

The feasibility of the road&park pricing to support the transport policies

Guidelines from the EU research project AFFORD¹

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Table of contents

GENERAL ASPECTS	3
THEORETICAL APPROACH	4
PUBLIC ACCEPTABILITY	6
The strategies	6
The sample	7
Main results of the public acceptability survey	10
Problem perception	10
Evaluation of the Strategies	12
Use of the revenues and equity	15
Comparison with the other test sites cities	16
Factors influencing the degree of public acceptability	18
POLITICAL ACCEPTABILITY	19
The sample	19
Main results of the political acceptability survey	20
Problem awareness	20
Evaluation of the strategies	21
GUIDELINES TO ENHANCE MARGINAL COST BASED PRICING ACCEPTABILITY	23
REFERENCES	24

General Aspects

Transport policies to control the transport demand in the very congested and polluted areas have in the past focused largely on **direct regulation (enforcement)**, more recently supported by the use of **technology**:

- a) restrictions to the use of private car;
- b) telematic applications which improve the effectiveness of traffic;
- c) more attractive public transport;
- d) improvements in safety of cars and roads;
- e) reduction of vehicles' energy consumption;
- f) reduction of emissions produced by vehicles.

Several studies and research projects all over the world have therefore considered in the last years the **new approach based on transport pricing measures and policies** - including all kinds of road and parking pricing. From a theoretical point of view, such fiscal incentives should be very effective means to increase the efficiency of traffic by a **spatial-temporal variation of transport costs** (Milne, Niskanen and Verhoef, AFFORD, 1999). These studies were encouraged by the Commission of the European Communities, which in 1995 advocated the introduction of road pricing with its green paper "Towards fair and efficient pricing in transport".

On the other hand, the examples of **successfully implemented pricing policies are very few**, especially in Europeⁱ. The first **empirical findings** have then shown that the public and political **acceptability** is an important precondition for the successful implementation of the pricing measures and that it is usually **rather low**.

Rienstra, Rietveld, & Verhoef (1999) describe the various types of analyses, which can be applied to investigate the acceptability of transport policies. *First*, the acceptability can be predicted by means of theoretical models, which assume rational behaviour of individuals. *Second*, empirical studies can be applied, e.g. by setting out questionnaires and interviewing people. *Third*, ex post studies can be carried out by investigating behavioural changes of individuals due to the measure. The way the behaviour changes may be an indication of the acceptance of the measure.

The EC **research project AFFORD** studied in depth the acceptability of the transport pricing measures, both from the theoretical point of view (psychological approach) and the empirical one. This paper presents a short overview of the theoretical approach and the results of the surveys carried out in four European citiesⁱⁱ, focusing on the test site of Como (Italy).

Como is one of the main towns in Lombardy with a population of 84,000 in 1995, with about 50,000 employees (about 2/3 of them are commuters) and 59,000 cars in 1991. Recently (1990s) Como has become an university town. It is reached by motorways, the Italian National Railway (FS) and the local railway FNM. Public transport in the city comprises bus, lake boat, and funicular. The complex topography and the namesake lake form constraints to the urban mobility system. The city of Como has a significant need to rationalise private transport in order to reduce traffic congestion and atmospheric pollution.

Theoretical approach

As used in AFFORD, the term "**acceptability**" refers to the (affirmative) *attitude* towards a specific object (here the road pricing). It is quite different from the "acceptance", which is related to some kind of *behaviour* as a (re-) action towards the object.

A **theoretical model** was developed in the AFFORD project by the University of Dresden, defined the following essential issues determining the acceptability of pricing:

1. *problem perception*: the perception of traffic related problems is a necessary precondition for regarding problem-solving measures as important;
2. *mobility related social norms* as the perceived social pressure to accept measures like road pricing;
3. *important aims to reach* by the measures: these aims can compete with certain mobility related aims of various interest groups. The potential conflict that may arise between these perhaps different aims is crucial for the question of acceptability. People should see the resolution of the traffic related problems at least as important as their own interests;
4. *information* and *awareness* of options: people have to know and understand projected measures. They have to be aware of the background, the aims as well as the specific ways, in which the measures are implemented in practice;
5. *perceived effectiveness* and *efficiency*: the proposed measure have to be perceived as an effective and efficient mean to control traffic problems;
6. *equity*: first of all in the sense of a distribution of costs and benefits as being fair;
7. *revenue allocation*: public acceptability strongly depends on how the revenues are used. Hypothecating revenues increases public support considerably;
8. *attribution of responsibility* for the solution of perceived traffic problems. If people consider themselves as at least partly responsible for solving the problems (*internal* as compared to *external* attribution), this should lead to increased agreement with measures that raise the price of or restrict car use.

The figure 1, in the following page, shows the interactions among the identified key-issues influencing the acceptability.

Through the diagram one can see the **process that leads from problem perception (and the subsequent definition of the policy) to behaviour on a collective level, which conform to the aims of the policy.**

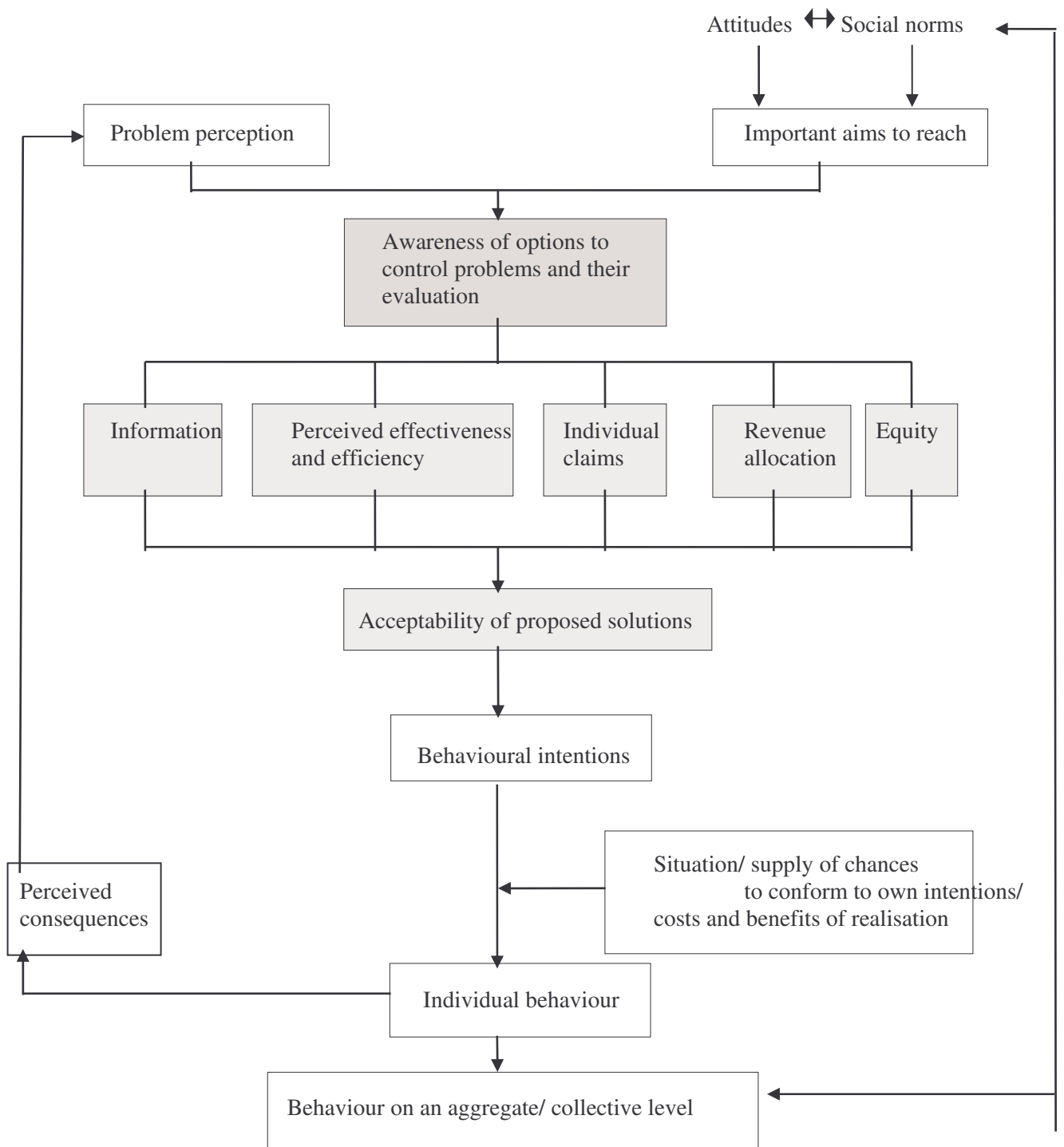


Figure 1: Structure of acceptability issues (Schlag & Teubel, 1997, 136).

The study of the acceptability of road pricing was carried out in AFFORD among three relevant **interest groups**, identified as the affected motorists, the politicians and the business community. The first ones will pay to drive congested areas (usually the centre); the second are the key decision-makers and the third are worried about the possible decline of sales due to the increased costs the motorists must pay.

Three **surveys** were therefore carried out, one for each interest group (Public Acceptability, Political Acceptability and Business Acceptability). Here the results of the first and the second one are described in depth.

Public Acceptability

The Public Acceptability survey investigated, at first, the problem perception and the personal attitude regarding the use of car. The interviewees were then asked to evaluate three pricing strategies and also to estimate their degree of acceptability. The surveys were carried out from December 1998 to January 1999.

The strategies

The pricing/policy packages proposed in the public acceptability questionnaire were derived from AFFORD Deliverable I (Milne, Niskanen & Verhoef, 1999). **Two of the three packages** (strategy A and strategy B) were **the same applied in all the cities** investigated in AFFORD. The **strategy C - site specific** - allows for local circumstances.

Strategy (A) is "best practice second best", the so-called *strong* package comprising **time-differentiated cordon pricing and an increase in parking charges and fuel taxes as well as some way of revenue hypothecation.**

"Charge motorists

- toll cordon with charges of 2 EUR during the morning peak (7.00 - 9.00 a.m.) and 0.5 EUR thereafter
- parking charges increased with 0.5 EUR/hr
- fuel taxes increased with 0.5 EUR/litre

and use the revenues:

- two thirds to lower labour taxes
- one third to invest in capacity expansion of known road traffic bottlenecks"

"Best practice second best" -Strategy A

Strategy (B) is "acceptable", the so-called *weak* package, comprising also - but to a lower extent - **cordon pricing as well as an increase in parking charges and fuel taxes, and revenue hypothecation.**

"Charge motorists

- toll cordon charges of 1 EUR at all times (including nights and weekends)
- parking charges increased with 0.25 EUR/hr
- fuel taxes increased with 0.125 EUR/litre

and use the revenues:

- one third to lower fixed vehicle taxes
- one third to invest in capacity expansion of known road traffic bottlenecks and/or to improve parking facilities
- one third to improve the quality of public transport"

"Acceptable" - Strategy B

The **Como site specific** strategy includes some **measures that are derived from the present policies.** A road pricing measure is not to be expected in the near future, except for the access to the more congested tourist areas. The present access control policy will be strengthened, including the automatic detection of non-authorized cars. The parking pricing policy will be extended and also to the residents will be subjected to it. In such a way for parking everywhere in the city (the "Convalle") a fee will be due.

- A wider access control area with automatic access control by electronic devices
 - Parking pricing: 154.94 EUR annual fee for the residents and 1.03 EUR/hr for the others
 - Charges to enter and park in some very congested areas, like the tourist areas during the week ends and the summer season
- and use the revenues to improve parking facilities.

Como site specific strategy - Strategy C

The sample

In the Public Acceptability survey the sample consisted of **motorists exclusively.**

A quota sampling was used considering demographic criteria with regard to age, gender, occupation and place of residence.

The selection of the respondents was random, corresponding to the quotaⁱⁱⁱ. In each of the four cities, the samples were drawn from the local telephone directory. The subjects were contacted by phone and asked whether they are in possession of a valid driving licence for private vehicles and willing to take part in the survey. If this was the case, a questionnaire was sent to them. After they had filled them in, the interviewees were invited to send back the questionnaires by free mail.

The whole AFFORD sample contains **952 persons interviewed**, 238 of them in Como, 150 men (64.9%) and 81 women (35.1%).

	<i>Total</i>	<i>Athens</i>	<i>Como</i>	<i>Dresden</i>	<i>Oslo</i>
<i>Sample size</i>	952	150	238	281	285
<i>Female</i>	38.1%	38.3%	35.1%	35.5%	43.1%
<i>Male</i>	61.9%	61.7%	64.9%	64.5%	56.9%
<i>Mean age (years)</i>	44.3	36.5	45.6	45.4	46.3

Table 1: sample sizes

The sex distribution of the sample reflects in good approximation the ratio of active car drivers of women and men (but not their respective population share). The yearly kilometrage is 14,663 km on average. The mean age is 44.3 years.

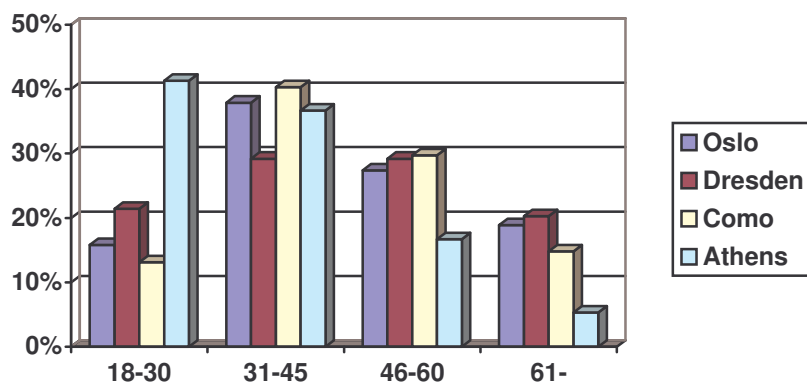


Figure 2: age distribution in %

The median of the income distribution is 4 (2,001-3,000 EUR).

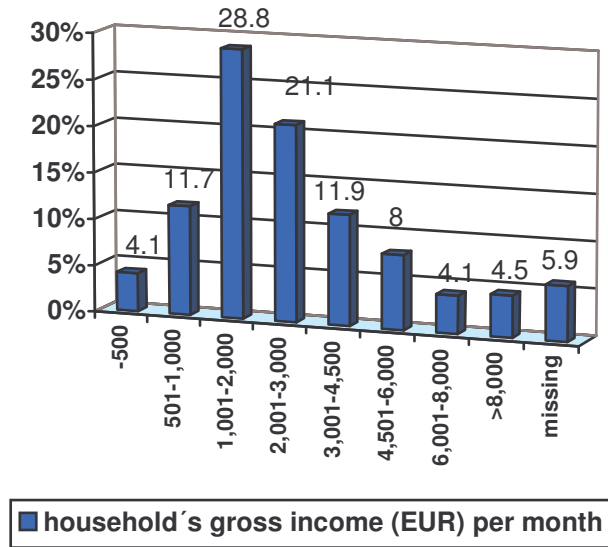


Figure 3: household's gross income (EUR) in %

The median of the income distribution is in Como below the median of the total sample.

The following tables show the household size, the number of persons under 17 per household and the employment status of the respondents.

Persons	1	2	3	4	5	More than 5
(%)	11.3	30.7	23.7	25.3	5.7	1.3

Table 2: household size

Persons <17	0	1	2	3	More than 3
%	60.7	19.5	15.8	2.7	1.2

Table 3: number of persons under 17 per household

Status	%
Self employed	12.8
Employed (full time)	52.8
Employed (part time)	4.4
Student, trainee etc.	6.2
Unemployed	2.6
Pensioner	14.6
Homemaker	2.6
Other	1.6
Missing	2.3

Table 4: employment status

More than two thirds of the interviewees use the car as the main mode of transport to go to work/school. However, 32.8% of the respondents use mainly other modes than car.

Mode of transport	Car	Public transport	Bicycle	Walk
%	67.1	20.9	6.3	5.6

Table 5: usual moving modus to work/school

Main results of the public acceptability survey

Problem perception

The results of the AFFORD public acceptability survey in Como reveal particularly a **high general problem perception regarding air pollution from motor vehicles**. All other problems are evaluated as a major problem. Compared to the other AFFORD cities, in Como the general problem perception is **the second highest**.

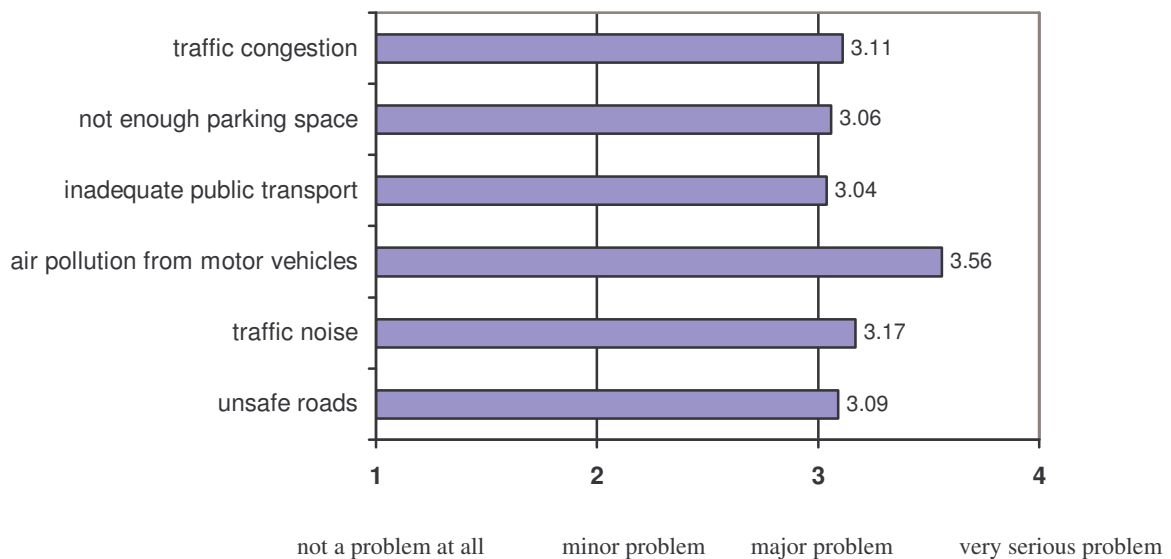


Figure 4: general problem perception: mean values

The affectedness by the problems confirms the results above. Most of the Como interviewees feel **personally affected by air pollution, followed by congestion and lack of parking space**. Surprisingly more than two thirds of the respondents indicate that they are **affected by an inadequate public transport**.

Problems	% who feel personally affected
Traffic congestion	79.1
Not enough parking space	71.3
Inadequate public transport	71.3
Air pollution	85.3
Noise	58.1
Unsafe roads	68.6

Table 6: personal problem perception (affectedness; in %)

Concerning the **expectations about further development** again mainly air pollution, congestion and noise are evaluated negatively. Only in the case of inadequate public transport and unsafe roads the expectations are more or less neutral. However, in general a deterioration of the transport situation is anticipated.

<i>Expectation</i>	<i>Getting worse</i>	<i>Stay the same</i>	<i>Getting better</i>
<i>Traffic congestion</i>	62.2	33.0	4.8
<i>Not enough parking space</i>	48.3	34.3	17.4
<i>Inadequate public transport</i>	18.4	67.1	14.5
<i>Air pollution</i>	67.4	27.9	4.7
<i>Noise</i>	51.1	45.0	3.5
<i>Unsafe roads</i>	25.5	61.9	12.6

Table 7: problem expectation (in %)

The respondents of the Como sample are **sure about who should be responsible** for the solution of problems. Almost all respondents attribute a large responsibility to the **Municipality** of Como, i.e. the City council. But a considerable responsibility is also attributed to the **Government** and the **public transport companies**. A **moderate responsibility is attributed to the general group of motorists**.

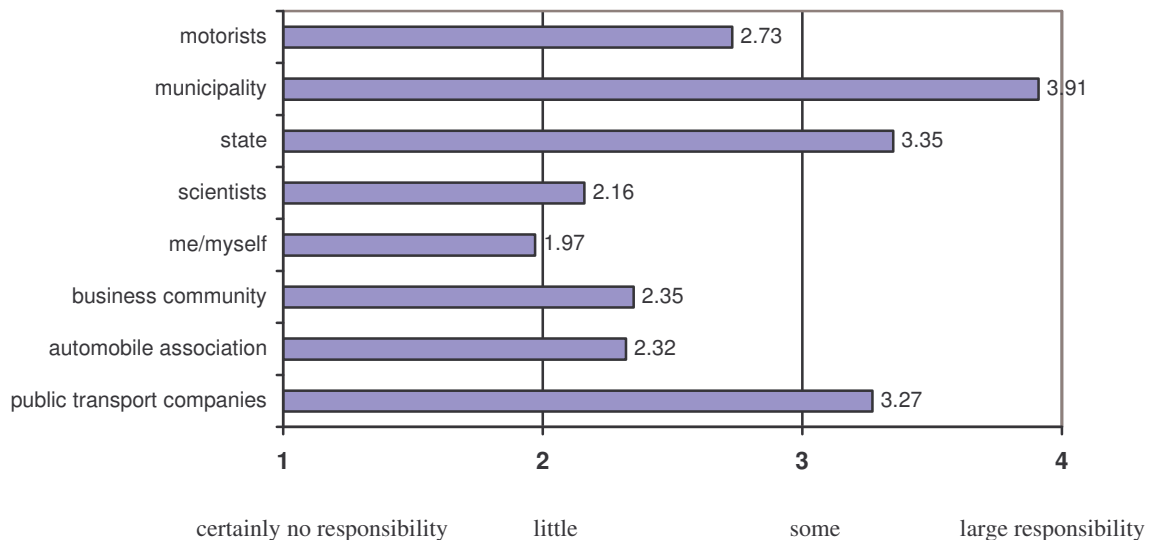


Figure 5: attribution of responsibility for the solution of perceived problems (mean)

Concerning the question whether car traffic should be limited **the vast majority prefers a limitation** at least to some extent.

<i>No, not at all</i>	<i>Not really</i>	<i>To some extent</i>	<i>Certainly</i>
5.1	11.5	53.4	29.9

Table 8: a need to limit the traffic? (in %)

Concerning the anticipation of **personal effects on driving behaviour caused by road pricing** (drive more or less), the respondents report a **rather low elasticity of work**

trips. This means, that they do not expect a reduction of their personal car use for work trips. However, for leisure and shopping trips they anticipate a moderate reduction.

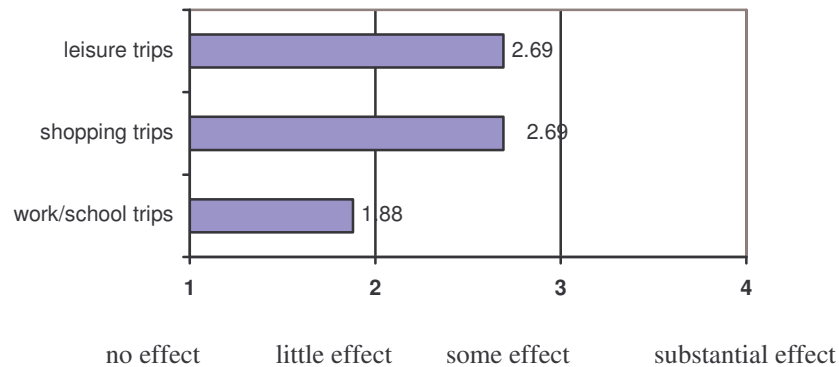


Figure 6: self reported price elasticity (mean)

Two thirds of the persons asked in Como state that it would be difficult to reduce car trips substantially. Nevertheless, the majority tends to state only a slight dependence on car use.

<i>Not at all difficult</i>	<i>Rather not difficult</i>	<i>Rather difficult</i>	<i>Very difficult</i>
12.2	23.1	46.3	18.3

Table 9: perceived difficulty to reduce car trips substantially (in %)

The main consequence of the low price elasticity and of the difficulty to reduce car trips is that the respondents expect that car driving will become more expensive.

<i>No, not at all</i>	<i>Probably no</i>	<i>Probably yes</i>	<i>Almost certainly yes</i>
0.9	7.4	52.6	39.1

Table 10: will car driving become more expensive? (in %)

Evaluation of the Strategies

As regards the **information about the pricing strategies**, the Como sample showed to know them enough. One reason might be that the historical centre of Como, called “Walled city”, is already an Access Control Area. An automatic access control system, which includes gates with cameras for recognising the authorised vehicles, is now ready to be operated. Residents and authorised vehicles are allowed to enter the area, which is mainly accessible only to pedestrians. Furthermore, in Como studies and tests are carried out to replace the access control policy with a cordon pricing, where a fixed toll will have to be paid by the car users every time they pass through a toll point and enter the city centre. Demonstration and pilot projects are the parking and road pricing area of “Villa Geno” and the financing project of the “Borgovico” tunnel. Also, Como was a demonstration site of the TRANSPRICE^{iv} project for which acceptability surveys were carried out as well. Thus, a number of the Como respondents might have been familiar with pricing strategies.

<i>Nothing at all</i>			<i>Little</i>			<i>Somewhat</i>			<i>A lot</i>		
A	B	C	A	B	C	A	B	C	A	B	C
37.0	44.8	37.1	37.4	40.9	37.1	21.7	11.7	21.0	3.8	2.6	4.8

Table 11: information about the strategies (in %)

More than one half of the respondents believe that strategy A will not have any or only little effect. Only one third of the persons asked perceive at least some effect. Thus, the **evaluation of the effectiveness** of strategy A is rather pessimistic. On the other hand, there is a considerable increase in positive evaluation of strategy B, although the overall evaluation of strategy B is only moderate.

<i>Will not work at all</i>			<i>Will have little effect</i>			<i>Will have some effect</i>			<i>Will work very effectively</i>		
A	B	C	A	B	C	A	B	C	A	B	C
30.0	21.0	11.8	27.9	27.5	18.9	31.3	43.2	55.3	10.7	8.3	14.0

Table 12: perceived effectiveness of the strategies (in %)

Of all three strategies the site specific strategy is considered as the most effective by the Como respondents. Altogether nearly 70% of the respondents believe that this strategy will have at least some effect.

Correspondingly the **personal outcome expectations** are rather negative as well for strategy A. 54.5 % of the respondents expect personal disadvantages if strategy A should be introduced in Como. Compared to strategy A there is a slight decrease in the expectation of disadvantages following for strategy B.

Compared to the other strategies the Como-specific strategy of course receives the most positive personal outcome evaluation, although still only less than a third of the persons interviewed expect advantages following from this strategy.

<i>Disadvantage</i>			<i>No importance to me</i>			<i>Advantage</i>		
A	B	C	A	B	C	A	B	C
54.5	47.6	35.5	30.0	33.8	36.0	15.5	18.7	28.5

Table 13: personal outcome expectations in general (in %)

Afterwards the evaluation comes to the **acceptability-variable**. Here the **positive trend in the evaluation of the Como-specific strategy** continues further. More than a half of Como respondents state that this strategy is at least rather acceptable. Although - in the whole - this means only moderate support for the site specific measure, it is again the highest acceptability-score compared to the other two strategies in Como.

The rejection of strategy A is unanimous (85 % of the respondents). Compared to strategy A, strong rejection ("absolutely unacceptable") of strategy B has decreased about one half and moderate support ("rather acceptable") has increased about 20%. Nevertheless, **compared to the other AFFORD sites, acceptability in Como is rather low**.

<i>Absolutely unacceptable</i>			<i>Rather unacceptable</i>			<i>Rather acceptable</i>			<i>Totally acceptable</i>		
A	B	C	A	B	C	A	B	C	A	B	C
36.8	18.4	17.5	48.3	47.4	28.8	12.0	32.5	50.2	2.6	1.8	3.5

Table 14: acceptability of the strategies (in %)

The interviewees were finally asked to evaluate some alternative behaviour to car use. In the Como sample the most accepted alternative is the Park & ride. This measure could be very effective in Como because of the geography of the area, as there are only few access ways to the city, where parking lots could be built. Also people would use public transport more often. With regard to the adaptation of car use the respondents tend to drive non-tolled routes or at non-tolled times. To pay the tolls and drive as before is not taken into consideration by the majority of people interviewed.

Alternative behaviour	Certainly not			Probably not			Probably yes			Absolutely certain		
	A	B	C	A	B	C	A	B	C	A	B	C
Drive less	24.8	29.5	29.1	29.7	31.3	33.2	32.0	31.3	28.2	13.5	7.8	9.5
Use public transport more often	19.0	17.0	17.1	27.1	29.4	34.1	37.1	36.2	34.6	16.7	17.4	14.3
Bicycle or walk more often	27.1	27.4	23.5	19.5	20.5	19.8	27.6	28.8	32.3	25.8	23.3	24.4
Car-sharing or car-pooling	25.0	28.1	26.2	29.5	30.9	33.6	37.3	32.7	33.6	8.2	8.3	6.5
Park & ride more often	13.7	15.6	12.2	23.9	24.6	25.8	39.8	38.4	38.9	22.1	21.4	23.1
Pay the tolls and drive as before	37.1	25.6	30.8	28.1	30.6	32.7	27.1	36.5	30.4	7.7	7.3	5.6
Not drive tolled routes	14.3	14.7	18.7	32.3	35.5	34.6	32.3	34.1	32.7	21.1	15.7	13.6
Not drive at tolled times	19.4		18.1	20.3		25.5	39.6		42.1	20.7		14.4
Support a movement to stop the strategy	32.3	33.8	36.7	27.8	27.4	35.3	18.8	19.6	13.3	21.1	19.2	14.7

Table 15: expressed intentions in the case of strategy A (in %)

Strategy A - as regards the expressed intentions - **generates the maximum reduction of the car use and it well incentives alternative ways of use the car, such as Car-sharing or Car-pooling.**

Coming to **strategy B**, it is noteworthy the **increase (about 9% points) in the respondents intention to pay the tolls and drive as before**, compared to the ones expressed for strategy A.

With **strategy C** (the most acceptable among the motorists) **less people reduce the use of their car and also the use of the public transport is less chosen.** Park & ride is the most chosen alternative (62%).

Use of the revenues and equity

Interesting findings come from the section of the questionnaire regarding the **preferred use of the revenues raised by the pricing policies**.

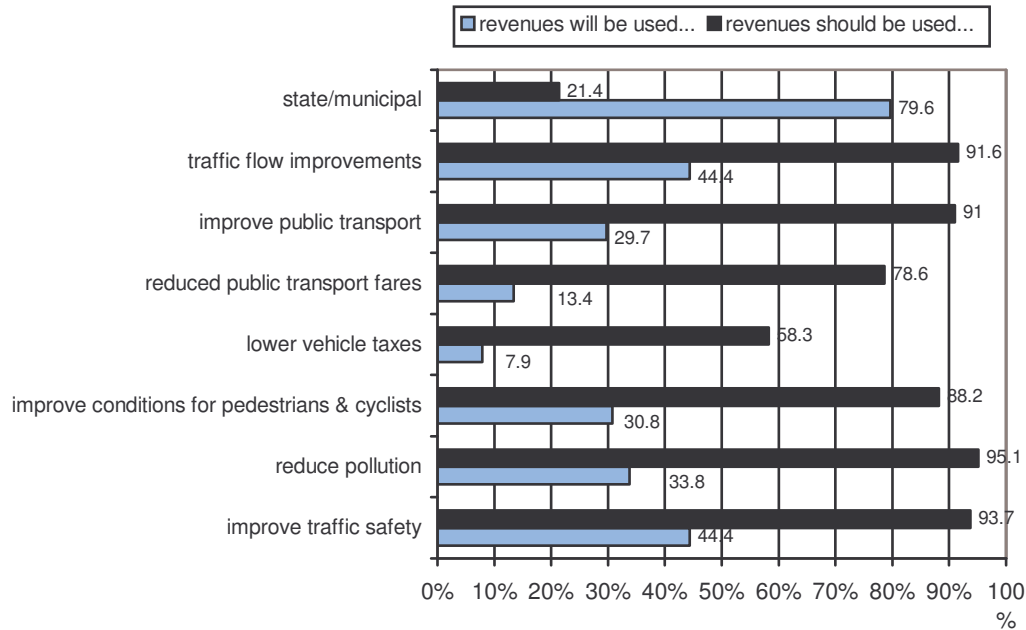


Figure 7: revenue allocation (confirmative response in %)

The financial support for the general budget is widely rejected, but expected in fact by around 80% of the respondents. It is the highest percentage of respondents who expect the use of revenues in such a way among the test site cities.

All other purposes are considerably more favoured by the majority of the respondents. Generally speaking, the **respondents ask for the redistribution of the revenues to the people presently affected by congestion and pollution**, i.e. improving traffic flow, public transport, safety and pedestrian & cyclists conditions.

Although less preferred than purposes like "improve public transport" or "reduce pollution", the uncommon use of revenues for **lowering vehicle taxes** is supported by 58.3% of the persons interviewed.

In the Como sample **negative equity outcome expectations in the general case of road pricing are predominant**, although they are rather moderate. However, positive consequences like less environmental problems and a nicer city centre are expected from the introduction of a pricing strategy.

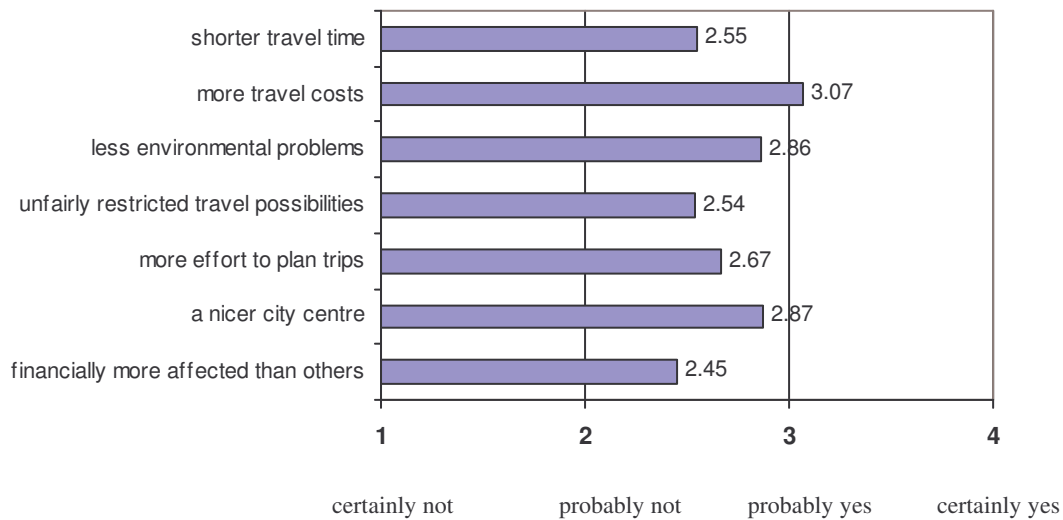


Figure 8: equity outcome expectations in the general case of road pricing

Comparison with the other test sites cities

In all the four European cities involved in the AFFORD project air pollution and traffic congestion are the problems which are perceived as most pressing. Like in Como, negative expectations about the development of the perceived problems are predominant, which contributes to a rather pessimistic view of the overall situation.

The overall results of the direct evaluation of the two common AFFORD strategies (A and B) is summarised in table 16.

The perception of the **effectiveness** of the two strategies to reduce inner city traffic is much higher than the **information** level (less in Como). These overall higher scores for effectiveness than for awareness may indicate that respondents believe that demand management is to some extent capable of successfully addressing current transport problems.

Concerning the **personal outcome**, the majority of the respondents expects more disadvantages for themselves following from the introduction of road pricing.

	Strategy	Information	Perceived effectiveness	Personal outcome expectations	Acceptability
Total sample	A	1.50	2.39	-.21	1.80
	B	1.48	2.34	-.16	2.22
Athens	A	1.70	2.51	.07	1.96
	B	1.69	2.56	.30	2.29
Como	A	1.92	2.23	-.39	1.80
	B	1.72	2.38	-.28	2.17
Dresden	A	1.32	2.37	-.60	1.65
	B	1.39	2.37	-.37	2.07
Oslo	A	1.23	2.50	.16	1.85
	B	1.27	2.15	-.11	2.38

All mean values can vary from 1 (e.g. know nothing at all, absolutely unacceptable) to 4 (know a lot, totally acceptable) with the exception of personal outcome expectations (equity) where values can vary from -1 (expected disadvantages) to +1 (expected advantages).

Table 16: overall evaluations of strategies "best practice second best" (A) and "acceptable" (B)

In general, **the stated acceptability of both strategies** - the "best practice second best" strategy and the one assumed as rather "acceptable" - **is low**. As expected, **rejection is stronger regarding the stronger strategy A. But there is a significant increase of support from strategy A to strategy B.**

Strategies	Support in %				
	Total	Athens	Oslo	Dresden	Como
A	20	25	24	17	15
B	39	48	43	34	31

Table 17: ranking of acceptability (% rating the strategy as rather or totally acceptable)

The main **differences between the four sites** are the following:

- in **Dresden** rejection of both strategies is very strong;
- refusal is also very strong in **Como**;
- in **Oslo** there is a strong rejection of strategy A, but strategy B is rather accepted;
- in **Athens** the attitudes towards both strategies are generally less negative.

So, **even if a package solution with transparent revenue hypothecation receives stronger support than single pricing measures** (Jones, 1991b; Keränen, Schade, Schlag & Vougioukas, 1999; Schade, 1999; Schlag & Teubel, 1997), **the packages tested here find no majority among the motorists**. However, compared to the "strong" strategy A, **the acceptability of the "weak" strategy B pricing has nearly doubled.**

Factors influencing the degree of public acceptability

How the low level of acceptability for the various pricing measures can be explained and which factors influence the degree of acceptability? AFFORD tried to answer these important questions with the help of multivariate statistical methods like factor and regression analyses^v.

The first finding is that in particular **variables as "social norm", "perceived effectiveness" and "personal outcome expectations" are positively connected with the acceptability of pricing strategies.**

So, one could state that the individual acceptability of a pricing strategy is stronger (increases),

- the more social pressure to accept the respective strategy is perceived;
- the more pricing strategies are evaluated as effective;
- the more personal advantages following from the introduction of the measure are expected.

In a more precise analysis **two problem perception patterns** have been found. The first one comprises the perception of problems connected rather directly with the road-use (congestion, lack of parking space etc.), while the second pattern refers to the perception of rather indirect, more environmental problems resulting from traffic (e.g. air pollution, noise).

Surprisingly, a rather contrary effect of the high evaluation of direct traffic problems on the acceptability of pricing measures was identified. Statistical tests reveal that respondents who perceive congestion as a very serious problem stronger oppose strategy A and B than respondents who perceive congestion as a problem to a lower extent.

This may imply that **people, who perceive e.g. congestion as a main problem, oppose measures designed just to reduce congestion.**

The results reveal also that **socio-economic characteristics (e.g. income) of respondents influence the perceptions**, attitudes and evaluations towards the pricing strategies only **to a low extent.**

Furthermore, no indications were found that respondents justify their rejection of painful policies by claiming that they perceive them as ineffective.

Political Acceptability

Without the support of politicians, as the key decision-makers, the introduction of any road pricing scheme is impossible. Therefore the politicians' opinions and the acceptability regarding pricing measures are of great importance for the implementation of road pricing.

Generally, **political decisions are made in the focus of different societal groups, as: voters, media, lobbies, Civil Servants/Authorities.** Figure 9 gives a simplified static perspective of the relationship between the different actors.

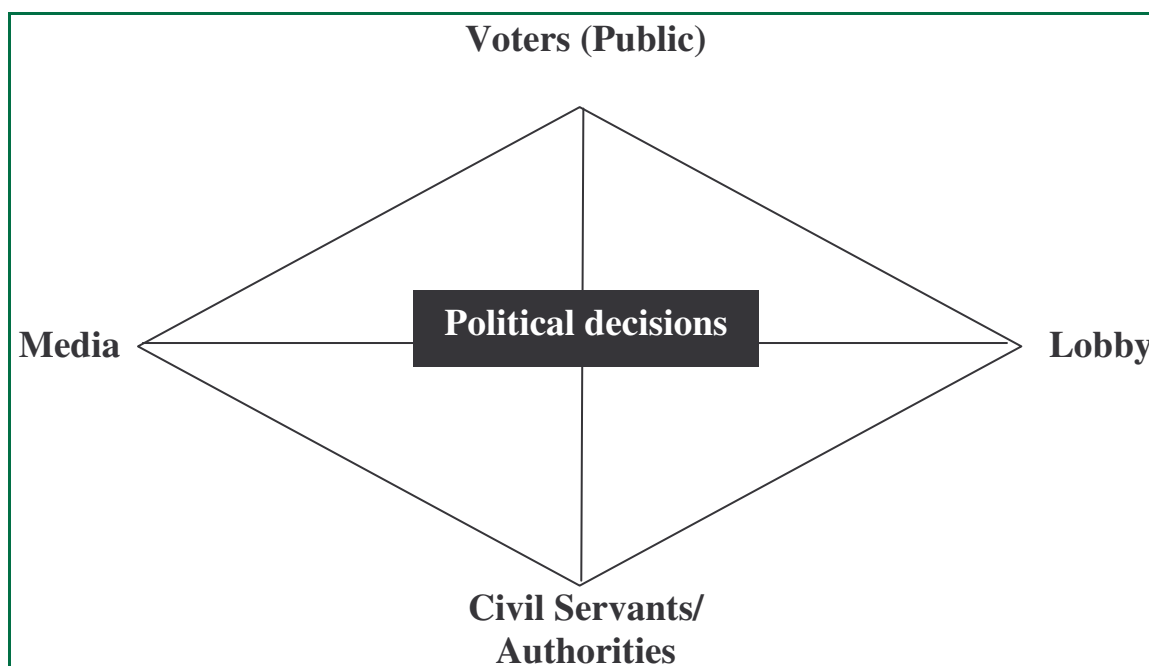


Figure 9: political decisions^{vi}

The political acceptability survey in AFFORD focused on the following matters:

1. the politicians' **attitudes towards road pricing**;
2. the politicians' **perception of public acceptability**, which is the main factor that leads them to the decisions about traffic management policies.

A political acceptability survey was carried out in early 1999 in only two of the four AFFORD test site cities: Como (Italy) and Dresden (Germany).

The sample

In Como the survey was carried out as a phone interview with six politicians. The sample in Dresden consisted of eight persons. At least one politician of every party, acting in the current City Council, was contacted.

Political party

Politicians

		<i>interviewed</i>
DS - Democratici di Sinistra	"Democratic" party	1
FI - Forza Italia (one of the respondents is the Assessor Chief of the Transport Department)	"Liberal and Conservative" party	2
PPI - Partito Popolare Italiano	"Popular" party	1
PRC - Partito della Rifondazione Comunista	"Communist" party	1
DemC - Democratici di Centro	"Popular" party	1

Table 17: the sample of the political acceptability survey in Como

Main results of the political acceptability survey

Problem awareness

The politicians state a **high awareness of traffic problems even compared to other municipal problems**, like economic growth or city finances. In more detail, Como politicians perceive public transport, congestion and air pollution as the most pressing.

<i>Item</i>	<i>Median</i>
Traffic problems	1.0
Security	2.0
Unemployment	4.0
Economic growth	4.0
Environmental problems	4.0
Cultural and educational policy	5.5
City development (e.g. housing etc.)	6.0
City finances	6.0

Table 18: ranking of problems

Altogether, **the majority of the politicians agree with a limitation of inner city traffic.**

<i>Point of view of</i>	<i>Number</i>
Politicians	6
Perception of public opinions	5

Table 19: number of politicians who agree traffic restriction

Como politicians **estimate the public problem awareness quite well**^{vii}.

<i>Point of view</i>	<i>Politicians' perception of traffic related problems</i>	<i>Guess about public traffic related problem perception</i>
Congestion	5	6
Parking	4	6
Public transport	6	5
Air pollution	5	5
Traffic noise	4	4
Road safety	2	3

Table 20: rated as a problem by number of politicians

Evaluation of the strategies

Also the politicians were asked to evaluate the same pricing strategies A, B and C developed in AFFORD. Their **evaluation of both the effectiveness and the personal acceptability of the strategies is surprisingly positive**, as shown in the following table.

<i>Strategies</i>	<i>Will not work at all</i>	<i>Will have little effect</i>	<i>Will have some effect</i>	<i>Will work very effectively</i>
A	2	1	1	2
B	-	1	4	1
C	-	1	4	1

Table 21: perceived effectiveness of strategy A (frequency distribution).

Although the "stronger" strategy A is still mainly rejected, the majority of interviewed politicians consider strategy B, which also contains cordon pricing, as at least rather acceptable. So, **the politicians' acceptability of pricing policies is clearly higher than expected**.

<i>Strategies</i>	<i>Absolutely unacceptable</i>	<i>Rather unacceptable</i>	<i>Rather acceptable</i>	<i>Totally acceptable</i>
A	3	2	1	-
B	1	3	2	-
C	-	-	6	-

Table 22: acceptability of the strategies (frequency distribution)

In the contrary, the public's acceptability is to some extent clearly underestimated. **The politicians seem to fear an even stronger rejection of pricing strategies by the public than actually is.**

Strategies	Rate of the car drivers expected to accept the strategies				
	0 - 20%	21 - 40%	41 - 60%	61 - 80%	81 - 100%
A	4	-	2	-	-
B	2	2	2	-	-
C	-	4	1	1	-

Table 23: expectation about car drivers to accept the strategies (frequency distribution)

The evaluation of the **minimum public acceptability level needed by each politician to decide a road pricing measure** is very interesting. Considering an acceptability level of ca. 50% of the public being necessary for a positive political decision, **a well prepared introduction of a measure like strategy B does not seem so unrealistic anymore.**

Strategies	More than 75%	More than 50%	More than 25%	Of no influence
A	1	1	2	2
B	-	-	1	2
C	-	1	5	-

3

Table 24: rated necessary percentage of the public to accept the strategies as a basis for a political decision (frequency distribution)

However, **other groups have a substantial influence on political decisions besides the voters:** they are able to hinder the introduction of pricing policies. In particular, the influence of the media (and of interested pressure groups using media) has not sufficiently been considered, yet.

In Como the local business community is seen as the most influential group. Great influence is also attributed to lobby groups, while the media, the public/voters, and also the political parties are considered to have only medium influence. The lowest influence on political decisions is attributed to the authorities and to the friends/families of the politicians.

Groups	Median
Local business	1.0
Lobby	2.0
Media	3.5
Public / Voters	4.0
Political parties	4.0
Friends / families of politicians	6.0
Civil servants / Authorities	7.0

Table 25: evaluation of the general influence of different groups on local political decisions

Cross tables show **that politicians who rate the general influence of the public/voters rather low also rate the public level of support necessary for a pro pricing decision rather low.** However, on the basis of the small sample this result is only to be seen as a preliminary hint.

Guidelines to enhance marginal cost based pricing acceptability

The results of the surveys carried out in the research project AFFORD show how difficult it is to obtain acceptability for road pricing measures. However, based on these surveys findings, at least some **general rules** can be here proposed^{viii}. An effective **communication strategy is then necessary in any case** to implement them.

- I. **The objectives of the pricing strategy have to meet main public concerns.** Politicians and the public regard traffic problems in cities as a very important and urgent issue. There is a search for solutions. Thus, marginal cost pricing ought to give rise to ecological benefits and to reduce congestion, and these have to be communicated. People are used to regard public roads as “free“ goods, therefore there will be strong emotional resistance to any attempt for charging their use.
- II. **Pricing strategies have to be perceived as very effective solutions**, if not as the only effective solution for the traffic problems.
- III. **Revenues must be hypothecated.** People want to get something for their money. Thus, there must be a **package solution, combining traffic restraints and road charging with a set of transport and environmental improvements.**
- IV. **Fairness issues have to be considered very carefully.**
The system must be perceived as fair in particular relating to the **personal cost-benefit-relation**. The benefits people see for themselves must balance the costs at least by reaching non-monetary benefits.
People should also **not feel to be treated unjust in comparison to others**. Here the use of the revenues plays an important role. **With the help of the raised charges it is possible to influence the distributional impacts in the desired direction.** Hypothecation of revenues must result in guaranteeing a desired level of mobility for all, even supporting mobility chances for some groups.
- V. **Public acceptability can only be expected if people have confidence** in the effectiveness of the measure, the use of the revenues, the fairness and anonymity of the system.
One precondition to support confidence is **transparency of the intended measures at an early stage**. Transparency and early information, even in concept development, gives the people perceived chances of **participation**. In other words, people can see themselves as having at least some degree of control over the things they are affected by and over the choice of the measures to cope with them. This could lead to some **identification with the proposed package of measures**.

A second precondition for creating confidence is to **clearly define the responsibility before implementing the system**: who will be responsible for the functioning of the system, for charging and accounting, for revenue allocation, for failures and undesired effects.

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ⁱ The main pricing schemes are located in Norway.

ⁱⁱ Como (Italy), Athens (Greece), Dresden (Germany) and Oslo (Norway).

ⁱⁱⁱ Due to the local specific conditions the procedures for selecting the sample in the four different cities differed slightly.

^{iv} European Commission, IV Framework Program, DGVII, 1996-1999.

^v Schade, J. & Schlag, B., "Acceptability of urban transport pricing." Project AFFORD, funded by the European Commission, 4th Framework Transport RTD. VATT Research Report No 72, Helsinki, 2000.

^{vi} Based on the research project PRIMA, EU, 1998.

^{vii} Dresden politicians underestimated considerable parts of public awareness of problems, like air pollution and traffic noise.

^{viii} Schade, J. & Schlag, B., "Acceptability of urban transport pricing." Project AFFORD, funded by the European Commission, 4th Framework Transport RTD. VATT Research Report No 72, Helsinki, 2000.