

PUBLIC TRANSPORT REGULATION AS AN INSTRUMENT OF URBAN TRANSPORT POLICY¹

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BACKGROUND

Urban transport systems have suffered profound changes in the last decades, affecting its three main vectors: the political, the economic and the technological.

The evolution of the structure and dimension of the urban built environment itself, as well as the growth in economic affluence of its inhabitants, are in the basis of these changes: the former had direct reflexes in the urban mobility demand patterns, whereas the second on the type of supply alternatives available to large parts of the population. Together, they forced changes on the mobility market structure, and consequently in the framework of its organisation and political priorities.

As cities grow and consumption demands become more complex, mobility is an essential means to realise other economic and social functions, i.e. to be socially integrated. Traditionally authorities' interventions on public transport have been justified (at least partly) by these equity considerations, namely to ensure that the transport network reached all citizens, and also that no one was deprived of its services by considerations of price.

Earlier on, when private motorization was low, the volume of demand for public transport was enough to allow it to run based on the market and with prices that were affordable by all. As demand was shifting to the private car, and production costs grew in line with the general rise of affluence in society, prices were kept low because public transport was being more and more targeted at the low end of the urban affluence scale. The need for subsidy arose to compensate insufficiency of revenues.

Along the years it was revealed that this represented a very inefficient way of intervention once all users benefited from the same (subsidised) fares independent from their income levels.

This switch of perspective is also reflected in the aims of the Citizens' Network green book [EC, 1996] where the Commission states that it wants to assure that the needs of the citizens are put at the centre of decisions about transport provision. The goal must be the achievement of networks of public passengers systems. In addition Public Transport should ideally be a service open to all citizens in terms of accessibility to vehicles and infrastructure, affordability in terms of fares levels, and availability in terms of coverage of services.

Also the link between the improvement of transport infrastructure and the accessibility of the regions is one of the issues highlighted by the EU Common Transport Policy (CTP) [CEC, 1992]. According to the main lines of this policy, citizens and enterprises should have access to

¹ This paper is stimulated by our participation in the ISOTOPE research project, which is part of the Transport research program of the EU 4th Framework program for R&D

a mobility level corresponding in quality and performance to their expectations and needs and at a reasonable cost.

The transport policy goals can thus be grouped into three categories, which reflect the fact that equity and efficiency are still the main criteria for policy appraisal [Gwilliam, 1987 and ISOTOPE, 1996]:

- allocative efficiency of resources within the transport sector and between this sector and other economic sectors;
- meeting individual requirements at minimum resource costs, that is market and productive efficiency objectives;
- equitable distribution of benefits and costs, that is equity objectives.

Other things being equal, improvements in market efficiency are reflected in increases in demand and improvements of productive efficiency in a reduction of costs (marginal and average).

Changing political settings for urban public transport

In the early days, population growth in urban dense areas, largely based in rural migration, produced an almost automatic growth segment in the Urban Public Transport market through the existence of daily captive users. This growth, together with the fact that the majority of the population had no alternative for mobility over large distances, provided both economic success and political support.

Presently, due to the comparative advantage offered by the private cars, the market of public transport still relies strongly on captive users, although captivity is not necessarily generated by low income (students for instance make a large part of the patronage in most European cities). In most European cities, the market share of public transport (as a percentage of the total number of trips) is now lower than that of the private car [Eurobarometer].

Thus, in the present situation, public transport operators, even in highly regulated environments, do not enjoy a real monopoly in the urban mobility market. In many cases, when service is seen as inadequate, even the mobility of many youngsters is provided by the private car, for instance through parents driving children to school.

Essential services that were usually seen as addressed to the majority of the population and considered a merit good, although profitable in the early days, now address themselves to market segments that represents a minority of the population. Efficiency and subsidisation are now important issues in the competition with other public goods (e.g health, education, safety).

As public transport was loosing market share, the strong political support for subsidisation enjoyed in earlier periods also weakened and the pressure started growing to improve its productive efficiency, reducing the need to use public money [Bly and Oldfield, 1985]. Because of the tradition of higher labour costs in publicly owned companies, an increasing involvement of private companies is also visible in many countries.

Changing marketing orientation

With the general increase of income levels of the urban populations, public transport markets began to shrink through transfers of mobility to the private car. More recently, population numbers in most urban areas are not growing any more, which means that even that (possibly compensating) growth factor is gone.

Car ownership became a normal household asset, forcing public transport companies to adopt market oriented strategies if they want to attract users away from their cars. Travel patterns have become more complex and longer home-to-work distances exist. As a consequence the traditional network design with direct links for most important radial flows are having to be replaced by a more complex design with strong connectivity and good travel times for the majority of origin-destination pairs, in order to compete with the flexibility of the private car.

Thus, if public transport is to be perceived as an effective potential alternative for those who might choose to drive their cars, network design is an important element of the system, requiring technical competence in its decisions, as well as a more effective and reliable provision of information to its users.

With the need to serve both the captive riders – who may be more price sensitive and less demanding on quality of service – and the riders who will only come if they enjoy an attractive service – with such a high diversity of aspirations of mobility as is provided by the private car – , public transport companies are feeling the difficulty of satisfying all of them with a unified service. Product segmentation (accompanied by price) is seen by many as one of the most promising routes to achieve better market penetration without giving up on the mission of providing accessibility to all citizens who require it.

KEY FACTORS FOR POLITICAL SUCCESS TODAY

The evolution of urban transport systems in European cities over the last decades has produced two problems that are the main causes of concern in urban transport policy [CEC1995, EC96]:

- Grave congestion problems in urban areas
- High levels of public money (subsidy) needed for operation of public transport

The fact is that the long duration of urban buildings and forms, associated with the fast increases in car ownership, have caused land use planning in our cities to be made on the basis of assumptions about shares of access by private car that were too low in comparison with what citizens of today would like to practise.

But urban space is a limited resource and (above a certain threshold) the higher is the number of private cars we have inside the cities, the lower are the fluidity of circulation and the global level of accessibility for all the population. This also affects the quality offered by public transport undertakings, in terms of travel time and frequency of service, the latter both in terms of average and of reliability.

As urban space becomes scarcer, and new conquests of road space are only possible on punctual situations, it becomes clear that the only effective way to reduce congestion is through

increases of public transport market share.

This is accepted by most political decision makers, but it is not clear how to achieve it without raising too much hostility (and losing votes) among car drivers. It seems that many drivers are willing to accept constraints to their freedom of movement in the areas where they perceive especially grave and systematic congestion, namely in the city centres. Thus, politically, market share of public transport is becoming geographically targeted, i.e., it is more important in some areas than in others.

For a relatively long period, it was believed that injecting more (public) money into public transport, drivers would be lured away from their cars back into public transport, and the congestion problem would be solved. This has again and again been proved insufficient, and both empirical and scientific results have shown that [Gwilliam, 1987]:

- ? subsidising transport consumption in general leads to an inefficient allocation of resources because people tend to travel more than they would if transport were subject to its full social costs, i.e. there is no need to minimise transport costs for all individuals;
- ? subsidy to public transport operators is often a source of "x-inefficiency"- cost efficiency not necessarily encouraged by the means of support;
- ? in the absence of any type of competitive pressure, operators tend to relax their performance both in quality of service provided and in cost efficiency.

This situation is reinforced by the creation of barriers to avoid new operators in the market. The arguments for this protection have been [Quin, 1990]:

- ? on the traffic technical side: "on-street" competition only creates more buses and even more congestion, but not a better service for the citizen than would be provided by a well planned one-operator network;
- ? on the management side: having several operators in an integrated network implies some passengers will have to ride multi-operator journeys, which raises the problem of revenue sharing among operators. Solution of this problem is expensive because it implies regular surveys.

So, in many cities, the solution of one single operator (or sometimes one operator per mode) is the prevailing one. This avoids the two former problems, but raises the question of avoiding lax behaviour on the productive efficiency side.

Whatever the regime defined concerning the existence of one or multiple operators, the importance of stable and clear rules for market access is recognised, since there are structural decisions and investments that operators have to make to improve their efficiency which are strongly affected by the fact that they have to operate in one or the other regime.

The main factors of political success in the definition and implementation of urban transport today are thus:

- Targeted market share
- Productive efficiency
- Stable and clear rules for market access

and the challenge for politicians is to define the legislative and regulatory framework and adopt the geographically specific measures that allow these factors to materialise.

Because of the role of the market share of public transport on the congestion affecting road traffic, and of the contribution of a stimulating regulatory framework of public transport for its commercial success, this framework has become one of the main instruments of urban transport policy.

Key factors of market share

Improving public transport market share requires that the citizens perceive this option as an effective alternative to the private car, namely in what concerns:

- flexibility (always there when is needed, allows its user to enjoy a door to door service, low level of ex-ante information required for its use)
- low perceived out of pocket cost
- comfort

To compete against an opponent with such attributes, public transport should be seen as an equally easy to use mode and offering a good relation between quality and price.

The ease of use perceived by users can be translated through the simplification of an originally complex product that requires previous knowledge of timetables, routes, connections, etc. [Morrison, 1996]. So to achieve this goal we need public transport to offer:

- Good information on the available options:
 - information tailored to each user (network “as seen from my place [TIS, 1996/7]), reducing the complexity of information to a level equivalent of that offered to car drivers;
 - information available for the whole relevant network, independently of which modes and operators are supplying the service;
- Stability of perception of service (long validity periods for timetables)
- System integration:
 - Easy route change
 - Easy use of different operators in the same trip
 - availability of interchanges where many connection alternatives are available
 - timetable co-ordination so that transfer times can be minimised
 - tariff integration both for frequent and infrequent users.

These measures of attractiveness have to be accompanied by both pull and push measures. Pull measures involve a strong participation of the operators, through well designed services, competitive price strategies and an increasing level of comfort offered to their customers. Push measures are in the domain of responsibility of the authorities, as they have to manage the balance of road traffic with public transport, so as to optimise fluidity of movement for the persons (not for the vehicles, as it is often the case).

Push measures are always inconvenient from a marginal driver's point of view: his/her degrees of freedom are curtailed. Evidence exists of political acceptance of these measures when they are obviously needed or when there is good public explanation of their justification [Tourneur, 1996]. On the other hand, there is no point in decreasing accessibility by private car through push measures, if in parallel, accessibility by public transport is not improved.

So, push measures being always perceived as risky, demand careful preparation at the levels of public information / justification and of technical planning of the traffic and public transport supply changes (which must also be well communicated beforehand).

Key factors of efficiency

For some time public transport has been accused of low levels of efficiency that cannot be justified only by less effective pricing policies and the negative impacts of subsidies. Efficiency of the system is one of the two main criteria of its economic and political appraisal, the other being equity.

Efficiency has to do with the overall performance of the system and not only with cost coverage. As such, it can be seen in different levels of definition of the system, being :

- Appropriateness of the goals defined with regard to the population needs.
- Definition and selection of products
- Combination of production factors
- Allocation of resources

There are two types of agents that intervene in this process - Authorities and Operators. Except where operators are free to create and abandon services according to their convenience (British cities outside London), the relationship between these bodies is based on the principal-agent formulation.

In this setting, the authorities (principals) try to define rules such that the operator (agent), when acting according to his own goals and interests, also satisfies those of the principal. Due to asymmetries of information this relation is rather complex and requires a clear attribution of functions and responsibilities.

Within the authorities we have two clearly separated functions:

- definition of political goals (political authority);
- translation of those strategic objectives into a product specification (management authority).

This framework requires a mature relationship between both types of authorities and operators (who provide the service according to the specifications defined) where co-operative risk management should be considered, and a good level of knowledge from both agents is desirable. It is interesting to note that currently European operators mostly feel satisfied with the conditions they have, but many of them expect their Authorities to change the regulatory framework in the next few years [ISOTOPE, 1996a].

Experience reveals that competitive pressure is desirable to assure the continuous improvement of the system. This pressure may be exerted in at least one of the two following forms:

- Periodic tendering: contestability introduced by the threat of non renewal of the contract;
- Benchmarking: introduces comparability and incentives and penalties schemes (and even the launching of tendering procedures) can be based on these results.

Key regulatory issues

Public transport like any other service is provided under a specific legal and regulatory framework that represents the umbrella under which all actors' decisions are made and activities carried out.

The main issues that influence the potential of the regulatory framework as a tool to improve the attractiveness of Public Transport use are:

- Clear identification of objectives and allocation of responsibilities between the agents
- Contractual incentives to stimulate innovation and the improvement of the system
- Maintaining competitive pressure over the system

The elements of the regulatory framework through which those issues can be answered are:

- Existence of a (directly or indirectly) competitive regime for the provision of product specification, network design, and system management.
- The number of operators allowed in the market is one of the basic conditions to maintain competitive pressure;
- The type of contract with operators can have three possible types, with several variants, and with different levels of involvement in what concerns risk sharing:
 - Gross cost basis where the authorities support the revenue risk and the operators the production risk
 - Net cost basis where the operator supports all risks
 - Management contracts where the authority supports all risks.
- Performance related rewards and penalties should be included in all contracts for both operators and authorities (as some push measures may have been identified as essential for improvement of efficiency and attractiveness)
- Definition of the commercial instruments available and who should be responsible for their implementation

DESIGNING A GOOD REGULATORY FRAMEWORK FOR URBAN PUBLIC TRANSPORT

All of the issues mentioned in the preceding paragraphs have some political implications, which implies that no regulatory model can be considered as the "best" model, since local conditions do have a strong impact in system performance. This means that political decision makers should look for the "best fitting model" instead.

For this mission, looking at the existing and already implemented models, although essential, is not enough. Importing a model without considering the differences between the origin and destination urban (and political) environments is always a dangerous procedure when taken straightforward.

We believe that a successful scheme will in most cases imply some form of adaptation from existing models, which could be facilitated by the development of an analytical design and evaluation tool that scans the whole decision process and considers the impacts of each elementary decision on every goal (of political, social or economical level), as well as the reciprocal implications of those elementary decisions among themselves.

We stress that there is a policy dimension to the choices made about the regulatory system for public transport, and thus we do not expect such a computer model to generate automatic ideal solutions. But the complexity of the system, expressed in the number of partially conflicting goals it pursues, and in the interactions between elementary decisions, calls for an instrument that helps see those relations in a clearer light, and promotes rational discussion over the repeated public expression of slogans. In the framework of the ISOTOPE project, we are developing a prototype of such an analytical tool.

CONCLUSIONS

We have shown that the mission and political setting of urban public transport is changing. Is it no longer essential for most citizens, although it is important for us all that many (preferably others) use it in order to relieve congestion.

For a long time it was believed that keeping car drivers as users of public transport could be achieved through pumping more money into the system, but this proved expensive and ineffective. The trend today is for a more efficient and market responsive public transport system, that still has to cater for the needs of the captive users but has to be capable of attracting, through good service, other, non-captive users.

Efficiency is needed in product (network) design and planning, as well as in the actual delivery of the product (operation). The complexity of this product requires special attention to the provision of information that makes it reliable and easy to use.

In all of these dimensions, direct or indirect competitive pressure is an important instrument in favour of efficiency, although it is more often applied to the phase of operations, where the economic considerations are of a bigger dimension. But the consequences of an improved network design may be even greater, although less directly attributed to their source.

Different types of contracts with operators reflect the preference of the authorities for the control of some aspects of the service, as well as for the level of risk they wish to pass on to those operators. But they also have consequences on the level of capture of the authorities by the operators over the period of execution of those contracts. In general terms, the higher the risk passed to the operator, the more competence is required on his side, which should be accompanied by a higher level of competence on the side of the authority if it is not to be captured by the former.

It is clear that local political and urban environment conditions have such a high level of influence on the feasibility of some options and on the relative weight of multiple factors that no "best system" should even be searched for. But we believe that a systematic work of analysis of "quality of fit" of a regulatory framework to a given city may be done and is indeed desirable, since it will facilitate the perception of inconsistencies as well as the implicit levels of importance being given to some goals in relation to others.

REFERENCES

BLY, P.H. and OLDFIELD R. (1985), "Relationship between Public Transport Subsidies and Fares, Service Costs and Productivity, TRRL, Research Report 25

COMMISSION OF THE EUROPEAN COMMUNITIES (1992), *The future development of the common transport policy - a global approach to the construction of a community framework for sustainable mobility*, COM (92) 494.

COMMISSION OF THE EUROPEAN COMMUNITIES (1995), *Towards fair and efficient pricing in transport - Policy options for internalising the external costs of transport in the European Union*, COM(95) 691, Green Paper

EUROPEAN COMMISSION (1996), *The citizens' Network - Fulfilling the potential of public passenger transport in Europe*, Office for Official Publications of the European Communities, ISBN 92-827-5812-5.

GWILLIAM, K.M. (1987), "Market Failures, Subsidy and Welfare Maximisation", in *Transport Subsidy* edited by S. Glaister, Policy Journal.

ISOTOPE (1996), EU 4th RTD framework, WP3 Report on Economic Research, (Unpublished).

ISOTOPE (1996a), EU 4th RTD framework, WP2 Report on Political Research, (Unpublished).

QUIN, C. and HOUÉE, M. and Méyère, A. , (1990) "Le financement des transports collectifs urbains dans les pays développées", Ministère de l'Équipement, du Logement, des Transports et de la Mer.

MORRISON, A. (1996), "Alternative information technologies for the provision of spatial information to public transportation passenger in France, Germany and Spain", *Transport Reviews*, vol 16-n°13, pp243-271

TOUNEUR M. (1996), "Strasbourg – Le Transport Public et la Gestion globale des déplacements", in T.I.S seminar 1996 "Success stories in Public Transport" Oporto.

T.I.S. (1996/7), "Switching to Public Transport" research project promoted by UITP)

UITP, Eurobarometer survey reports.

WORLD BANK (1996), "Sustainable Transport".