Public Acceptability of Transport Pricing

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Abstract

Several studies and research projects all over the world have considered transport pricing measures and policies - including all kinds of road and parking pricing - as promising attempts to solve the urgent traffic problems in urban areas. However, empirical findings have showed that public acceptability of such measures is rather low. This article analyses the reasons for this lacking acceptability. Five major issues of public concern are identified and analysed in more detail: information, perceived effectiveness and efficiency, individual claims, revenue allocation and equity. Then, based on this analysis some principles are derived how to increase public acceptability of transport pricing measures.

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1. ACCEPTANCE OF TRANSPORT PRICING - EMPIRICAL FINDINGS

Traffic problems and congestion are perceived as some of the most pressing problems in high density areas today. There is an urgent call for improvement on public transport, reduced fares, improved roads, etc. by people living or travelling in these areas. There exists a large number of proposals how to deal with these problems within the framework of traffic demand management systems. They comprise regulatory traffic restrictions (e.g. access control and reducing parking space) as well as various measures of transport pricing. In this article the term transport pricing is defined as methods of payment for the use of a ground transport system and its infrastructure. Transport pricing is more extensive as the term road pricing which is often used in a similar way. Hence, transport pricing comprises in the first place all kinds of road and parking pricing measures.

An important precondition for successfully implementing such traffic demand management systems is public and political acceptance. However, empirical research in this field as the EU research-project MIRO ¹ has shown that the public acceptance of such measures is low - in spite of the perception of traffic problems as serious.

On the one hand the MIRO results revealed a high general perception of problems related to traffic. People are especially sensitive to air pollution, congestion and lacking parking space (Bartley, 1995). Jones (1995) reviewing various studies reports similar results. Around 80% of adults regard current traffic levels in cities as a great problem and this problem is perceived as deteriorating and worsening. Among the above mentioned problems people perhaps regard the car traffic in the city centres as the most serious problems (evidence from the U.K., from European surveys: UITP/EC survey “Access to city centres”, from Japan and the U.S.A).

On the other hand public support for countermeasures exists but it highly depends on the kind of measure. The most popular measures seem to be those which influence the choice between modes (e.g. improving bus and rail schemes, encouraging walking and bicycling). These measures alone seem to be of minor effectiveness - but they are an important prerequisite to gain public acceptance of restraints. In addition to

¹ The MIRO project (Mobility Impacts, Reactions and Opinions) (sponsered by the European Commission, DG XIII) is a collaborative study of public opinion about a range of traffic demand management schemes. The main aim of the project was to investigate the acceptability and potential effectivness of such schemes (Bartley, 1995).
alternatives or supplements to car use next best accepted measures seem to be traffic regulations (e.g. better parking enforcement or even partial restrictions on cars entering central areas). The least accepted measures comprise above all road user charging (charging drivers to enter city centres or congested areas). Jones (1995) points to an immediate problem of transport pricing: „There will inevitably be resistance to paying for something (i.e., road use) which was previously regarded as free at the point of use, particularly since most travellers will experience net losses as a result of the introduction of road user charging“. 

These empirical findings raise two questions:

a) How to explain the different levels of public acceptance of various travel demand management measures? Why, for example, is the support for transport pricing lower than for restrictive measures?

b) How to increase the acceptability of transport pricing? How to design a solution package in order to convince a majority of people?

The first question is addressed in section 2, the second in section 3.
2. OBSTACLES TO PUBLIC ACCEPTABILITY

Analysing why things proceed the way one has to keep in mind the problem structure of acceptability issues. Figure 1 gives an overview.

![Diagram of acceptability issues]

**Figure 1: Structure of acceptability issues**
There is a broad awareness of mobility related problems and of the necessity and urgency to act. Dependent on the attitudes of people (emotion preferences and opinions about the issue) and on mobility related social norms some important aims to reach by countermeasures can be defined. For transforming the perceived state some options are available. The public awareness of these options seems to be varying as well as the evaluation in terms of their potential to control problems. Five major issues can be identified determining the public acceptance of the proposed evolution:

(a) information and awareness of options,
(b) perceived effectiveness and efficiency,
(c) individual claims as the relation to the car, privacy, etc.,
(d) revenue allocation,
(e) equity.

These five issues are analysed below. But one has to keep in mind that there are further steps and possible gaps between attitudes and revealed behaviour. Acceptance may be transformed into behavioural intentions but whether these intentions are realised depends heavily on the situation, particularly on the chance to act conform to own intentions and on the corresponding costs and benefits of this realisation. This is true first on an individual level and then on a collective level of commonly shared behaviours, influencing and reinforcing social norms.

*Information*

A cornerstone of acceptability for travel demand management measures is information. People have to know and understand projected measures. They have to be aware of the background (e.g. to pay the true costs of transport - including external costs), the aims (reduce congestion, environmental objectives, safety considerations etc.) as well as the specific way, how the measures are implemented in practice.

Special interest should be focused on the connection between information, the assessment of the effectiveness (degree to which the defined objectives are fulfilled by the measures), and the revealed acceptance of different transport policy options.
Time series data on attitudes towards travel management measures indicate a connection between awareness and acceptance. The data of Trondheim exhibit an increasing level of acceptance for the toll rings in course of time, but at the same time they show a trend towards a polarisation of attitudes amongst different groups (MIRO, 1995). In contrast to the Trondheim experience, interviews in the framework of the MOBILPASS field-trial in Stuttgart point to worsened acceptance during its test of some kind of cordon-pricing (FAW, 1995). The interviews of the participants took place before, after and in-between the experiment. At the start of the field-trial a majority of the participants had a positive opinion of this kind of cordon pricing and thought it to have a positive effect (but only 15% of them were really convinced). Later on the share of participants with a positive view decreased to about 40%; that is after experiencing the effects of cordon-pricing the acceptability level was lower. However, this was only a field-trial. Positive experiences, which might result from a system implemented as a whole (like in Trondheim), are impossible in the framework of a field-trial. There were no improvements in the traffic flow and the public transport system.

But in general there is a big difference between what is thought as in the best own interest compared to what is thought as in the countries best interest. For themselves people typically ask for spending more on roads and less on railways, whereas for the whole country they see it inversely. And there is another important difference: The views of politicians and the views of the public agree in many points concerning the necessity and the effectiveness of restrictive measures. But the perception of the politicians is that the public votes much more “pro-car“ than is the case. For instance, in the UITP/EC-survey 85% of adults gave priority to public transport over the car, the estimate of the decision-makers was just half this level (43%) (Jones, 1995).

Thus, there must be precise and convincing arguments in favour of transport pricing. Some of these arguments refer to environmental, energy saving and safety considerations. Arguments of this kind seem promising for convincing people and creating new intentions to behave. Main ideas of the necessary intelligent marketing strategy are outlined in section 3.

Perceived effectiveness and efficiency

According to the MIRO results the awareness levels for different demand management options are low. “Improve public transport“ and “restrict driving“ are the most widely known measures. Table 1 summarises
these results by summing up the ranks across the 8 MIRO cities concerning 6 options respectively 6 problems (see MIRO, 1995; Bartley, 1995). The minimum sum of 8 underscores that this option is best known or perceived as most effective or acceptable. The maximum sum of 48 describes the option as least known, effective or acceptable.

The core results of MIRO showed consistency across the 8 cities. There is a clear distinction in the public opinion between two groups of measures. Those which are rather accepted are above all “improve public transport“ and “restrict driving”. May be that people feel that restrictions of driving are simple and clear countermeasures with high effectiveness and that they meet perhaps best equity

Table 1: Demand management options

<table>
<thead>
<tr>
<th>Awareness of demand management options</th>
<th>Perceived effectiveness for congestion abatement</th>
<th>Perceived effectiveness for improvement of public transport usage</th>
<th>Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improve public transport</td>
<td>12</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>Restrict driving (access control)</td>
<td>14</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Increase parking costs</td>
<td>28</td>
<td>32</td>
<td>34</td>
</tr>
<tr>
<td>Reduce parking space</td>
<td>36</td>
<td>42</td>
<td>36</td>
</tr>
<tr>
<td>Pay to use roads (road pricing)</td>
<td>31</td>
<td>30</td>
<td>38</td>
</tr>
<tr>
<td>Pay on congested roads (congestion pricing)</td>
<td>47</td>
<td>40</td>
<td>35</td>
</tr>
</tbody>
</table>

issues. The other 4 options are rather not accepted. Concerning the ranking places there was found variability among the 8 MIRO cities. The MIRO Final Report (1995, p 21) states that “the results show the importance of information campaigns and, in particular, the role of pilot experimentations in promoting the level of user acceptance". This consequence seems to be very important because “without acceptance is simply no market“ (p 9).

These overall higher scores for effectiveness as compared to awareness may indicate that respondents believe that demand management is to some extent capable of successfully addressing current transport
problems and that the public are, accordingly, prepared to trust these techniques even where they are new and unknown. These findings lead to the hypothesis that acceptability of demand management schemes depends on awareness subject to positive belief in their effectiveness. The statistical analysis within the MIRO project showed that the user awareness is loosely related to user acceptance subject to belief in effectiveness of the relevant scheme (Bartley, 1995).

**Individual claims**

The acceptability of measures that restrict the use of cars or raise the price of it is strongly influenced by the special relation of people to their car. The car serves at the same time as a status symbol, a pleasure-time activity and an article of daily use. Most people regard the freedom of choice how and when and where to travel as a basic right. For instance, 95% of the participants of the MOBILPASS field-trial agreed totally or in part to the statement: “The car guarantees my independence.”, and 75% of them to the statement: “Driving a car is fun!” (FAW, 1995). Thus, there is a possibly deep resistance to any measure interfering with the person’s relationship with his car, which may reduce the perceived freedom, status or privacy as values shared by the individual.

Intrusion on privacy is viewed as another obstacle to the acceptability of travel demand management measures. Dependent on the technical details of the system a host of data on the (travel) behaviour is collected. That is true for ‘stand-alone’-solutions for electronic charging of road use and parking tolls as well as for the employment of integrated payment systems (Flynn, 1995). Therefore people fear for their private sphere and the abuse of their personal data. Particularly the experience collected in the large demonstration project for electronic road pricing in the mid of the Eighties in Hong Kong showed that problems of anonymity may be of major impact for people. In Hong Kong the doubts regarding data protection and data abuse were one of the main reasons why the successful demonstration project was not followed by a large scale implementation (Hau, 1990). In addition, part of the people fear a technological driven future and hold the belief that technology is fallible and will fail.

These fears and doubts have to be considered in the planning process of the systems. This is possible through the appropriate design of the technical details (e.g. through the use of anonymous pre-paid smart cards) and through institutional rules that guarantee the protection of the collected data and impede their abuse. Both have to be transparent and credible for the public.
Revenue allocation

Revenues arise inevitably applying pricing mechanism to influence travel behaviour. An important issue with regard to the acceptance of pricing schemes is the use of this money. People often seem to feel that the revenues raised are just another form of taxation imposed on the motorists. They are afraid that the money will vanish into the ‘black hole’ federal or municipal budget without any evident profit for the payers. Perhaps this is one of the reasons why restrictive schemes like access controls have a higher acceptance than pricing schemes.

Public acceptance strongly depends on how the revenues are used. Hypothecating revenues increases public support considerably (Jones, 1995). If people were asked about road user charging there was the maximum support of 30% of adults in U.K. with a net support (i.e. supporters minus opponents) of minus 27%. When the same respondents were asked whether they would support a package of measures that includes road user charging, with revenues generated from the theme being used to pay for the other elements, then support doubled to 57% with a net support rate of +23% (Jones, 1991). One problem of hypothecating revenues is that the alternative modes of transport must be developed in advance to guarantee people make positive experiences when changing for the first time. Before introducing the measures it is important to make clear and credible statements about the allocation of the revenues. The revenues should be allocated earmarkedly to the transportation sector (in order to improve public transport and to reduce other traffic related fees and taxes). The allocation of revenues plays a crucial role in the context of equity (see Equity) since it could influence the distributional impacts in the desired direction.

Equity

Equity refers to the distribution of costs and benefits. Equity issues have to include interpersonal and interregional equity aspects. The first means fairness considerations within population subgroups (e.g. income categories, urban location), the latter refers to a fair distribution between neighbouring cities and regions. It is necessary that people themselves perceive regulatory policies such as transport pricing as meeting equity considerations. If not they perceive this policy as unjust and unfair and acceptance will be hard to reach. Moreover perceived injustice creates a motivation to readjust personal costs (lower) and benefits (raise) so that the cost-benefit-relation relative to other users is again perceived as fair.
The interregional equity refers to possible unfair distributions of costs and benefits between cities or regions. If the policy creates competitive disadvantages for the affected location in comparison to neighbouring cities or regions, political acceptance will be hard to reach. For instance, the city first introducing road pricing may perceive problems of competitive disadvantage. Thus, there must be a co-ordinated effort between neighbouring cities.

Referring to public acceptance, interpersonal equity includes above all fairness considerations within population subgroups or income categories. First, a charge of 3 ECU per trip means something different for people with a monthly income of 1000 ECU as compared to a monthly income of 4000 ECU. Transport pricing should not lead to a prevention of mobility for low income groups. And the charges must not be perceived as “penalty“! We have to be aware that people are very sensitive for unfair distributional effects. Second, for some car users there are constraints that make it difficult for them to change, e.g. for handicapped people, people living in the affected area or people having their business there. There may be even car-captives who are not able to change anyway. This leads to the question of exceptions for specific groups. These exceptions should in turn not be perceived as unequal or unfair by other groups. Such potential responses must be known at an early stage in order to predict the impacts of the proposed measures (Giuliano, 1994).

Until now equity issues were investigated mainly for the case of raising petrol prices and the introduction of road pricing (Banister, 1994). Conventionally, elasticities of travel demand are considered to be low. Therefore, substantial charges would be necessary to change the demand pattern and to reduce car driving. Low income car owners will suffer most from road pricing and will even feel hindered in their mobility, particularly if adequate public transport is not available (Banister, 1994). Between different income groups road pricing may result in specific gains for higher-income groups and losses for lower-income groups specially if revenues are not redistributed in any way. Road pricing without redistribution of the revenues is likely to be regressive (Giuliano, 1994).

A crucial point in the context of equity issues is the use of the transport pricing revenues. Using the revenues in a suitable way the desired distributional outcome could be achieved. If they are redistributed in advantage for lower income groups (see: hypothecation) than equity and fairness issues could be dealt with in a better way. Thus, there may be an equity argument even in favour of road pricing: if better public
transport is financed by the revenues of road pricing, guaranteeing mobility for all, there will be positive distributional effects in favour of non car owners which in turn more often belong to low income groups.

3. CONSEQUENCES - SOME PRINCIPLES TO INCREASE PUBLIC AND POLITICAL ACCEPTABILITY

One question follows immediately after analysing the reasons of lacking acceptance of transport pricing measures: How can transport pricing be made more acceptable? How should the measures be “sold“ to the public in order to increase the acceptance? To answer these questions and to develop a marketing strategy are very important preconditions for a successful implementation of demand management systems.

Considering the introduction of transport pricing measures to solve traffic problems in urban areas the decision-makers should bear the following principles in mind:

1.) The objectives of the transport pricing scheme 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, transport pricing should give rise to ecological benefits and congestion reduction (and these have to be communicated), safety contributions and other advantages should be perceived and it should meet positive social norms.

2.) Transport pricing measures have to be perceived as very effective solutions, if not as the only effective solution for the perceived traffic problems at all.

People are used to regard public roads as “free“ goods, therefore there will be strong emotional resistance to any attempt to charge for them (Jones, 1995). If you want people to accept charging for road use or parking there must be very good and convincing reasons. Perhaps the best reason is, that this is the best way of solving perceived urgent problems. Thereby it is necessary to distinguish between:

(a) effectiveness, the degree to which the defined objectives are fulfilled by the measure, and

(b) efficiency, the cost-benefit-relation for road pricing as compared to other measures.
The effectiveness of transport pricing may be high but this is not guaranteed and depends on the definition of objectives. The efficiency will be comparatively very high - from the cities’, but not from the car drivers’ point of view. Thus, not only the objectives of the intended measures must be valued highly by the public. People must also believe that their behaviour contributes to reach these objectives. The values as well as the expectations (the perceived probability to reach these objectives) should be made transparent and first trials of a new behaviour must be successful so that the new behaviour is perceived as effectively contributing to reach the shared values, thus creating positive contingencies between the behaviour and its consequences.

3.) **Revenues must be hypothecated and alternatives have to be provided.**

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.

4.) **The full and reliable functioning of the system must be guaranteed from the start.**

This includes also that the implemented system should be as user-friendly and simple as possible. The early perception of the whole package will strongly influence later behaviour. Beneath reliability there should be mentioned other aspects as compatibility with other systems and to add-on-options (e.g. automatic route guidance), no additional load on the driver etc. And the system must be free from the possibility of fraud and evasion, both deliberate and unintentional.

5.) **Equity needs have to be considered very carefully.**

The system must be perceived as fair at least in three ways: first relating to the personal cost-benefit-relation, second related to social comparisons between road users, and third concerning possible disadvantages between neighbouring cities. The benefits people see for themselves must balance their costs at least in an immaterial way (for example, by reaching other valuable objectives). In addition people should not feel to be treated unjust in comparison to others. An important role plays in this context the use of the revenues. With the help of the raised charges it is possible to influence the distributional impacts in the desired direction. There must be a package solution, combining travel demand management measures with
a set of transport and environmental improvements. Hypothecation of the revenues must result in guaranteeing a desired level of mobility for all, even supporting mobility chances for some groups thus meeting equity issues on a population level.

6.) Public acceptance can only be expected if people have confidence among others in the effectiveness of the measure, the use of the revenues, the fairness and anonymity of the system. That privacy is not affected and anonymity is guaranteed must be communicated in a credible and convincing way.

One precondition to support confidence is transparency of the intended measures at an early stage. Connected to transparency, for the acceptance of any change you have to create some commitment of people to the new ideas, perhaps creating some identification with the proposed package of measures. This commitment depends on early and credible communication, on positive experiences (at least by models), on the conviction that this is an effective solution, and on perceived chances of participation. People want to see themselves as having at least some degree of control over the things they are affected by. Thus there is a connection between participation, commitment, acceptance and later effectiveness. This points out the importance of early information and participation of people even in concept development. A second precondition for creating confidence is defined responsibility. Who will be responsible for the functioning of the system, for charging and accounting, for revenue allocation, for failures and undesired effects? This has to be defined clearly before implementing the system. Responsibility issues are of particular relevance in connection with the debate of privatisation.

And finally, to meet these six requirements it is necessary to design a strategy to “sell” the measures. Hence -

7.) The necessary publicity calls for an intelligent marketing strategy.

Publicity includes public transparency of the whole system, of the hypothecation principle, and of the objectives for which the revenues are used. This bilancing must be repeated perhaps monthly or at minimum every year. People want to know what their charges are used for and what is the benefit for them. Thus the marketing strategy has to deal with the whole package and particularly point at the benefits (see
for example the strategies used in Zurich). This marketing has to be communicated by very credible communicators (credible from the point of view of car drivers). Some principles should be:

(a) All the externalities have to be discussed in advance: creating awareness for the problem, then presenting a package of credible solutions.

(b) Positive objectives must be connected with most effective solutions to reach them. Thus transport pricing has to be communicated as a very effective means to reach commonly shared goals. This can make private costs more acceptable.

(c) There must be personally positive experiences in first trials changing the transport mode, e.g. time savings, less parking problems, ecological advantages, the possibility to participate in solving traffic problems, attraction of inner-cities etc. Positive experiences on first trials help to get used to the new behaviour. If the first experiences with a newly implemented system have to be positive to hold them, then investments in public transport must go ahead before pricing is introduced to reduce painful first experiences and to have the capacities available.

(d) The marketing has to point on the positive sides of the package, for which the road charges are used. This connection between push and pull - measures (see hypothecation) was not given in a sufficient way in former road pricing strategies or it has not been communicated transparently enough.

(e) People must feel to have a choice, even if the choice alternatives are restricted and the inputs of their decisions have changed. If they only feel to be forced to compliance, some of them will show reluctance, a strong motive to change the situation for themselves and to restore former perceived possibilities to choose between alternatives. Crucial is the perceived freedom of choice (Weiner, 1994, 206).

(f) If you can not convince people, external control to enforce the desired measures has to be very strong. But this external control will only work if a great majority of people generally agrees with the measures and wants that people offending against these measures are enforced and punished. May be that this will work only if no more than 20 or 30 per cent of all the people targeted oppose. Thus you have to convince a great majority of road users and even of car drivers. The conviction of a great majority is not only a precondition for the acceptance of the measure, but also a precondition for the acceptance of the control against offenders.

(g) In addition you should disseminate information of consonance for the desired attitudes and behaviour and information of dissonance for undesired.
(h) If you reach changes of normative believes (by communication means and by new experiences) you will have another strong influence for stabilisation of the new behaviour. Creating new norms on a collective and new intentions on a personal level may motivate to behave in a new manner to meet the new convictions, one aspect of self-congruency. But that must be experienced as valuable in a material and in an immaterial sense. Generally, the cognition of the situation has to be changed - and this will influence the behaviour of people.

(i) This new cognitive image of the mobility situation must meet a real situation that makes the new behaviour favourable: There must be real alternatives (bus, tram, shared modes of transport) and these alternatives must be well known (information) and attractive by price, convenience, availability and accessibility etc. You have also to diminish constraints which prevent to change behaviour. Thus the mobility chances of people should not been diminished by transport pricing. Such a favourable situation is a precondition to break old habits and to realise new intentions. Thus positive first experiences with alternatives (in mode, time, route choice) can be understood as initial operand conditioning and include the experience of what to earn by a changed behaviour. In an initial state, positive expectations, positive values and positive outcomes may be partly communicated by models, copying with the situation and getting vicarious rewards.

4. CONCLUDING REMARKS

Several studies and research projects all over the world have considered transport pricing measures and policies as promising attempts to solve the urgent traffic problems in urban areas. The experiences made so far have been collected usually in small and easy manageable field-trials and demonstration projects and only in a few large scale implementations. They have shown that such pricing policies - if a large scale implementation is possible - could make an essential contribution to ease the traffic problems in urban areas through reducing traffic, diverting people to more ecologically friendly modes or through raising financial funds for improving the transportation infrastructure. However, there is still considerable reluctance by city authorities to implement such pricing policies due to a perceived lack of public acceptability. But only with the support of a broad majority of the people concerned it seems realistic to believe that large scale implementations are possible at all and that these systems will lead to the desired results regarding travel behaviour and mode choice.
Previous studies and research projects have concentrated mainly on developing and testing the *technical* and *operational* know-how for electronic (pricing) systems. The main question was: “How to design the systems technically so that they work?” Only quite recently centre of interest has moved to another topic. “How have the systems to be designed in order to be acceptable for the public and to induce the desired change in travel behaviour?” is the new question.

The experience made in previous projects has delivered first ideas why the public acceptability of pricing measures is low - especially compared to regulatory traffic restrictions. This article summarises systematically the emerged obstacles to public acceptability and analyses them shortly. Further studies and demonstration projects - like, for instance, the EU research-project TRANSPRICE in which both authors participate - deal and have to deal mainly with the development and the test of new *strategies*. Namely strategies about the design and the introduction of new complex and integrated demand management systems having a realistic chance to be actually implemented. These strategies have to consider the structure of the problem and the principles outlined in this article in order to be successful.

**REFERENCES**


