APPLYING MOBILITY PRICING INSTRUMENTS TO OPTIMIZE TRAFFIC AND TRANSPORT

TECHNISCHE UNIVERSITÄT DARMSTADT

travel demand management 2008

M.Sc. Dipl.-Log. (FH) Nadine Roth | Semmering, July 2008

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FGVV: Niagara on the Lake, 1999.


FGVV: London 2007.

FGVV: Hannover 2000.


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INTRODUCTION

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Introduction

Mobility Pricing comprises all the instruments
by which a user must pay for his potential and realized
mobility in passenger and freight traffic.

These expenditures can incur in form of
charge fees, duties, taxes, tolls, insurance rates, or purchase prices.

fuel taxes
monthly ticket
congestion charge
trängselskatt
Toll Collect
public transport tariffs
road toll
object pricing
BahnCard
Schönes-Wochenende-Ticket
parking fees
Péage
city toll
best-price procedure
LSVA
value pricing
infrastructure charging
Pickerl
motor vehicle tax
tollway permit sticker
commuter tax relief

AGENDA

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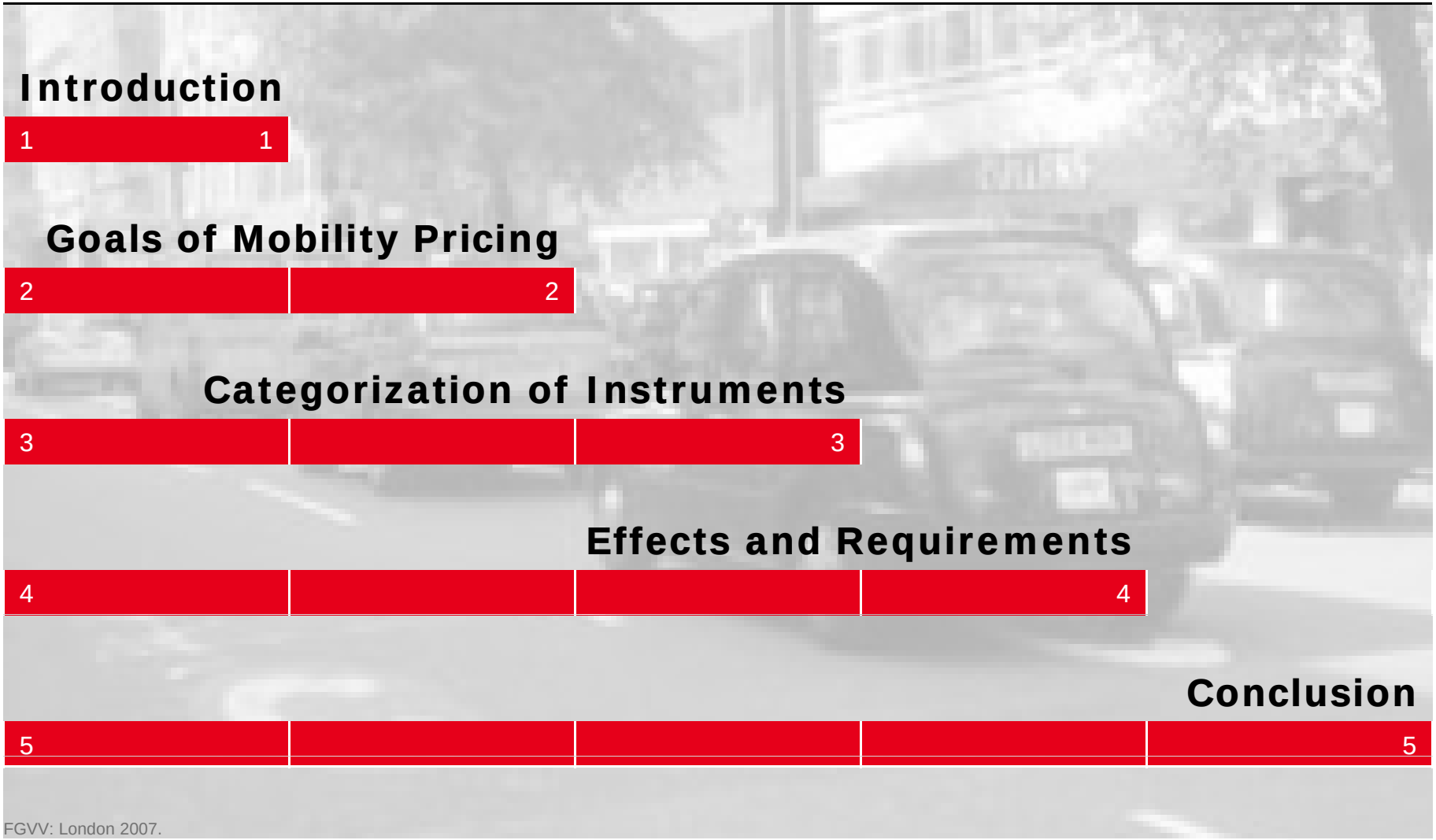

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GOALS OF MOBILITY PRICING

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Goals

	Strategic Goals	Operational Goals
Traffic Management	Mobility Needs Traffic Safety Efficiency Natural Ressources / Environmental Impacts Acceptance	Traffic Avoidance Traffic Shift temporally spatially modally Traffic Control route choice product choice
Financing	Concept for Funding Public Budget	Adjustment Shifting Charging

CATEGORIZATION OF MOBILITY PRICING INSTRUMENTS

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Categorization

Why are charges imposed?

For what are charges imposed?

On what basis are charges imposed?

By which means are charges imposed?

- **Goals of Mobility Pricing**
- **Object of Pricing**
- **Differentiation of Pricing (Tariff)**
- **Other Aspects**

ANALYSIS OF EFFECTS AND REQUIREMENTS

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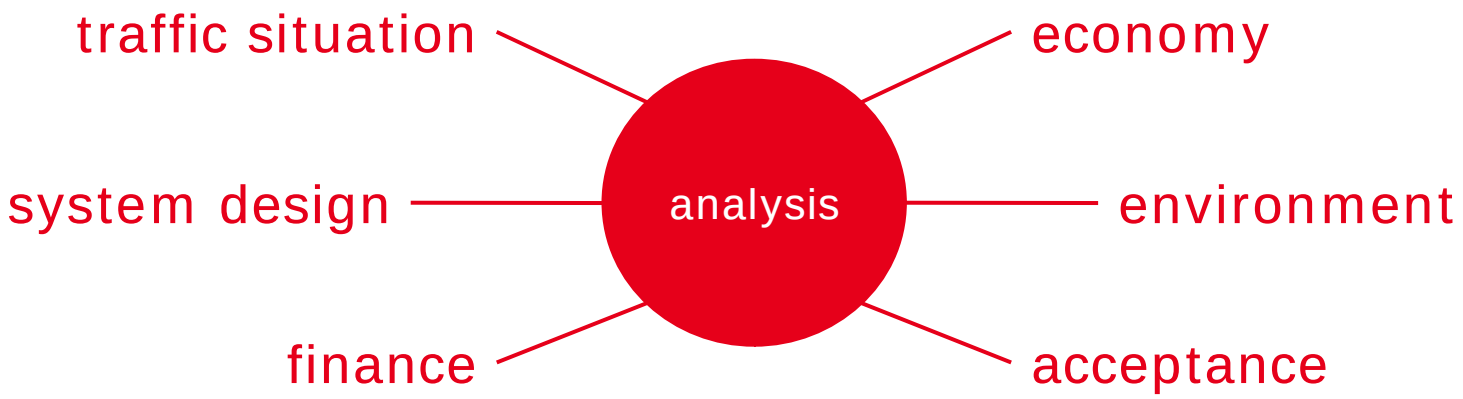
A differentiation is suggested between

- direct (modal) effects,
- intermodal effects,
- financial dependent effects.



TRAFFIC SITUATION (1)

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Effects

Mobility Pricing can change mobility behaviour.

The **traffic volume** can be influenced according to the set goals.


traffic avoidance


route selection


choice of travel time


choice of traffic means


destination choice


product choice

TRAFFIC SITUATION (2)

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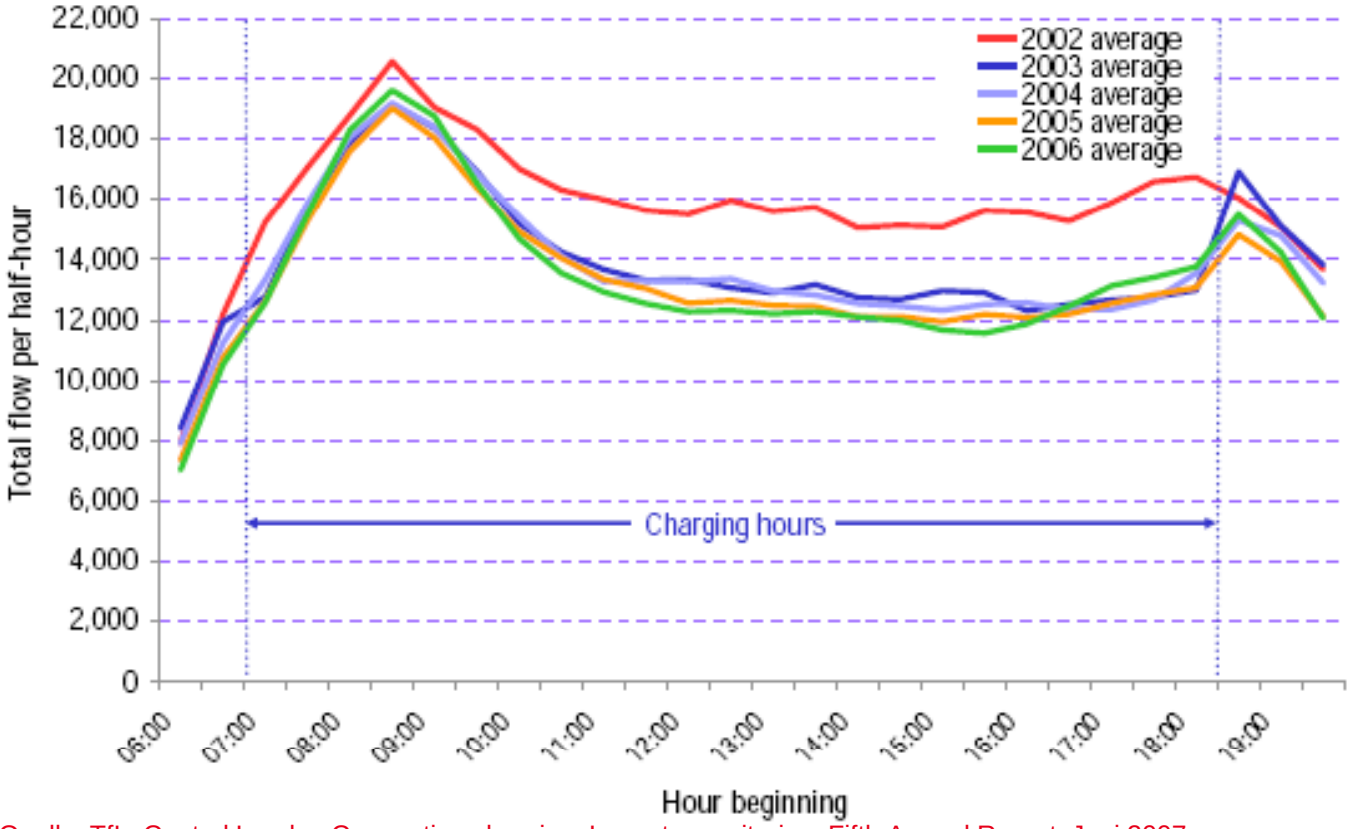
Effects

Case Study London: Reduction of the traffic flow

Traffic entering the charging zone by time of day [all vehicles]



Quelle: TfL: Central London Congestion charging. Impacts monitoring. Fifth Annual Report. Juni 2007.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FGVV: London 2007.

FGVV: London 2007.

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TRAFFIC SITUATION (3)

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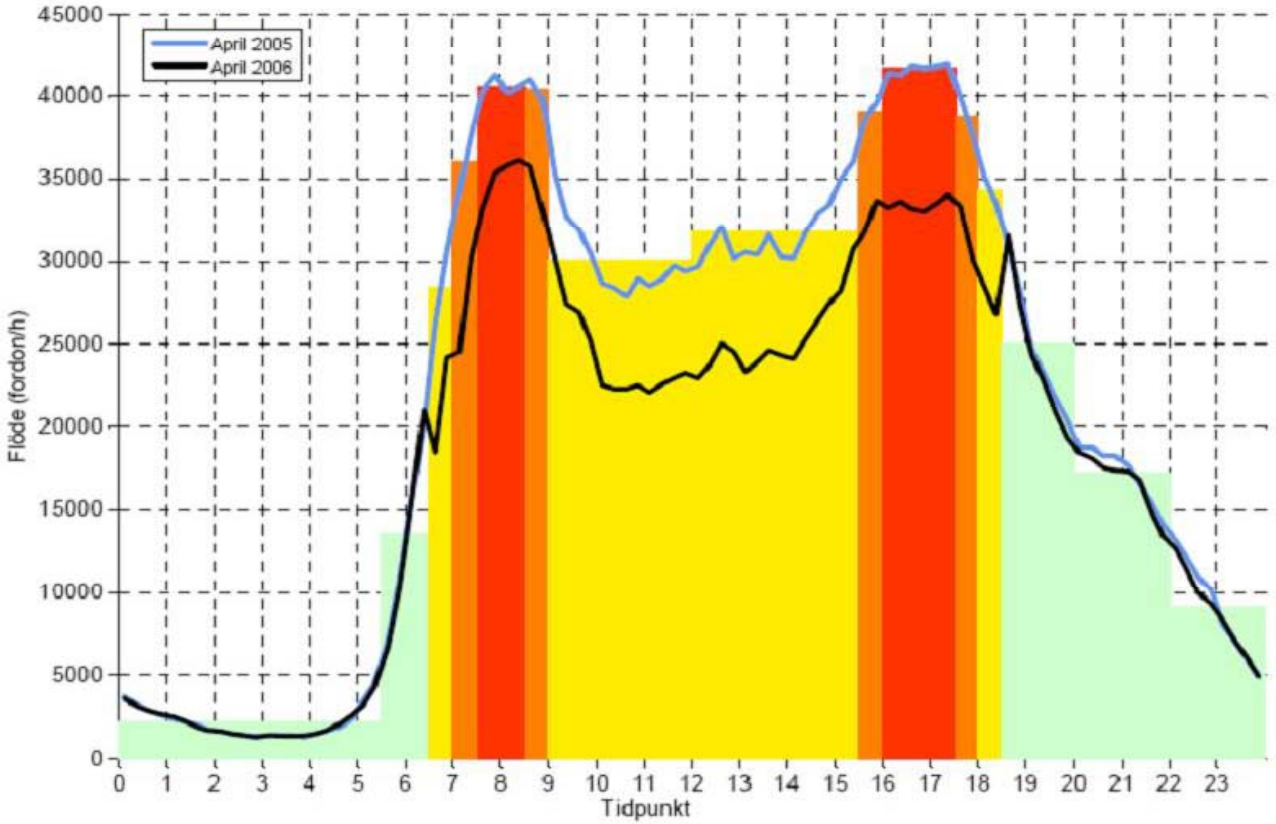
Effects

Case Study Stockholm: Influence on time choice for travel

Traffic passing in and out of the inner city [vehicles/hour]



Temporally differentiation of fees:

- charge-free
- SEK 10
- SEK 15
- SEK 20

Quelle: Stad Stockholm: Evaluation of the Effects of the Stockholm Trial in Road Traffic. 2006

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TRAFFIC SITUATION (4)

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Effects

Mobility Pricing can change mobility behavior.

The **traffic volume** can be influenced according to the set goals.

A range of potential improvements of the **traffic situation** and **traffic quality** arise from these opportunities to influence traffic volumes.

Obstructing the traffic flow through **technical processing** can be nearly completely avoided.

The effectiveness of mobility pricing instruments depends strongly on their **design** and on the circumstances of application.

TRAFFIC SITUATION (5)

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Effects

Mobility Pricing can change mobility behaviour.

Available possibilities to **avoid** the pricing will be used.

Mobility **obstructions** can (and should be) avoided.

Holistic Solutions are important.

Gathered **information** can be used for other purposes, subject to privacy regulations.

The requirements of a **goal-oriented** price design arise from the above described effects.

ECONOMY

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Effects

Mobility Pricing can affect the economy positively as well as negatively.

The **traffic sector** can be significantly influenced.

The **location quality** for industry can be influenced.

ENVIRONMENT

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Effects

Mobility Pricing can contribute to an improvement to the environmental quality.

Noise and **pollution** can be influenced.

The **cityscape** and **living quality** can be influenced.

The **spatial utilization** can be influenced.

ACCEPTANCE

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Mobility Pricing needs sufficient acceptance.

A sufficient acceptance can be reached for **drastic measures**, as well.

The acceptance by the general public is influenced by different **stakeholder groups**.

The acceptance depends largely on the **design** of the mobility pricing scheme.

- fairness
- noticeable improvement
- clear reference to the problem
- earmarking
- measures as a package
- compensation measures
- simplicity
- sufficient information and communication
- transparency
- knowledge of instruments

FINANCING

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Effects

Mobility Pricing needs an integrated financial consideration.

Next to the business effects, **overall economic effects** also emerge.

There is an overall **correlation** between all the instruments of mobility pricing.

Revenue situations and **finance systems** can be changed considerably.

Mobility Pricing needs instruments designed in a goal-oriented way.

Principle decisions for mobility pricing should be directed towards the **pursued goals** as opposed to modifying the goals to fit within current technology.

The **starting point** for the technical system design must be the overall goals and requirements.

- discrimination aspects
- safety aspects
- reliability
- interoperability
- integration in a overall architecture
- organizational-institutional qualifications
- legal possibility

CONCLUSION

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Goals

evaluation areas:
traffic situation, economy, environment, acceptance, finance, system design

direct modal effects, intermodal effects, financial dependent effects

Categorization System

Analysis of effects and requirements

Creation of new instruments

Estimation of effects of individual instruments

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CONCLUSION

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Mobility pricing instruments clearly offer more **chances** than risks.

An objective and substantiated **discussion** also of new instruments appears to be not only desirable but absolutly **necessary**, in terms of a sustainable design of our traffic and transport systems.

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