



IMPRINT-EUROPE

Implementing Reform in Transport

Effective Use of Research on Pricing in Europe

An European Commission funded Thematic Network (2001-2004)

Integration of Freight in Urban Pricing Schemes

**Dieter Wild (PTV AG)
BEST Urban Freight Solutions (BESTUFS)
Thematic Network**

This essay was prepared for the second seminar of the IMPRINT-EUROPE Thematic Network: "Implementing Reform on Transport Pricing: Identifying Mode-Specific issues", Brussels, 14th/15th May 2002

Summary

This paper written for IMPRINT [IMPRINT, 2001] addresses the concerns of the freight transport with respect to urban pricing schemes. The viewpoints of the transport stakeholders, the limited reaction possibilities within the goods collection and distribution processes as well as the cities interests are presented for the different pricing motivations: the fair charging of infrastructure cost, the charging of external cost, the reduction of negative transport impacts and the influencing of the demand. City administrations would need to pay more attention to freight transport thereby having a model in mind or at hand about the freight transport processes and its influencing parameters. The important role of the urban goods supply is not enough recognised by the European citizens. Urban pricing schemas might impose additional problems to transport operators beside the fee itself: there are additional cost for the access equipment, the access procedures and the accounting processes; the transport equipment renewal cycles have to be taken into account; vehicle type or operation restrictions change the transport planning optima and can increase the environmental impact; new and probably more complex private freight transport pricing schemes are needed and finally there might occur strange situations at pricing boundaries or with respect to the distinguishing between freight and passenger transport. Justifying the objectives of potential new pricing schemas especially for the freight transport, harmonising the freight transport taxation and pricing in Europe and making the overall public freight transport taxes and cost (sources as well as expenditures) transparent are important steps towards a fair and efficient transport pricing.

1 Introduction

Before introducing an urban pricing scheme as e.g. road pricing or city access pricing it is needed to consider both the interests of the affected user or interest groups as well as the expected consequences for these different groups. Furthermore, it is helpful to analyse potential pricing schemes from the perspective of different transport fields. One of these fields is the commercial transport¹ where the freight transport has a major share. This paper is addressing the viewpoints of the urban freight transport with respect to urban pricing schemes. The commercial non-freight motivated transports would need to be further analysed regarding potential substitution possibilities before transferring any of this papers arguments into this domain. First clear and dominant characteristics of the freight transport to be kept in mind while addressing urban pricing schemes are that urban freight deliveries cannot be substituted – the good has to be moved to its destination – and can hardly be reduced with optimisations in the relevant parts of the logistics chains. Furthermore, it is not possible with reasonable effort to reach a considerable shift of urban goods transports

¹ These are all transports which are performed within a business (commercial freight transport, service technician movements, movements of other service providers e.g. sales or insurance representatives, etc.); Neither the public transport movements e.g. of buses and taxis are included in this group nor the commuter flows of the employees.

to other non-road modes, as e.g. via tubes or rail-based approaches. We have and we will have to live with smaller or larger transport vehicles on our streets.

The thematic network BESTUFS² is focussing on urban freight transport and in November 2001 a workshop took place in Genova (Italy) addressing “City access fees and urban pricing: What are the consequences for urban freight transport?”. The workshop participants represented all the different stakeholders involved in urban freight issues including also the European Commission policy level, academic experts, researchers in this field and finally economists with expertise in pricing schemes. The arguments of the controversial and in-depth discussions at this workshop [NEA, 2001] were a valuable input for this paper as well as the draft report of the BESTUFS Best Practice Handbook Year 2002 [Egger and Ruesch, 2002]. This Best Practice Handbook analyses and summarizes European and National projects and other available material with relations to freight transport pricing.

2 Pricing motivation

There are several motivations to introduce urban pricing schemes and one possibility to approach the relationship with freight transport is to do it motivation by motivation.

Fair charging of infrastructure cost

The construction and maintenance cost of the transport infrastructure must be financed and the current policy directive to involve mostly or only those actors who use and take advantage of the mentioned infrastructure must be appreciated. The size and weight of transport vehicles is correlated with these cost: larger vehicles need more space and a more robust construction and lead to higher maintenance effort. As a consequence the infrastructure charge for goods vehicles should be higher compared to the private cars. The infrastructures to be charged can be rather limited in scope but also rather wide. The best known examples are charges for single tunnels or bridges, e.g. for the new Öresund bridge. A very successful example for an urban pricing scheme motivated only by new infrastructure plans is the Norwegian City of Trondheim. The financing of an urban ring-road was based on a city access fee where the freight transport user groups were accepting this measure because of their expected advantage out of the new infrastructure.

Financing transport infrastructure is always also seen from a national perspective. Historically the infrastructure is mainly financed from taxes, where the general tax, the vehicle tax and the fuel tax lead to differing weak solutions with respect to their fairness. These taxes need to be adjusted when introducing additional transport pricing schemes. Within Europe there is anyhow a considerable unfairness regarding

² BESTUFS (BEST Urban Freight Solutions) is a European funded thematic network addressing urban freight transport and it is lasting 4 years from 2000 to 2003. Information about BESTUFS and all results are available at www.bestufs.net.

these financing instruments. Every country has its own approach to charge differently own and foreign infrastructure users. The European Commission being aware of this situation clearly addressed this problem in its White Papers “Fair payment for infrastructure use: a phased approach to a common transport infrastructure charging framework in the EU” and “European transport policy for 2010: time to decide” [EC, 2001] and proposes to replace existing (flat) transport taxes by more efficient instruments.

The understanding and acceptance within the freight transportation user groups regarding urban pricing schemes for infrastructure financing is high, provided that it does not direct towards unnecessary luxury investments or towards an infrastructure which cannot be used or is even forbidden for freight. Improved road surfaces, new urban ITS installations or a new link reducing the travel times are appreciated especially by those commercially active, because these measures reduce their equipment or operation cost or improve the drivers working conditions.

When the pricing scheme pretends to aim at infrastructure but on the other hand cannot make it transparent how the additional income is or will be spent then there can be no acceptance assumed anymore. The commercial actors are continuously optimising their business and are thereby extremely aware of cost sources and cost relationships.

Charging external cost

In a simplified approach the cost of transport can be split in three different groups: the cost for the transport enabling infrastructure as discussed above, the cost for the transportation means including its operation and finally the external costs, which receive more attention now due to the discussion about the marginal social cost. The cost for the transport means and the transport operation are in general³ directly assigned to the relevant users – at least for the commercial transport. A controversial discussion started about the on the one hand in principle correct assignment of the right share of external cost to those who are causing them and on the other hand practical problems to calculate their total sum as well as a right share. The EC announced a framework directive in 2002 including a “common methodology for setting price levels which incorporate external costs and which will specify the conditions for a fair competition between modes” [EC, 2001]. As long as these attempts try to balance cost and improve the costing transparency there will be a common acceptance, but as soon as there arise new additional external cost a wider political discussion will start about its necessity and its economic effects. These additional costs would finally have to be paid by citizens or even by every consumer and thus would become an additional tax.

Because of the missing transparency linking individual transport movements to external cost there is only very limited acceptability among freight actors. A pricing scheme based on external cost would be recognised as additional tax or even as a stealth tax [Guttridge, 2001]. While there is a revenue or enabling

³ Public transport is an example for an exception.

factor (e.g. with a new link) given by the infrastructure pricing there is no advantage here for the urban freight transport partners.

The first two motivations “Fair charging of infrastructure cost” and “Charging external cost” aim both in the direction of a fair and efficient pricing. In its pure forms there is no explicit wish to change transport patterns, to shift transport modes or to renew transport means⁴. The following motivations are addressing directly these aims.

Reducing negative transport impacts

Not so much the value of the external cost is driving the urban political discussion but much more the directly perceptible negative “impact” of transportation or the recognised living conditions in metropolitan areas. Air and noise pollution together with safety are the main factors in this respect and freight transport vehicles play a dominant role here due to their size and weight. Urban pricing schemes can now be established favouring environmentally friendly vehicles using innovative technologies with less impact and this is implemented with the aim to increase the overall share of “cleaner” vehicles and thus to improve the urban living conditions.

Emission pollution:

Thanks to the Euro-Norms the overall emissions decreased already considerably while Euro-4 is even not yet obliged in 2002. Commercial vehicles are often ahead in using new environmentally friendly technologies. Access restrictions in several European cities actually exempt concrete propulsion techniques (most of all electrical vehicles, see [ELCIDIS, 1998]) while urban pricing schemes could be more detailed considering different pricing levels⁵.

Noise pollution:

Noise will become more dominant in the future. The sensibility regarding noise is continually increasing. While there are accepted procedures to measure and determine the noise level of a single vehicle in general there is missing a standardised way to measure noise in an urban context. There are access regulations indirectly linked to noise, e.g. assuming that electric vehicles are quieter than others and there are innovative access regulations based on a concrete noise level e.g. a currently discussed upper limit of 60-65 dB to allow night deliveries (also known as 24 hours delivery) in Dutch cities.

From the viewpoint of the freight transport the “reducing negative transport impacts” objective of urban pricing schemes makes the pricing approach to an interesting instrument for city administrations. In contrast

⁴ Nevertheless, it can be expected that the transport patterns (structures) adapt to this more efficient pricing schemes.

⁵ Care must be taken to the practicability of the pricing structure, the charging process and the enforcement. All parameters influencing a final price must be controllable.

to the traditional instruments (access limits related to vehicle sizes) which show a binary characteristic (allowed – forbidden) the pricing allows a much more flexible approach⁵ to influence local transport fleets and the gradual shift towards innovative technologies.

The commercial freight transport user groups understand this motivation in general, provided that all transport means (cars, public transport etc.) are addressed, but the acceptance or non-acceptance must be seen case by case and depends e.g. on the way the pricing scheme is introduced, the planning horizon given to react before the measure is effective, the price sensitivity and possible related incentives.

Influencing the demand

Congestion is an increasing problem since years in European cities and it can be seen as the main reason why first cities have started to think about urban pricing schemes. Congestion leads to additional external costs, makes travel times less predictable and reduces the attractiveness of a city both for visitors and citizens. Freight transport must be seen more as a victim and less as a source of congestion. There are severe negative effects for the freight transport due to saturated and congested urban areas:

- the transport planning process is less reliable
- the number of stops per day and per vehicle decreases with increasing travel times (leading finally to more km driven per consignment)
- the ETA (estimated time of arrival) is less reliable for consignees/consignors
- unproductive time of vehicle and driver leading to additional cost
- more vehicles and driver time needed compared to the free flow due to in congestion bound resources (leading to additional cost)

Demand management by urban pricing schemes first of all addresses individual passenger transport. Wherever an alternative for individual transport is given by public transport supply it is a common political will to shift passengers from the private to the public mode. As stated already in the introduction: for freight transport there is not really a substitution possibility neither in the mode nor in the volume. There is hardly a demand elasticity and therefore any demand pricing for freight is either useless or leading in unwanted directions (see later arguments e.g. comparing small urban retailers with large shopping centres out of the city). The situation changes when inter-urban freight transport is addressed: intermodal transport alternatives exist and pricing schemes as already implemented in Switzerland or as planned in Germany exclusively address freight transport. The aim is here to shift transports to non-road modes, to reduce avoidable long-distance transports and to change logistics concepts on the basis of a fairer and more efficient pricing.

Out of the above mentioned negative effects of congestion it can be assumed that commercial actors would profit from less congestion and therefore from congestion charges e.g. as the one currently discussed in

London. Due to the fact that they probably themselves have to pay a charge including all administrative and operational burdens of such a charge makes it difficult for them to see an overall benefit. Furthermore, the demand elasticity for passenger transport is not well known and possibly the congestion will nevertheless remain. Then there would be no advantage of less congestion but a lasting charge. City administrations suffering continuously of empty budgetary funds would appreciate the additional income⁶.

The currently in Europe discussed urban pricing schemes address several of the above listed objectives in a mixed form and there is not enough transparency given about the share of concrete motivations and the use of the revenue. This makes criticism and argumentation rather difficult, especially for user groups or transport segments.

3 Urban freight status

BESTUFS continuously remembers that there is not enough care given to urban freight transport from the city administration side [Ruesch and Glücker, 2001]. There are city transport planners responsible for the transport infrastructure, for the individual traffic and for public transport. Only little attention is paid to freight and therefore it is not astonishing that there is hardly data available about urban freight activities and an insignificant number of freight transport models in use. Urban pricing measures are not or not enough anticipated from the planners side with respect to freight transport. The remaining alternative for cities in order to take into account freight transport aspects is to contact chambers of commerce or freight transport associations and ideally start public private partnership processes.

A wide range of goods for sale, fast and efficient freight transport chains and smooth freight movements are vital and important elements of our modern cities. The attention and role given to freight transport is not accordingly – neither from the administrative nor from the citizens side. Why is passenger transport subsidised and freight transport isn't? Increasing individual "mobility" is seen as welfare and a high value in a modern society while the "availability" of goods in the right amount, at the right place and the right time is seen as a profit objective of commercial actors. Especially in urban areas are the private citizens those who finally submit or receive the goods and they are the ones who finally pay for the inherent transport. Charging urban freight transport without any compensations finally leads to higher goods (transport) prices to be paid by the citizens. This has several negative side effects: the small retailers in city centres become even less competitive compared to large retail outlets in the vicinity of the cities; the ongoing tendency of citizens to move and to live outside of the city centres is strengthened; the attractiveness for external shopping visitors is decreasing and is becoming crucial for neighbouring cities in competition⁷. These arguments are freight

⁶ See experiences with parking management.

⁷ Many medium sized German cities have had parking fees for the last years and are now changing back to free parking access in order to attract (shopping) visitors.

transport based and should in no way be generalised: A less congested city with clean distribution vehicles as perhaps reached by a pricing schema would certainly be more attractive both for the inhabitants and the visitors.

4 Transport operator concerns

There are several concerns of freight transport operators with respect to urban pricing schemes which are presented in the following. All concerns are assuming that also freight transport is charged within the schemes.

The price as directly charged for the urban access is just part of the overall additional costs. The operators have in addition to cover the costs for any access equipment, for the access time (if there is a delay) and for the accounting processes. These additional costs are depending on the pricing area and the pricing form (e.g. per access, per day, etc.).

Care must be given to the equipment renewal cycles of freight operators. Any technology sensitive pricing schema must be announced and decided right in time before its introduction in order to allow operators to adapt their renewal plans and to optimise their fleet based on the new conditions.

Pricing schemas as well as access restrictions addressing directly or indirectly the major vehicle characteristics or the operation time windows fundamentally affect freight transport (optima). Major characteristics are: max load weight, max volume and the operation range (e.g. max 30 km for an electric vehicle). When the transport of goods needs to be organised (planned) differently due to the different vehicle characteristics or the changed operation time windows, then the optimal transport plan will be different, the transport cost will change as well as the external effects. An often referred simple example is explaining these differences: A weight limit might change an optimal transport solution with one tour of a large vehicle to a new solution where 3 tours with small vehicles are needed. Less known are the effects of delivery time windows where Kunze [Wild and Kunze, 2001] planned two different scenarios for a real business situation with a commercial trip planning application. Without time restrictions the 559 orders could be delivered within 20 trips resulting in total 2840 km while imposing a delivery time window of 1 hour would result in 114 trips and 9605 km driven. While transport operators are aware of these effects, because it is part of their business to find optimal transport solutions under various conditions, those discussing about pricing or city access often aren't. Any measures should be analysed, simulated and assessed also from the (freight) transport planning viewpoint before deciding about its possible realisation.

Transport prices are following settled pricing schemas. Whenever the transport costs of a part of the supply chain change, an operator must decide if and (if yes) how to adapt his individual pricing schema. E.g. a schema with a constant transport price for a region including a city must now either increase the price for the whole region due to a new city access fee or the region might be split into two new areas: the city and its outer areas. The price building complexity might grow, taking again the transport planning options into

account. As a consequence the additional costs might change as well (new regions to be introduced in the software, information campaign to inform customers, etc.).

Urban pricing schemas are bound to concrete geographic boundaries, where cities decide if a street belongs to an area priced or not. This might impose additional problems in “frontier” locations, e.g. when the general entrance of a retailer is out of the area while the freight loading zone is within [Guttridge, 2001].

Finally, the question on user group differentiation is raised. When a pricing schema shows different prices for freight transports, passenger transports or other user groups then the differentiating elements can lead to unfair situations or even to strange niche transport forms. For freight it must be taken into account that also regular cars are freight transport means and that also private persons do freight transport.

5 Conclusion

The freight transport plays a major role in our metropolitan areas for the economic vitality as well as for the individual goods supply of all citizens. Efficient private transport services are installed and they are based on locally grown structures adapted to given different infrastructures and regulations. Freight transport must therefore be explicitly considered when discussing about urban pricing schemas and it would be wise hereby to involve freight transport experts able to show the possible consequences. These consequences should then be matched with the pricing scheme motivations to assess the potential contributions of freight. City administrations must not only rely on experts from the private side but are advised to establish or to increase their own expertise in (urban) freight transport processes.

Justifying the objectives of potential new pricing schemas especially for the freight transport, harmonising the freight transport taxation and pricing in Europe and making the overall public freight transport taxes and cost (sources as well as expenditures) transparent are important steps towards a fair and efficient transport pricing.

References

- [EC, 2001] European Commission, *European transport policy for 2010: time to decide (White Paper)*, 2001, europa.eu.int/comm/energy_transport/en/lb_en
- [Egger and Ruesch, 2002] Dieter Egger and Martin Ruesch, *Best Practice Handbook Year 3*, BESTUFS Deliverable D2.3, Draft version available, Final version expected in January 2003, www.bestufs.net
- [ELCIDIS, 1998] ELCIDIS - ELECTRIC VEHICLE CITY DISTRIBUTION SYSTEMS, EC co-funded project, 1998-2001, www.elcidis.org
- [Guttridge, 2001] *Congestion Charging – The operator’s view*, J. Guttridge, Presentation at the 6th BESTUFS Workshop, Genova, Italy, 8-9 November 2001, www.bestufs.net

- [IMPRINT, 2001] IMPRINT-EUROPE, EC funded Thematic Network project to promote the implementation of fair and efficient transport prices, 2001-2004, www.imprint-eu.org
- [NEA, 2001] NEA Transport Research and Training, *City access fees and urban pricing: What are the consequences for urban freight transport?*, Minutes of the 6th BESTUFS workshop, Genova, Italy, 8-9 November 2001, www.bestufs.net
- [Ruesch and Glücker, 2001] Martin Ruesch and Claudia Glücker, *Best Practice Handbook Year 1*, BESTUFS Deliverable D2.1, 2001, www.bestufs.net
- [Wild and Kunze, 2001] E-Commerce & Trip Planning, Dieter Wild and Oliver Kunze, Presentation at the 4th BESTUFS Workshop, The Hague, The Netherlands, 10-11 May 2001, www.bestufs.net