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Acceptability of Transport Pricing Strategies
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WHY ARE EFFICIENT TRANSPORT POLICY INSTRUMENTS SO SELDOM USED?

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THE SITUATION

More and more roads are congested. This rising demand for road space exceeds the given supply; the excess demand makes bottlenecks an everyday experience for an ever increasing number of road users.

The solution is to set an adequate price on the scarce resource of road capacity. More precisely: marginal congestion cost road pricing needs to be used[1]. To efficiently overcome the excess demand occurring on the roads, pricing has to be geared to the additional users (rather than to some average). This pricing scheme performs two specific functions. Firstly, it reduces demand wherever appropriate, i.e. when the value of using the roads is lower than the equilibrium congestion price. Secondly, it expands the supply of roads wherever appropriate, i.e. when the investment cost of more road space is lower than the equilibrium congestion price. Thus, marginal cost pricing takes into account the material, environmental and psychological costs (e.g. the amount of noise produced).

Marginal cost pricing is certainly more efficient than the alternatives sometimes put forward. A particularly popular alternative is to increase road space to meet the demand. This, of course, is an illusion. An expansion of road capacity reduces congestion. The lower cost to the road users induces a higher demand so that congestion is not permanently reduced, and may under some conditions even become more severe. Another popular alternative is direct government intervention in the traffic flow. Sometimes roads are blocked in order to make a

[1] See, for example, Parry (2002), Calthrop and Proost (1998), Button and Verhoef (1998), Thompson (1998), Johansson and Mattson (1995), Newbery (1988, 1990, 1998), Small *et al.* (1989), Keeler and Small (1977). Road prices can be considered to be a case of excise taxes, as they directly change the price to consumers, see Cnossen (1986, 2001), Frey (2002).

particularly congested place disappear. But such action only serves to increase congestion elsewhere. Politicians and public officials also tend to resort to licensing systems.

The verdict is clear: marginal cost pricing is efficient. But if that is the case, why is it so seldom applied? Why are people and groups opposed to what is obviously the most efficient solution?

This paper discusses ten reasons for such opposition, relating to four different groups:

(A) The population at large,
(B) Politicians,
(C) Public officials,
(D) Interest groups.

The reasons adduced refer to economic, psychological[2] and politico-economic[3] aspects.

Thereafter, two proposals are put forward on how to overcome the kind of deadlock often experienced. The first suggests the directly democratic participation of the citizens; the second proposes functionally organized democratic traffic districts.

TEN REASONS

A. Within the Population

There are four major reasons why people tend to oppose the introduction of road pricing schemes[4].

(1) Misunderstandings

People are used to prices being a monetary phenomenon attached to material goods and to services. They find it difficult to see that prices reflect scarcity in general. This misunderstanding is not all too surprising; after all, economists also make the distinction between monetary and shadow prices, the latter being virtual prices reflecting scarcity values. To use prices in the context of congestion is quite a big step to take.

[2] Surveys of Economic Psychology are provided e.g. by Van Raaij *et al.* (1988), Frey (1997), Rabin (1998), Frey and Benz (2002). Applications of psychology to road pricing issues are, for example, shown by Steg *et al.* (2001), Steg and Tertoolen (1999).
[3] Surveys of the Economic Theory of Politics or Public Choice are given e.g. in Mueller (1989, 1996). An application to road pricing is Oberholzer-Gee and Weck-Hannemann (2002).
[4] See also the attitude surveys among the population undertaken by Jones (1995, 1998).

Another misunderstanding relates to congestion prices being solely seen as yet another charge. People fail to see that prices systematically affect behaviour according to the generalised "law of demand" (or relative price effect): keeping all other influences constant, individuals demand less of a good whose price has risen[5]. Many people think that imposing a price for the marginal congestion cost reduces their income which, of course, they resent. Many, if not most, individuals do not see that imposing a price on congestion induces people to avoid having to incur that cost; they actively seek ways and means to avoid congested roads.

(2) Aversion to Pricing

People do not like prices being used as a mechanism to allocate scarce resources. This holds true in many cases, but does not always apply. A study undertaken by the author and his co-workers[6] supports this conclusion. A random sample of persons living in the city of Zurich was asked how "fair" they take various allocation mechanisms to be in a clearly defined situation of excess demand. Table 1 shows that using a price to allocate the scarce good was not considered to be at all fair.

	Tradition ("first come, first served")	Government intervention	Price	Random
Fair	76%	43%	27%	14%

Table 1. Fairness of Various Allocation Mechanisms (Frey 1999, 169; see also Frey & Pommerehne 1993).

Only 27% of the persons asked considered it fair to distribute the good in excess demand by letting the price system decide. Only a random allocation was considered even less fair[7]. People seem to prefer allocation systems giving them some sense of "security", above all the traditional mechanism that those persons who are first in line get the good [8]. People also seem to trust government to allocate the good in excess demand in a fair way (this may be due to the fact that the persons asked were Swiss, who are used to democratically controlled governments; see part III of this paper).

[5] The relative price effect is fundamental for micro-economics. Neoclassical economic theory – the overriding approach nowadays – therewith explains and predicts individual behaviour in the market and beyond (see Becker, 1976;, Kirchgässner, 1991; Tullock, 1994; Frey, 1999).
[6] See also Kahneman *et al.* (1986); Frey and Oberholzer (1996).
[7] This is also surprising because that mechanism by definition gives everybody the same chance of getting the good.
[8] It should be noted that this mechanism certainly violates important aspects of fairness, because it may well be that the strongest and the most aggressive persons then get the good. For a general discussion of fairness see Tyler (1990); Tyler and Blader (2000); for experimental evidence within economics, see Fehr and Schmidt (1999). There is, of course, an important literature on fairness in psychology, see e.g. Adams (1965).

Aversion to allocation by prices may affect individuals' intrinsic motivation to support road pricing schemes. Crowding theory (Frey, 1997)[9] suggests that the expected controlling effect of applying pricing schemes undermines people's willingness to politically advocate such schemes. Such crowding-out effects are strongly supported by experimental and field evidence collected by psychologists and economists (a survey of the available evidence is given in Frey and Jegen 2001; Frey 2001, chapter 5).

(3) Aversion to Government Intervention and Taxation

A considerable proportion of the population has little trust in government (see e.g. Nye *et al,*. 1997). These persons detest any increase in political intervention in their "private" lives. An imposition of prices on congestion is seen to fall into this category and is therefore rejected.

Similarly, many people are convinced that the government's share in national income should not increase. A congestion tax raises the government's share (if it is not compensated by lowering taxes elsewhere) and is therefore opposed as a matter of principle.

(4) Distributional Concerns

A very common objection to road pricing is the idea that "the rich just pay" and are therefore affected little, if at all[10]. It is thus presumed that the rich react less to relative price changes than persons with lower income do. This is unlikely to be the case in general, and also applies to road pricing. In many cases, higher income recipients are more flexible. They find it easier to avoid congestion because they can more easily adjust their working hours and have better means available to predict congestion (e.g. by using a costly GPS-system in their cars). It may even be argued that the rich respond *more* to relative price changes than the poor: they have accumulated their wealth *because* they react immediately and forcefully when some particular prices, such as those on roads, increase.

Another distributional concern relates to the people who stand to win or lose by introducing road pricing. The potential losers are well identified (those persons who have little flexibility and therefore have to pay the congestion charge) while the winners (the people finding ways to evade the charge) are widely dispersed and uncertain. This asymmetric effect is intensified by the well-known fact that "losses loom larger than gains" (Kahneman *et al.* 1982). For these reasons, in the political sphere, the protests on the part of the potential losers will be loud while the support on the part of the potential gainers will be muted. Politicians considering road pricing therefore have little incentive to go ahead.

[9] Crowding theory is a generalisation and economic application of psychological theories known as "Hidden Costs of Rewards" (Lepper and Greene, 1978), "Overjustification Theory" (Lepper *et al.*, 1973), "Corruption Effect" (Deci, 1971, 1975; Deci and Ryan, 1985) or, more recently, "Cognitive Evaluation Theory" (Deci and Flaste, 1995; Deci *et al.*, 1999). A formalisation of Crowding Theory is provided in Bénabou and Tirole (2002).

[10] Equity impacts of road pricing are discussed, for instance, in Richardson and Bae (1998).

B. Among Politicians

(1) Missing Attribution

Politicians' actions in a democracy are strongly influenced by how they are likely to affect their popularity and reelection chances. This is the basic assumption in the Economic Theory of Politics, or Public Choice, and has been extensively discussed in that literature (see e.g. Mueller 1989, 1996). Politicians are taken to be similar to other people; they are neither better nor worse than others. Accordingly, they are inclined to pursue their own interests which, in the case of politicians, means that they make huge efforts to get into, and to stay in, power. Hence politicians are strongly influenced by popularity ratings and the probability of being reelected. The Public Choice now does not assume that politicians are "good guys" whose only goal is to pursue the "best for mankind". This is considered to be at best a romantic view of how real politics is, and may be very misleading.

For politicians, a major disadvantage of pricing policies is that they are not directly attributed to the politicians' actions. Direct interventions, in contrast, directly benefit the politicians. In particular, they indicate to the voters that the government is taking decisive action (even if such action in many cases proves to be ineffective or even counterproductive in the long run). The politicians therefore have an almost instinctive preference for direct interventions over anonymous pricing instruments.

(2) Power

When politicians use road pricing to solve congestion problems, they relinquish some of their power. Excess demand for road capacity in that case is solved by the workings of the price system. In contrast, direct intervention enables the politicians to exert power to their own benefit. They may, for instance, issue permits for use on otherwise congested roads. They can give the permits to whichever individuals and groups they favour. This sets in motion rent seeking activities on the part of the people concerned. They then lobby the government to receive such permits and in exchange offer the governmental politicians support, especially in the form of monetary donations at election time. Such rent seeking activities are socially unproductive and waste human resources.

C. Public Officials

(1) Against the Legal Tradition

In most countries, public administration is dominated by lawyers; in some countries (e.g. in Germany) lawyers are close to having a monopoly. Administrative action is to a large extent shaped by legal, and often legalistic, considerations. Legal traditions favour direct intervention, using rules and regulations to solve social problems.

(2) Presumed Ineffectiveness of Pricing.

Public officials have little trust in the price system; they tend to consider it fickle and rather haphazard. They much prefer direct intervention in order to ensure that everything happens exactly as they see fit[11]. At the same time, such preference increases their own power over the people. If an intervention does not have the desired effect, intervention is heightened to deal with the shortcomings. As a result, a society may end up with an ever tighter net of regulations. This can often be observed in the case of road congestion. An isolated intervention by the government shifts traffic from one location to another, but seldom addresses the fundamental problem of congestion.

D. Interest Groups

(1) Scope for Rent Seeking

Congestion pricing solves the problem of the excess demand for road capacity by attributing an explicit monetary price on the persons involved. This leaves little or no scope for organized groups to intervene. They therefore reject this policy approach in favour of direct intervention by the government. They know that this makes it possible for them to influence what form the intervention takes. As noted above, the most obvious scope for rent seeking is offered by a licensing system. Organised groups are not only important to the politicians, but also to the public officials, because they need their information and support when undertaking policies.

(2) Efficiency Gains are Public Goods

Road pricing achieves *potential* Pareto efficiency. This means that the resources are used in such a way that social welfare increases so that the winners are able to compensate the losers. But interest groups are not interested in welfare gains for society as a whole, but only in the benefits to their members. They therefore do not press for efficient instruments, but for those which are most likely to benefit their members.

WHAT CAN BE DONE?

The discussion has shown that both from the psychological and the political economy point of view, road prices are not a preferred instrument for the various decision-makers. Three conclusions are suggested:

The provision of *information* on the workings of road pricing is at best a *necessary* but certainly not a *sufficient* condition for its adoption as a policy instrument. Even if all the

[11] It need not be emphasised that this is a presumption at odds with reality. Public officials often lack the information necessary to take the correct action, their interventions are clumsy and in many cases make the situation worse. Moreover, administrative intervention is costly, both by binding administrative capacity and by imposing costs on the people affected. See Hayek (1960).

decision-makers were optimally informed about the efficiency characteristics of road pricing, this does not mean that they would favour its use. The opposite is true in some instances, as argued above.

The view that information is necessary but not sufficient is not shared by standard economic theory[12], which implicitly assumes that the market, as well as politics, evolve to produce a Pareto-optimal situation. The underlying idea is that individuals recognise and exploit any possibility of efficiency gains. Standard theory therefore finds it difficult to explain why road pricing is so seldom used. It must resort to transaction costs, but in this instance this is a rather *ad hoc* explanation.

Provided the decision-makers are well informed about the workings of road pricing, there are few, if any, opportunities of introducing road pricing in the *current political process*. The rejection of road pricing as an instrument to solve traffic congestion is systematic and is part of the politico-economic equilibrium. It cannot simply be overcome by proposing that it is efficient and increases people's welfare[13].

Again, this view contrasts with standard economics, because it does not take into account any political processes which are against road pricing.

1. Road pricing can be introduced by modifying the underlying decision-making rules and procedures. This means that changes must be introduced at the *constitutional level*. Two such basic changes in political decision-making have proved favourable for road pricing: (A) Direct Voter Participation, and (B) Democratic Traffic Districts.

A. Direct Voter Participation

There are several instances of when direct participation of the citizens in political decision-making via initiatives and referenda has been proven to overcome deadlocks[14]. The example of the Swiss Alpine village of Saas Fee suggests that this may also apply to road pricing[15]. Saas Fee is free of car traffic except for the local cars and taxis, which are all electric.

The local government of Saas Fee developed a plan, which involved asking drivers to pay a charge for each car ride according to a 13 metering point system. The minimum price per ride amounted to the equivalent of 1 Euro, and the marginal price per additional metering point to 0.30 Euro. Crossing the whole village could cost up to 3.70 Euro. No price was asked on the

[12] What standard economics is has been empirically determined by surveys among professional economists, see Kearl *et al.* (1979), Frey *et al.* (1984).

[13] This view forms the basis of constitutional economics; see Buchanan and Tullock (1962), Brennan and Buchanan (1980, 1985), Buchanan (1991), Frey (1983), Mueller (1996), Cooter (2000).

[14] See Kirchgässner *et al.* (1999), Budge (1996), Frey (2001), chapter 9.

circuit road outside of the tourist season and during off-peak hours. The investment costs of establishing such a system amounted to 170,000 Euro.

The initial proposal was rejected by the citizens at a town meeting in 1993. A revised project was accepted in a popular referendum on April 26, 1998, with 57% voting for the referendum. For purely legal reasons, the referendum was declared invalid by the government of the canton Valais. Therefore, the road pricing project has not (yet) been installed.

This case suggests that the institution of direct democracy may have the potential to overcome resistance to road pricing. Due to the widespread discussion induced by the referendum, the voters were much better informed than in a representative democracy. The opposition by the organised groups might have been muted because their special interests become more visible than they otherwise would be. At the same time, a referendum focuses the attention of the citizens on the issue of traffic congestion and the contribution road pricing can make in solving it. The politicians in power are therefore able to have at least part of the benefits of the project attributed to them.

It is, of course, not claimed here that the example of this Alpine village can be easily generalised to apply to other cases of traffic congestion. But it shows that a difference in the fundamental decision-making rules in the direction of more extensive citizen participation may increase the chances of introducing road pricing schemes.

B. Democratic Traffic Districts

The acceptance of road pricing may also be furthered by organizing the way in which decisions about congestion problems are made. One possibility is to assign decisions on traffic issues to special political bodies, which may be called "*Democratic Traffic Districts*". In line with the proposal of *Functional, Overlapping and Competing Jurisdictions* (FOCJ)[16], Democratic Traffic Districts are established to serve only one function, managing particular public transport problems. Their size should correspond to the benefits and costs caused by the particular traffic problem in question. In the case of a local congestion problem (say within a certain area of a city), the Democratic Traffic District is small; in the case of nation-wide or even international congestion problems (say traffic through tunnels crossing the Alps) they have to be large, involving several nations. As each such District has a different shape, it overlaps with other Traffic Districts as well as with other Functional, Overlapping and Competitive Jurisdictions (say for security or environment). A third characteristic is that the constituent units (in general communes) may exit if they are dissatisfied with the performance of the District, and may join with other communes in establishing their own new jurisdictions.

[15] I follow the discussion in Eichenberger (2002).

The Districts are to be democratically based, preferably by allowing direct citizen participation. Finally, the Democratic Traffic Districts must have the power to tax and charge, i.e. to impose road prices. In return, the citizens must receive a discount on their taxes. The competition between the Democratic Districts would ensure that the citizens are burdened as little as possible. In the case of Democratic Traffic Districts, the outcome might even be that the citizens are better off, provided the expenditures for road investments undertaken following the principles of road pricing are smaller than the revenue gained from the congestion charge.

The idea of Democratic Traffic Districts is quite revolutionary and has to be worked out in much more detail. What is important here is that road pricing may have a better chance of being implemented when traffic management is undertaken by a body designed specifically for that purpose. It should be noted that the Democratic Traffic Districts differ fundamentally from the many special road districts already in existence. Above all, special districts, with few exceptions, are technocratically managed units in which the citizens have little or no say. Moreover, they are often focused on one means of transport (for instance on roads or rail), while the Democratic Traffic Districts are designed to deal with a particular function, spatial mobility. The task is to find the best combination possible for the various providers of spatial mobility.

CONCLUSIONS

Road pricing is an efficient way of coping with congestion problems. The price imposed on people contributing to road congestion optimally reduces demand and optimally enlarges road capacity. Consistently applied, it also helps to deal with congestion problems arising between various modes of transport, say road and rail. In view of these enhancing features, it is difficult to understand why road pricing is so seldom used.

Ten reasons are adduced as to why road pricing is rarely applied in practice. They relate to the population, the politicians, the public officials and the interest groups, and refer to economic, psychological and politico-economic aspects.

The paper argues that informing people about the benefits of road pricing is not sufficient. The rare use of road pricing as an allocation device reflects a politico-economic equilibrium. There is more scope for introducing road pricing when constitutional changes in decision-making are considered. It is proposed that citizens be given the right to vote directly on road pricing schemes; and that Democratic Traffic Districts be instituted.

[16] Functional, Overlapping and Competing Jurisdictions (FOCJ) are discussed more thoroughly in Frey and Eichenberger (1999).

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