



## PRICING AS A TOOL FOR FUNDING AND REGULATION WITH EQUITY IN MIND

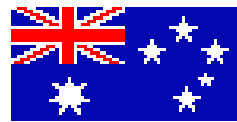
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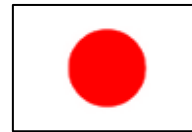
Pricing as a tool for funding and regulation with equity in mind

This task had been discussed and a report been produced by a working group consisting of members from 10 countries



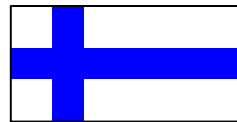
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## What was planned at the very beginning:

- Description of the selected strategies
- State the issue of equity between user classes, transport modes, users versus non-users
- Review of practice in several countries (definition of equity, schemes to achieve it)
- Assessment of charging methods as regards equity
- Recommendations for road pricing based on equity considerations.

## **Strategies**

**Traditionally taxes, charges and tolls had been used for funding infrastructure construction + maintenance, while planning measures and non-fiscal traffic demand management were implemented to regulate road use.**

**Pricing with a regulatory purpose as a new measure against congestion, environmental impacts and for safety provision has increasingly been discussed and implemented in recent years.**

**These experiences are mostly successful but raise concerns about equity.**

## General objectives of Road Pricing

Before starting the discussion on the sense and the structure of a road pricing system the objective for the implementation of such a system should be clarified:

- **Financing construction and maintenance of roads**
- **Fighting diverted traffic**
- **Regulating night and weekend-traffic**
- **Relieving urban traffic congestion**
- **Funding public transport** – pricing roads may be equivalent to funding urban transport networks
- **Offering value for money - payed HOT lanes**

## **Tools / Instruments**

**Instruments should be evaluated with respect to the problem to be solved or the objective pursued.**

**The effects of an instrument (i.e. its relevance for funding and regulation) strongly depends on the user's reaction to the specific implementation of the tool.**

**The geographical area of application might be of importance**

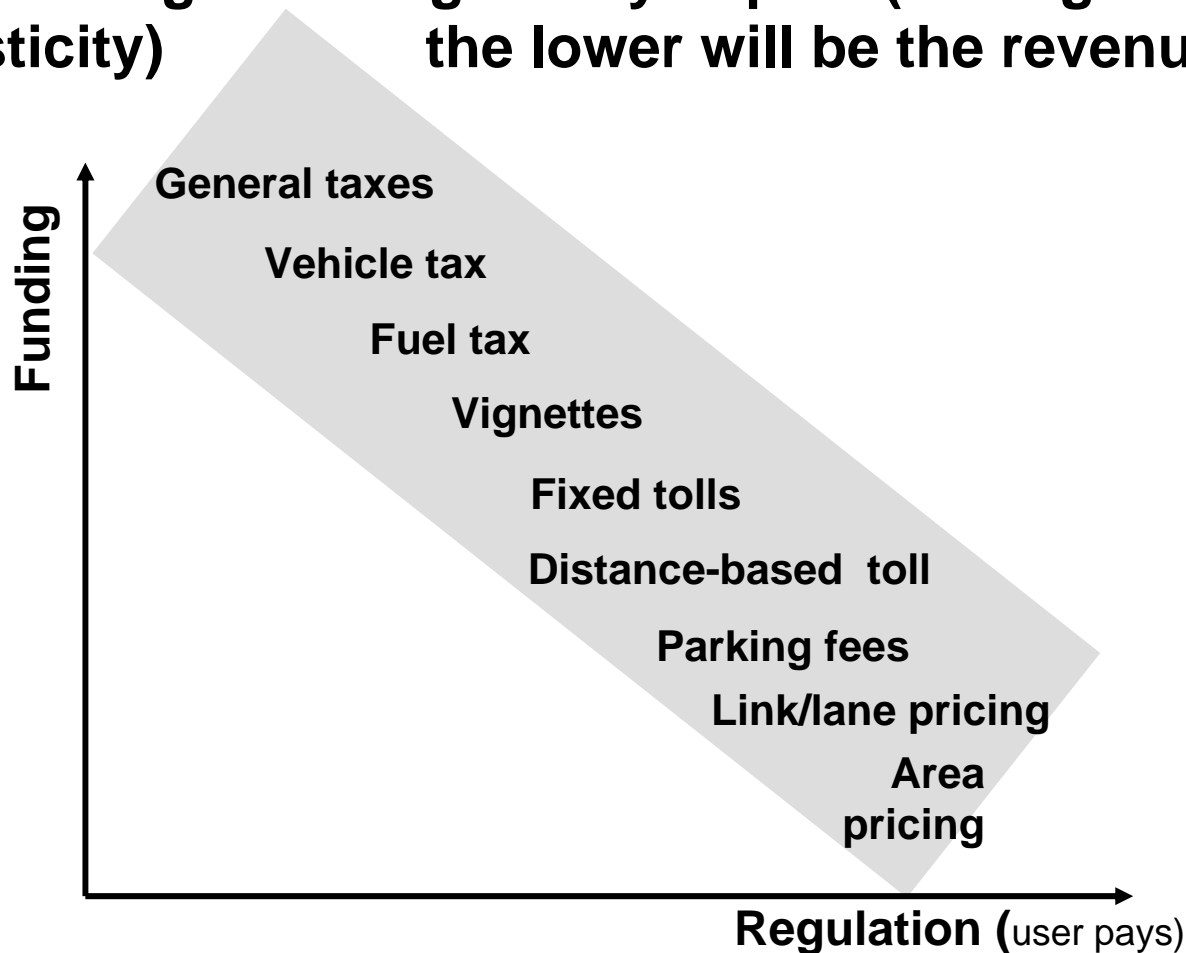
- urban area, interurban network**
- single infrastructure objects, wider network of roads**
- entrance fee (cordon), distance driven or time spent**
- all users, certain types of vehicles (e.g. heavy vehicle)**

**These aspects have also to be seen in the context of the technical system available.**

## Pricing as a tool for funding and regulation with equity in mind

Every instrument contains elements of funding and regulation to a different degree.

The stronger the regulatory impact (the higher demand elasticity) the lower will be the revenue created



## Impacts (1)

**Pricing impacts in general can be evaluated on the bases of consumer surplus analysis.**

**Socio-economic models are one method of measuring the value that consumers place on goods and services they use.**

**Cost-Benefit-Analysis has to be performed with respect to**

- direct benefits and costs,**
- congestion (mainly travel time) and**
- externalities (environment, safety).**



## Impacts (2)

**Based upon this concept and model, a benefit incidence table (BIT) e.g. for an urban road pricing scheme (London) had been tabulated within the group work.**

**Four groups concerned by pricing had been considered:**

- **road users** (car users, public transport users and public transport operators),
- **land users** (households, producers/firms) within and outside this charging zone,
- **land owners**
- **implementing agency** (either government or any transport agency).

## Impacts (3)

**Five benefit / cost items can be evaluated:**

- **users benefit from congestion relief**
- **users benefit from improved public transport service**
- **public transport operators benefit**
- **accidents, amenity and environment, business and economic impacts,**
- **land users benefit, operating/implementing costs and subsidies.**

**The result showed that a disbenefit for car users was overcompensated by the benefits for public transport.**

**Regarding the distribution, the conditions have to be considered under which socially beneficial projects are equitable and find acceptance.**
























## Distribution

- **Horizontal** (e.g. among users / non-users) impacts of specific RP schemes
- **Vertical** (among income groups) impacts of specific RP schemes
- **Geographical** (e.g. among city dwellers and agglomeration residents) impacts of specific RP schemes

**In reality, acceptability does not only depend on distribution among groups (horizontal distribution) but also on vertical and geographical distribution of costs and benefits.**

The following table contains qualitative judgements of distribution for selected examples based on existing literature and intuition.

# Pricing as a tool for funding and regulation with equity in mind

Tool/Example	Distribution		
	Horizontal	Vertical	Geographical
<b>A1 in France, Sunday evening peak pricing</b>	High majority of Road users 	Neutral 0	A1 bound ASTERIX Park (visitors, less congestion) 
<b>Area licensing Stockholm</b>	Average road users:  Users of tangential routes 	Rich inhabitants of centre,  rich car commuters:  public transport  Commuters: 	Periphery to center  Commuters: 
<b>Area licensing London</b>	Road users come out, even Public transport users and slow modes 	Rich inhabitants of centre, rich car commuters, average to poor bus commuters 	Retailers in the centre  "City", retailers in the agglomeration 
<b>Norway (Oslo) cordon toll</b>	Road users 	Tax payers: Progressive tax and regressive toll compensate 0	
<b>US HOT lane (High Occupancy Toll)</b>	Lane users, If new lane:  (no loser) if exist. lane transformed, non lane users lose 	Mildly regressive like e.g. parking fees	
<b>Heavy vehicle toll e.g. Austria/Germany</b>	Car drivers:  Shippers / transporters:  or 		Charging country,  Motorway users:  neighboring countries pay for traffic diversion, provincial route users and residents pay 

## Distribution (2)

**Distribution depends heavily on the use of the revenue from pricing.**

- road construction and maintenance**
- improvement of the service**
- promoting public transport alternatives**

**Two interesting aspects emerge:**

- the better the alternatives to the priced facility (other lanes, time, or modes) the less the loss to users but probably the lower the interest of authorities to implement it (little funding)**
- Tolling single routes may provoke traffic deviation, and create additional opposition to the project**

## Equity issues and acceptability

**Political support for a pricing scheme depends critically upon its conceived equity impacts.**

**General concerns and resistance regarding pricing and charging require**

- Political acceptance,**
- User acceptance**

**Examples described in the report illustrate horizontal, vertical and geographical equity concerns that may or may not hamper implementation of specific RP schemes.**

## Models of application

The group described a number of international cases, where pricing systems are already applied or at least in a remarkable stage of preparation.

Following the basic structure of the report these case studies give a view on the

- Background for pricing
- current and future tools/instruments
- Objectives for charging
- Impacts of implemented taxation or pricing systems
- Equity issues
- Acceptability
- Learned lessons and future plans

## Special aspects (1)

# Charges for heavy vehicles

In recent years distance based charges for heavy vehicles have become popular in Central European states.

Working group 2 has analysed successful schemes and concluded that

→ Charging which affects only heavy vehicles causes less problems for data protection and equity.



 all veh. >3,5 t



 trucks >3,5 t



 trucks  $\geq 12$  t



## **Special aspects (2)**

### **Charging technology**

**Technology should in general no longer be a real challenge for the implementation of a charging system.**

**But the appropriate charging technology and its acceptable costs depend on the objectives (funding or regulating) and on the geographical possibilities of a charging system and has to be accepted by the users.**

**The report gives a short description on the different technologies used in existing systems, including a preview on the European plans for a “soft” harmonisation.**

## Lessons learned and recommendations

Projects in general have a chance to be realised under the condition that:

- the perceived urgency of the problem is big enough.
- there is no alternative to the pricing scheme.
- the feasibility of the project can be demonstrated clear and obvious.
- the (tax)payer can be clearly demonstrated that the revenues are returned to the mobility system, including environmental measurements.
- It can be explained to the (tax)payer that the system is fair.

## Lessons learned and recommendation (2)

**If a charging system irrespective of type and whether only planned or already implemented, is not accepted by the majority it will not be possible to implement it or even to keep it in operation.**

- Political support for a pricing scheme depends critically on its perceived equity impacts.**
- The expected distributional impacts will largely determine the acceptance of a given project.**
- Successfully introduced schemes have a majority of winners.** (e.g. London City Toll, modulation of tollrates in France, heavy vehicle charges in central Europe)
- Few examples create only winners.**

**Lessons learned and recommendation (3)**

**The foreseen use of revenue from pricing will strongly influence not only the effective ex-post distribution but also the ex-ante perception of equity of specific projects.**

**Revenue can quite simply be added to general state funds, or it can be redistributed among the whole or groups of the population etc.**

**Using revenue for roads or public transport infrastructure and service improvements are by no means the only realistic option open to the regulating authority**



**Pricing as a tool for funding and regulation with equity in mind**

**Thank you**

**for your attention**