

PRICING POLICY FOR URBAN TRANSPORT IN EUROPE:
LOOKING FOR AN EFFICIENT SOLUTION

1. Introduction

In the recent years the European Commission has paid a lot of attention to the possibility to adopt a pricing policy for transport that could be accepted and applied in the different national and local conditions all over Europe. It is generally recommended that such a policy ought to be based on marginal social cost pricing in order to achieve optimal market solutions (or, at least, second best solutions); consequently, several projects were funded by EC to explore the feasibility of marginal social cost pricing implementation in all kind of transport (AFFORD, CAPRI, CUPID, IMPRINT, MC ICAM, TRACE, TRENEN, UNITE, just to quote the most important ones.)

On the other side, the urgency to find some solution to the main problems involved by transport (pollution, congestion, accidents) was underlined in the White Paper (EC, 2000) where national and local authorities are encouraged to test *ad hoc* policies in order to find out best practices that can be imitated elsewhere. Consequently, some important actions were funded, such as CIVITAS, PROGRESS, CIVITAS II and BESTUF for urban transport.

It seems evident that the adoption of *ad hoc* policies could make more and more difficult the implementation of a unique optimal pricing method, were it recognized and accepted as the best policy for transport. Moreover, the enlargement of UE will probably enlarge transport problems too: it seems unlikely to deal successfully with such growing problems, without having previously overcome this methodological schizophrenia.

This paper tries to give a small contribution in this direction as regards a sub-sector of the transport system: namely, it is tentatively proposed an analysis aiming to deepen some questions featuring the barriers to the implementation of marginal cost based pricing in urban transport.

In the first part, the main institutional barriers to the implementation of marginal cost based pricing are reviewed, as outlined in the projects quoted above, together with the commitment of UE Commission to support *ad hoc* policies. In the second part, an analysis of the barriers deriving from the market structure is carried on, trying to establish some general features of such barriers: the core of the analysis is the relationship between short term and long term barriers, with an emphasis of the role of the latter ones in conditioning the formers.

2. The institutional barriers and UE commitment

The aim of marginal cost based pricing is for drivers to be charged for the externalities that they create by driving and for this revenue to then reduce the distortions created in other areas of the economy. More generally, we could say that efficiency considerations are the prime motive for marginal cost based pricing: much of the debate on the relevance or feasibility of marginal cost-based pricing in transport in practice then reduces to the question of whether economic efficiency in fact is, or should be, a prime motive guiding transport policy-makers (Glazer et al., 2001, p.1).

In the real world, current policies do not appear to be based upon this principle, with public transport policy being based upon covering the costs and increasing usage. More precisely, at a national level road transport pricing is based on generating revenue, at the regional level for supporting economic vitality and equity concerns and at the local level the concern is to reduce the congestion and pollution levels while maintaining mobility levels. Recently, at the local level improvements have been made with the “carrot and stick” approach, where the aim is to restrain car use and increase the use of alternative modes, particularly in urban contexts. Nevertheless, this approach can hardly be considered as a step towards marginal cost based pricing, as the pricing is not determined by external costs and the revenue generated is hypothecated for use in the transport sector.

Moreover, the lack of clarity of what the marginal cost based pricing measures will achieve in real world situations is often identified as the main barrier among interest groups. The policy makers are sceptical, mainly for the opposing information given to them from the stakeholders involved (e.g. opposing views between academics). The public is also sceptical, as they want to know what

impact the policy will have on them. Moreover, people may be suspicious of what they perceive to be clever arguments, which are not obviously compatible with their own perspectives.

In summary, we could identify three general kinds of institutional factors that could either enable or prevent the introduction of marginal cost based pricing, which are:

- I. Actors /organisation
- II. Agreements or contracts external to an actor - which are the legal and institutional structure by which the actor operates
- III. Agreements or contracts internal to an actor - which means the actions and structures that link individuals together.

These actors include individuals, public agencies, firms and groups of individuals potentially affecting or being affected by the introduction of marginal cost pricing, namely those:

- directly involved in the decision making (political parties, different levels of government, etc.)
- responsible for putting the system into practice (local government agencies, etc.)
- facilitating the implementation (financers, technology manufacturers, etc.)
- helping marginal cost pricing become a reality (academics, consultants, etc.)
- with influence on opinion forming (automobile associations, media, employers and employees organisations, etc.)
- reacting to the system (political parties, pressure groups, chambers of commerce, etc.)

Then the first steps towards a higher socio-political acceptability could consist of:

- Improving the transparency of communications detailing the potential benefits and dangers of this approach to the key stakeholders

- Increased research into detailed practical examples of marginal cost based pricing, with an emphasis on the impacts of equity and short run consequences of the policy. This can then be used to evaluate how revenues and compensation should be addressed
- The use of public debate to address stakeholders' views, covering all barriers faced
- Improving the information about the differences among the transport modes with respect to travel time, accidents probabilities, environmental consequences, etc.

Nevertheless, the problem with spreading knowledge and information about costs and benefits of marginal cost price policies is that they are not accepted by all economists and experts in other disciplines (engineers, urban planners, social workers, etc.)

This could explain why UE Commission tries to cope with the different aspects of transport issues with different, possibly consistent, devices: then after aiming to a *Fair And Efficient Pricing in Transport* (EC, 1996), in the White Paper (EC, 2000) the Commission seems to adopt a more pragmatic approach. As regards urban transport, given the institutional limits of decision power deriving from the subsidiarity principle, the UE Commission identifies the reduction of the impact of externalities as the main objective. More precisely, the actions of the Commission are directed to decrease the levels of pollution and congestion, assuming that accidents and noise will be affected too, mainly by means of the promotion of cleaner energy and good practice. We could distinguish the different actions as follows:

- promotion of diversified energy for transport (cleaner fuel, biofuel, lower emission energy; minimum percentage of compulsory biofuel consumption;
- tax reductions on biofuels, while adjusting the taxation regime for private car use on the basis of environmental criteria
- financial support to R&D in the area of new, cleaner fuels
- promotion of good practice in order to encourage the use of alternative modes of transport in town and cities, to curb and possibly reverse the current prevailing use of cars
- road and/or area and/or park charging

The UE Commission wishes that local public authorities undertake a new approach to urban transport, which reconciles the modernization of public services with the rationalization of private car use. This would be part of the strategy necessary to comply with international commitments to reduce pollutant emissions (mainly CO₂). Moreover, transport policy ought to be part of an overall strategy supporting sustainable development that, in particular for urban contexts, include:

- land use planning, in order to avoid any unnecessary increase in mobility
- social and education policy, through organization of working patterns and school hours.

As an example of UE commitment, CIVITAS and PROGRESS are two demonstration projects, funded by UE Programmes, aiming to implement good practice in urban transport by means of different, possibly complementary, strategies: both involve the direct responsibility of local authorities. Namely, CIVITAS's aim is to help realize innovative projects on clean urban transport (fourteen pioneering cities pre-selected; five cities in the countries which are candidates for accession associated), while the overall objective of PROGRESS is to demonstrate and evaluate the effectiveness and acceptance of integrated urban transport pricing schemes to achieve transport goals and raise revenue (eight cities selected).

Of course a way could be arranged to reconcile the objective of efficiency, aimed by marginal cost pricing based policies, with the urgent need of effectiveness: every step towards the implementation could pay attention to the acceptability and the effects as regards some intermediate objectives, such as decreasing impact of externalities. For example, the two hypothetical policy packages investigated in AFFORD by the case study cities (Edinburgh, Helsinki, Athens, Lombardy and Madrid) included: a weak package (acceptable package), which had an emphasis on low charges and earmarked revenue use; a strong package (best practice, second-best practice case), which contained high charges with no hypothecation of the revenue to transport sources. In fact, the weak package does not seem to represent a big step towards efficiency and optimality; nevertheless, it could allow users to gain experience with higher priced facilities on a limited scale, while achieving some results as regards congestion and pollution. The packages are shown in **Error! Reference source not found.** Results were collected from questionnaires and discussions with case study groups in each of the cities.

	Cordon toll	Parking charges increased by	Fuel prices increased by	Revenue spent	Revenue spent	Revenue spent
Weak package		0.25 euro/hour	Tariff of 1 euro plus taxes increased by 0.1 euro/litre	1/3 Increased road capacity	1/3 reduce car taxes	1/3 to reduce Public Transport tariffs
Strong package	2 euro in peak hour (7-9am) and 0.5 euro off peak	0.5 euro/hour	0.5 euro/litre	1/3 increase road capacity	2/3 reduce labour taxes	

Table 1 Weak and strong policy packages investigated in AFFORD

As would be expected, the case study cities preferred the weak acceptable package, as this met with less legal and institutional barriers.

3. Some barriers deriving from market conditions and behaviours

The question of urban transport pricing shows some important peculiarities, in comparison with other transport subsystems, that affect the implementation of marginal cost based pricing in so far as they determine the occurrence of peculiar barriers at a very general level.

First of all, urban transport is not a category defined with respect to technological or other modal characteristics, such as railways or air transport; it is rather an *institutional category* itself, whereby “urban” includes the full range of transport forms (public or private; private car, underground, bus, railway, bicycle) that are used within the territory occupied by a given urban settlement. This entails that the local (geographical, institutional, social and economic) context is a major conditioning factor when aiming at a rationalization of urban transport on a European scale. Admitting the possibility to establish by means of a general model the theoretical benchmark of marginal cost price for each mode of urban transport, the second best solutions could be as much different as are different barriers at the local level. Therefore, even if fostering a first step towards efficiency at the local level, this could in the meantime increase the divergence among urban transport price systems all over Europe. The outcome could be an increasing difference in the quality of life and in the

socio-economic development between urban contexts with relatively low barriers and the other ones, with a possible worsening of territorial dualism.

Secondly, in the urban contexts the different modes of transport are generally in competition: the lack of coordination lets the users consider them as alternative choices in order to maximize their satisfaction. As the competition is not perfect (externalities, asymmetric information, uneven availability of the different kinds of infrastructure), the prevailing system of prices has generally determined inefficient outcomes. While, at least in theory, some causes of inefficiency can be internalized (externalities) or settled (asymmetric information) in the short period, some other (infrastructure) cannot. As a consequence, in the short period it could happen that the long period barriers critically restrain the set of choices leading towards a second best solution. Given the cross demand elasticity to price for different modes transport, the second best (optimal) pricing could result hard to be implemented. For example, the (second best) toll to be imposed on users for road access to the city centre in the peak hours, in order to internalise the social cost of car use and modify users' behaviour, could result so high to be commonly judged as not applicable. On the other side, every other (slightly) lower toll could result almost completely ineffective; in other words, the demand for car driving could be extremely anelastic to price because of the low availability of other modes. This could explain to some extent why in many cases the impact on demand of different pricing schemes (toll roads, cordon charges, area licensing scheme) was not as significant as it could be expected (MC ICAM – Del. 4.1, 2002). Finally, it is interesting to note that some cases of more remarkable impacts of price policies occurred in urban contexts where geography (Singapore) and the relatively even distribution of infrastructure (Norwegian cities) seem to set the long period barriers as a minor constraint (CUPID, Del. 1, 2002).

Thirdly, there is some evidence that consumers appear to prefer uniform charges, while economic efficiency calls for charging different prices for goods with different marginal social costs. This means that, for example, prices that vary with distance and with time of day could increase efficiency of the transit industry and, hence, of the whole transport system. To some extent, the acceptability of varying prices seems to be a question related to the available information. While, generally, citizens are aware of transport related problems, in particular of environmental problems and congestion (Schade and Schlag, 2000), they appear to be much less aware of the possibilities of pricing policies to solve such problems. Notwithstanding, information about such possibilities can be considered as a necessary though not sufficient precondition for implementing pricing measures

successfully (Glazer et al, 2001). If the conditions of imperfect competition outlined above occur, we have to consider the preferences of the consumers as revealed by their behaviour. As the urban context is limited by definition, it seems reasonable to assume that the users know the relative price of every mode of transport and make their choice on the basis of a correct evaluation of their individual utility. If a change affects the price of a mode of transport (private car, for example) determining two different prices during the day (for example, peak hours and not peak hours price), the users have not to consider simply one nominal price more than before; rather, the number of relative prices on which they found their choice is doubled. Probably, the users will be much less confident on the evaluation of their utility and, considering their own inadequacy to deal with the whole set of new price signals, they could react as follows:

- generally opposing to any change of the existing system of prices
- unchanging their behaviour in front of changed prices, given the broadly ascertained consumers' risk aversion (this could be a further explanation of the low impact on demand of price policies)
- paying attention only to a limited set of the new prices signals, namely the most evident to themselves: in this case, an inefficient outcome could result from choices deriving by incomplete information (in fact, information is available, but not used).

Moreover, the number of price signals could be increased by the existence of multiple flows of traffic. Generally, commercial and administrative activities are located in the centre of cities and towns, while industrial activities are located in the surroundings. In fact, one observes two different flows of urban transport: from the surroundings to the centre and from some (properly urban) areas to other (industrial) areas in the surroundings. As a consequence, congested traffic conditions can occur along different paths and directions, while peak hours related to different activities are often different.

4. Some final considerations

The barriers to the implementation of marginal social cost pricing for urban transport shortly reviewed in these pages have a common feature: they cannot be removed in the short period.

The institutional barriers seem to entail a general problem of acceptability with respect to a policy whose costs are certain and immediate, while the benefits are less certain and delayed. For example,

an efficient system of prices means that the social cost of externalities, such as pollution and congestion, is internalized; this could entail higher prices both for private car use and for public transport, if the public service does not use cleaner fuel or cleaner energy. We can hardly expect that this solution is appreciated by consumers and, consequently, by local administrations that, eventually, could be forced to subsidize public transport for social and political reasons. Such a policy is, of course, a step in the opposite direction with respect efficiency and optimality. Then, what is needed before implementing a pricing policy is a campaign of information about its benefits and, above all, investment in public services.

This leads up to the barriers deriving from the structure of the market: the land use, as it has been historically determined, and the uneven distribution of infrastructure are the basic causes of the imperfection of the market where the product “urban transport” is demanded and supplied. Consumers’ “wrong” behaviours are a consequence of such imperfection that can be removed only with the commitment of the different levels of government: that is, by means of policies aiming to a sustainable development. In the meanwhile, *ad hoc* policies could be adopted in order to reduce the negative externalities, as UE Commission strongly suggests, paying particular attention to reduce the gap between social cost and price of transport, as soon as it becomes acceptable.

The question remains open whether the marginal social cost pricing is to be considered an achievable objective or not. The only answer deriving from the short review carried on in these pages could be: not in the short period.

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AFFORD (www.vatt.fi/afford) is an evaluation of optimal transportation pricing policies.

CAPRI (www.its.leeds.ac.uk/projects/capri) is disseminating research on transportation pricing.

CUPID (Co-ordinating Urban Pricing Integrated Demonstrations), European Transport Pricing Initiative, Project No. GRD1-1999-10958, European Commission, Competitive and Sustainable Growth Programme (www.transport-pricing.net/reports22.html), November, 2001.

IMPRINT: Implementing Pricing Reform in Transport (www.imprint-eu.org) is an effort to promote implementation of fair and efficient transport pricing.

MCICAM (Marginal Cost Pricing Integrated Conceptual and Applied Model Analysis) (www.mcicam.net) is investigating marginal cost transportation pricing.

TRACE (www.hcg.nl/projects/trace/trace1.htm) provides costs of private road travel and their effects on demand, including short and long term elasticities. Sponsored by the European Commission, Directorate-General for Transport.

TRENEN (www.cordis.lu/transport/src/trenen.htm) is an effort to develop models for transport, environment and energy.

UNITE (www.its.leeds.ac.uk/projects/unite) involves transport cost accounting.