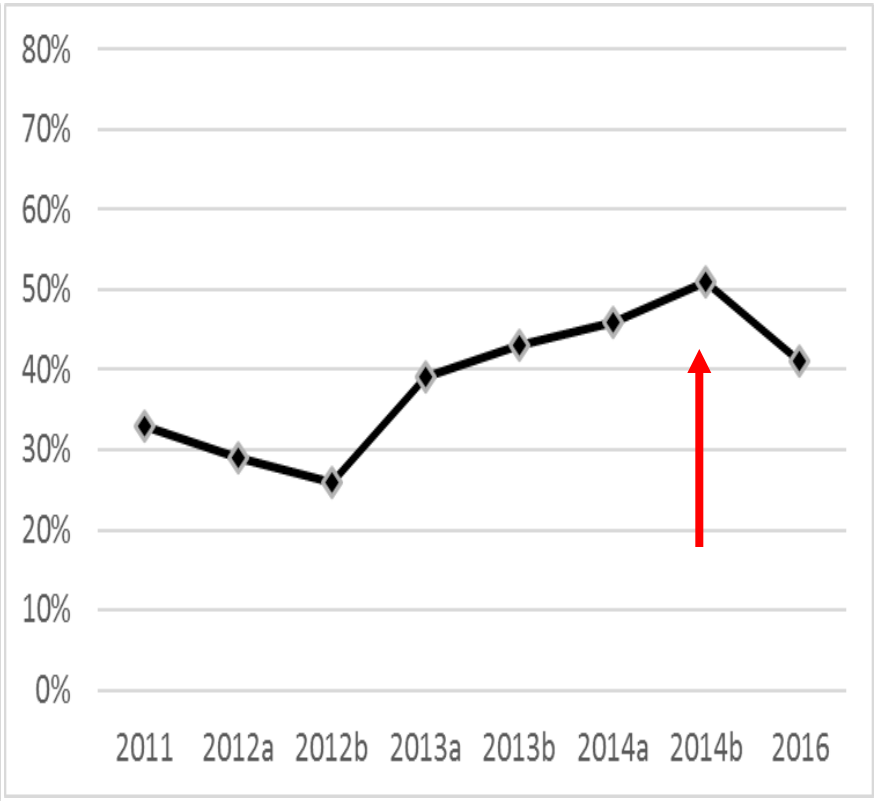
Epilogue (?): Reframing congestion charges – again

Recently, the Stockholm and Gothenburg charges have been used (and perceived) as **revenue sources** rather than **policy measures** (”price corrections”)…

Stockholm



Gothenburg



Overcoming resistance to efficient policies – summary

1. The policy must ***be*** efficient and yield tangible benefits
2. Frame it to connect to strong positive attitudes
   - Environment, fairness, rationality…
3. The government must be (and be perceived to be) honest
   - Motives, revenue use, costs and effects, policy evaluation…
4. Align political power, responsibility and credit/blame
   - Put checks in place: beware that a pricing policy may be converted into just a tax

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Nothing is more practical than good theory

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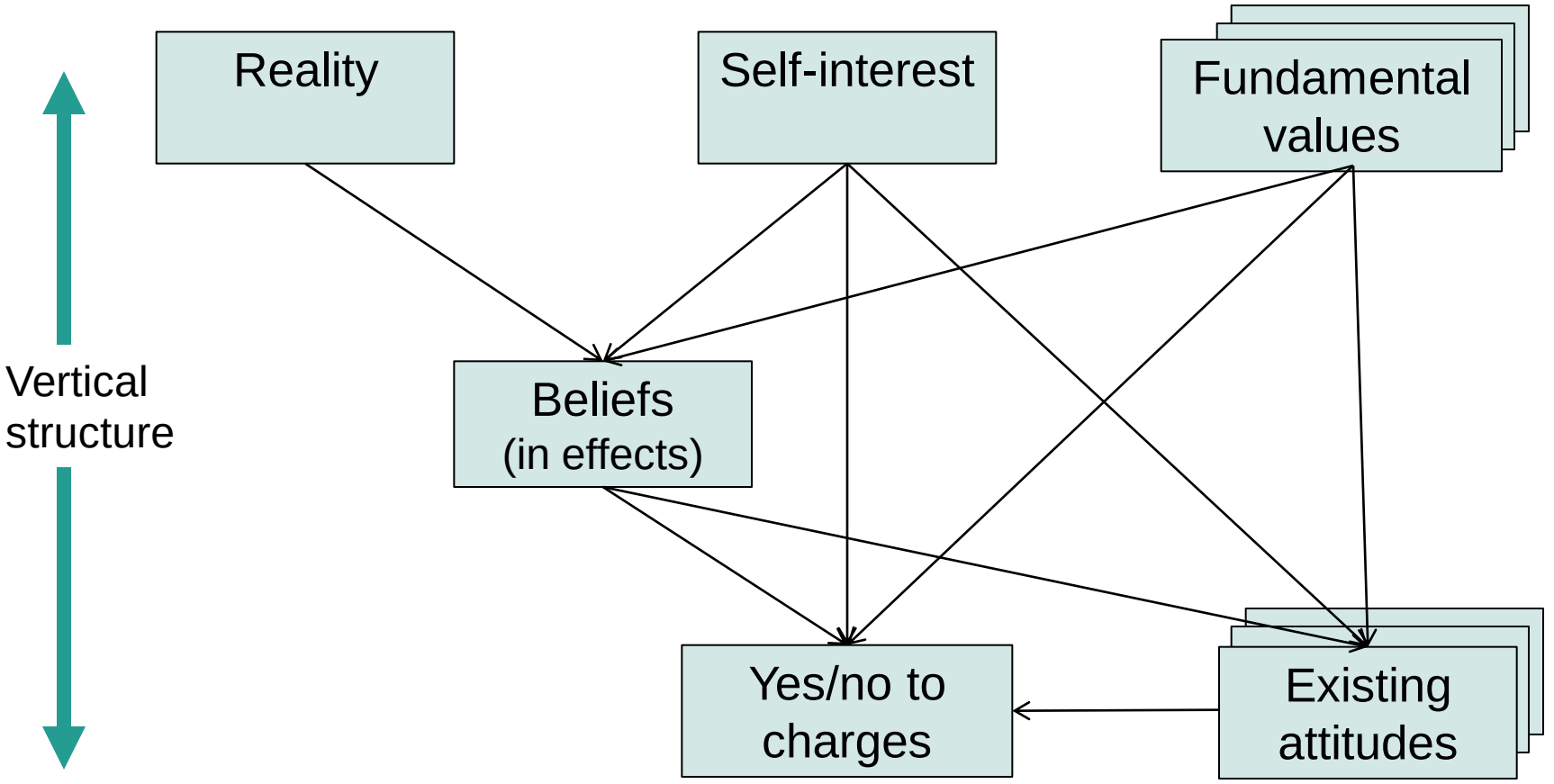
Forming new attitudes



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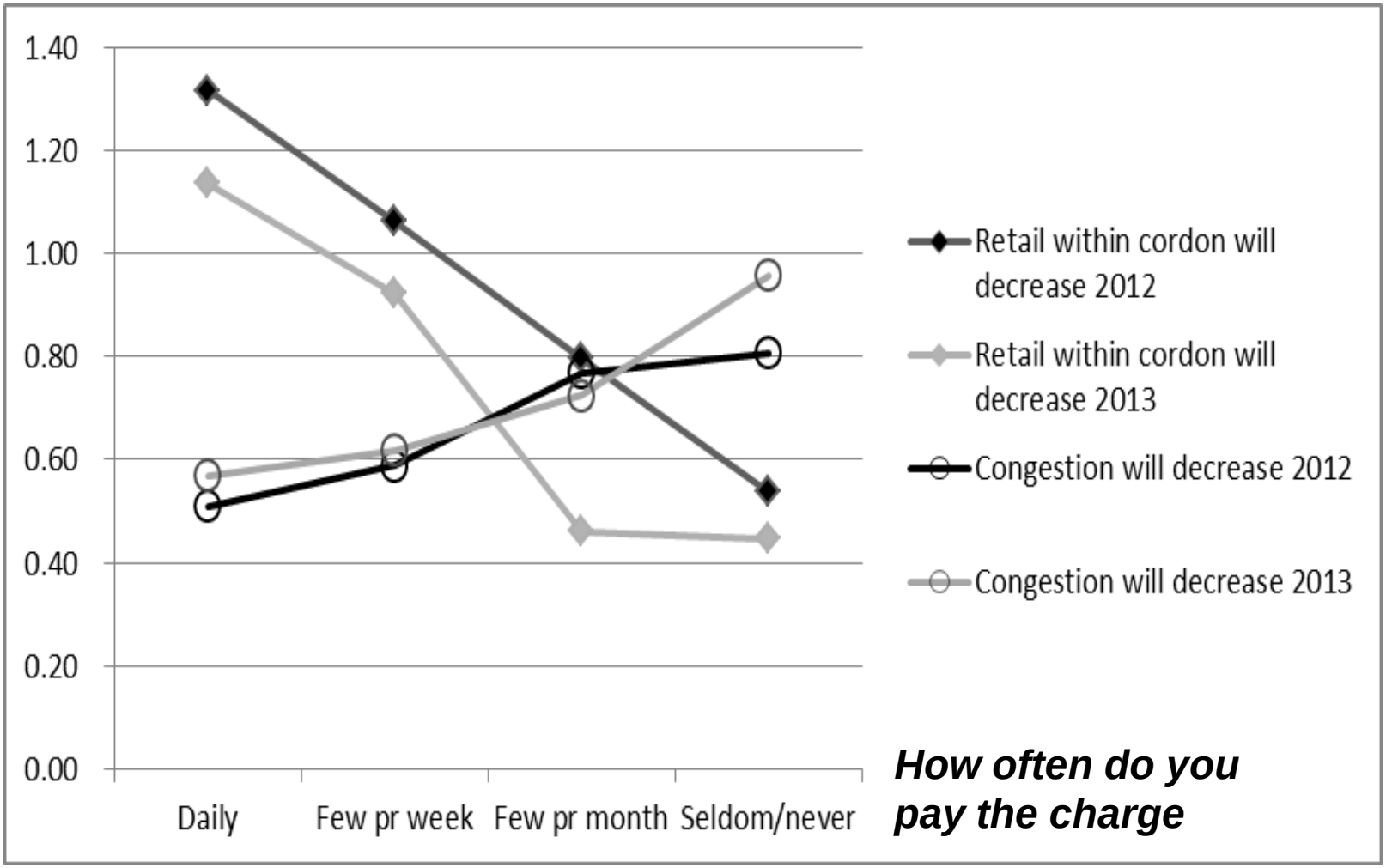
Self-interest influence beliefs in effects



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Achieving acceptability

- Create many winners, few losers
  - Smart scheme design => large congestion relief
  - Good and many alternatives => easy to avoid (*not just PT!*)
  - Earmark revenues (self-interest + reduce ”black hole” concerns)
- *Frame* it to connect to strong and positive attitudes
  - Many are concerned about the environment – few about ”efficient use of road space”
- Build ”trust for the government”
  - Transparent revenue use, system costs, process for deciding charge levels
- Pricing must be viewed as ”natural”, ”fair” mechanism
  - Scarce resources have to be allocated somehow, right?
  - Not just a ”tax” – an allocation mechanism
  - Frame it like a ”fare” or a ”user pays” charge ?

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