

COMPETITION AND COOPERATION IN LOCAL PUBLIC TRANSPORT: REALISTIC SCENARIO OR JUST A FANTASY?

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ABSTRACT. *For decades, local public transport (LPT) has been losing its market share in intermodal competition. For this reason, and given its particular economic and ecological significance, action needs to be taken to counter this trend. In this connection, above all, two goals which should be aspired to will be outlined in this paper: the coordination of the range of services offered as a result of local transport companies working together to enhance the attractiveness of LPT and the implementation of competition in local public transport. This raises the question of whether these two goals can be achieved complementary given the conditions that exist in LPT or whether competition and cooperation among the transport companies do not instead cancel each other out. Bearing this issue in mind, this paper will analyse the two organisational forms applied in practice in LPT: the “3-level model with tendering competition” and the “deregulated market”. In this context, focus will be given to public road passenger transport. Analysis has shown that fully deregulating the local transport markets would further weaken LPT. In contrast, the “3-level model with tendering competition” could prove to be a suitable organisational model for LPT if the public transport authorities observe certain criteria when implementing this model.*

KEYWORDS: local public transit, deregulation, competition, cooperation, social dilemma

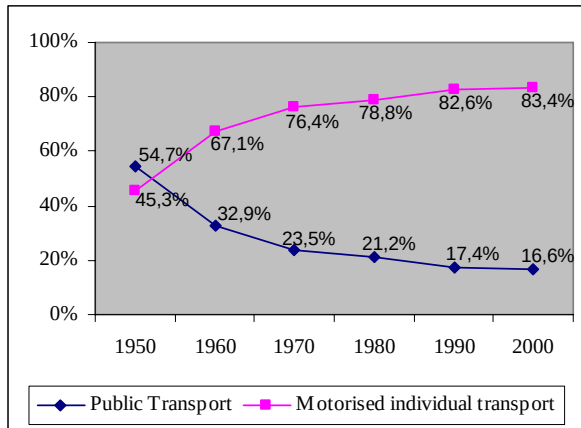
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Introduction

Over the past few decades, local public transport has gradually lost its market share in intermodal competition to motorised individualised transport. Whilst, for example, the modal split proportion¹ of railways and public road passenger transport in Germany came to over 32.9% in 1960, it had fallen to below 16.6% by the year 2000 (Federal Ministry of Transport; Building and Urban Affairs, 1991). However, this trend was not merely limited to Germany, but indeed very similar patterns occurred throughout the EU area, as illustrated in Figures 1 and 2.²

¹ Percentage distribution of transport volume across the various carriers.

² For reasons of transparency, aviation was not taken into account; its share over the entire period was below 0.2%, however. Taxi and rental car transport has been assigned to motorised individual transport.



Sources: Own conception, data from Federal Ministry of Transport; Building and Urban Affairs, 2002 and Federal Ministry of Transport; Building and Urban Affairs, 1991

Figure 1a: Development of the modal split proportions in passenger transport in Germany (1950-2000)

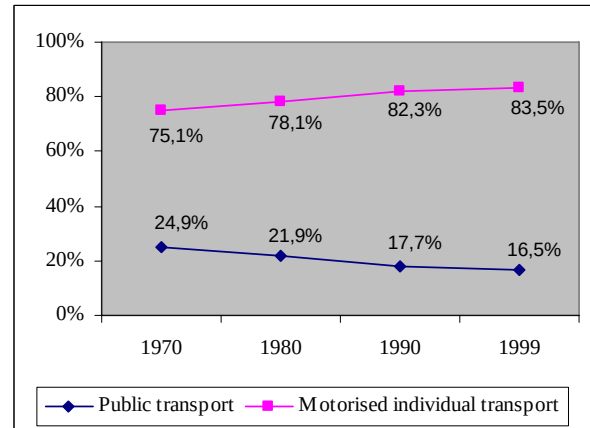


Figure 1b: Development of the modal split proportions in passenger transport in the EU (1970-1999)

Being part of public passenger transport, *local public transport* (LPT) is also affected by this trend. Given the particular economic and ecological significance of LPT for communities, towns and local authorities, action needs to be taken to sustainably increase the modal split proportion of local public transport or to consolidate it at its current level at least (Yvrande-Billon, 2006). In addition to politics, that should create better general conditions for LPT through the greater integration of traffic planning into regional development and area planning, the players on the local transport market are, first and foremost, called upon to strengthen LPT in the face of motorised individual transport by taking suitable measures (European Commission, 1995).

Improving the coordination of the services offered by the transport companies operating in the region is a significant aspect in this context. Consequently, in terms of meeting customer needs as best as possible when using LPT, attempts should be undertaken to organise the transfers as smoothly as possible by utilising timetables which are coordinated intramodally and intermodally (integrated timetables) (Pucher et al., 1996; European Commission, 1995). Most recently, the introduction of and/or shift to (highly) integrated timetables has become increasingly apparent in Germany. The lasting success of such timetables can only be ensured, however, if the transport companies involved in the LPT of a region cooperate and work together towards this goal.

In addition to the need to coordinate the range of transport services as ideally as possible, another transport policy goal has increasingly gained in significance for LPT at the initiative of the European Commission: the implementation of market mechanisms and competition. As part of the envisaged realisation of a Single European Market, the European Commission intends to extend the liberalisation and deregulation of the telecommunication and energy sectors to cover other network sectors – one of these being LPT. Through increased competition and by raising efficiency in local transport, it is hoped that the public transport authorities can be disencumbered; at the same time, the Commission is striving to achieve lower prices and an improved range of services for the customers (European Commission, 2005; Scheele et al., 2000).

From the aforementioned need for coordination in the shape of cooperation - with a view to strengthening LPT in the light of motorised individualised transport and competition that is to be implemented in the mid-term - comes a dual objective for LPT. This begs the regulatory

policy question as to whether the organisational models in LPT which are found in practice and are of relevance to this paper – the *3-level model with tendering competition* and the *de-regulated market* model – ensure that the goals of competition and cooperation ("coopetition") can be achieved complementary (Bengtsson et al., 2000) or whether competition and monolithically integrated services cancel each other out within the bounds of these models ("destructive competition") (van Reeve, 2003)?³

The significance of cooperation among competitors was the subject of a study by Hamel, Doz and Prahalad (1989) almost 20 years ago. Chien and Peng (2005) as well as Bengtsson and Kock (2000) have also addressed the issue of "coopetition" in their works. However, they all have in common that their respective analyses relate to strategic alliances either between industrial companies or within networks of industrial companies. The particular aspects of a network industry in which LPT should also be classified were not the subject of the studies. In this context, the major difference between LPT and, for example the motor industry, is, however, that cooperation in LPT is not only beneficial to the individual transport companies but, given the networking effects in an LPT network, is of benefit to all local transport and is dependent on cooperation.

Although LPT-specific literature does address the fact that insufficient cooperation between the market players poses a problem for local transport (Klein et al., 1997; Vuchic, 2005), it does not question further whether or not the envisaged cooperation is at all attainable and therefore whether it can be expected in a competitive environment within the bounds of the organisational models applied in practice.

This paper seeks to reduce the gap identified in the research work. In this connection, the paper will focus on public *road passenger transport* as part of LPT.

Following a brief outline of the two aforementioned organisational models in the next section, the paper will go on to describe the method of analysis applied to the models in terms of achieving the complementary goals with respect to cooperation, competition and the analysis itself. After this, the findings of this theoretical analysis will be compared with the practical experiences gained in Great Britain and Sweden with the relevant organisational models with respect to the ability to unify coordination and competition in public road passenger transport. Taking these findings into consideration, the conclusion rounding off the paper will derive recommendations for a suitable organisational model that accounts for both the need for cooperation and the call for competition.

1. Organisational models in local public transport

1.1. The 3-level model with tendering competition

The fundamental principle and main difference between the 3-level model and the traditional organisation and implementation of LPT through governmental institutions is the division of the levels of financing, planning and running of local transport (European Commission, 1995). With this, the model is in keeping with the concept of *New Public Management* which requires a division between the financial backer of the service, the purchaser of the service and the provider of the service (Schedler et al., 2006). In this context, Schedler (2007) also speaks of a "contract model". The strategic decision level, and therefore the determination of the long-term goals of LPT and the provision of the requisite funding is the responsibility of politics (funding level). A key tool in this connection is the *local transport plan*, with which

³ The other organisational models found in practice, *fully state-controlled drafting* and the *3-level model with single tender action* hold any or barely any competitive elements. As they therefore do not per se fulfill either of the two objectives being examined for compatibility, they do not form part of any further study.

politics expresses its objectives with respect to LPT. The tactical level, which is formed by the municipal transport authorities of LPT (planning level), is responsible for the mid-term implementation of the local transport plan. At this tactical decision-making level, decisions on the type, design and purposeful use of the measures are made with a view to achieving the goals prescribed by the local transport plan. In concrete terms, at this level, the routes in an LPT network and their frequency are determined; the requirements for the timetables prepared, for example, and the fares payable for using LPT established. To implement these requirements, the municipal transport authorities order the corresponding transport services from the local transport companies which work at the operative level (Lehmann, 2000).

In this connection, for the model which is of relevance to the underlying issue here, it is of vital importance that the conclusion of a transport service contract between the municipal transport authorities and local transport companies is preceded by an invitation to tender. Only by using the invitation to tender-instrument does the competitive situation emerge which is necessary to conduct further analysis (Cambini et al., 2003). Having conducted the invitation to tender and concluded a transport service contract, the market is again closed to the competition since the binding implementation of the central bid planning presupposes the prevention of unplanned market access. As a consequence, competition only emerges during the invitation to tender-stage (*competition for the market*); upon conclusion of the transport service contract, the successful transport company is sheltered from any competition.

For later analysis, the assumption made in this paper that using the 3-level model with tendering competition will achieve the goal of coordinating the bids made by the transport companies operating in the region with respect to the lasting success of the highly synchronised timetables is of importance. This is substantiated by the existence of the tactical level at local public authority level described above, which – by incorporating reward and sanction mechanisms into the transport service contracts – can ensure cooperation among the market players and therefore adherence to the highly synchronised timetables. As a result, Fehr and Gächter (2000), for example, have shown through experiments that, with the help of sanction mechanisms, the degree of cooperation among individuals can be raised significantly.

Assuming that cooperation among the market players is ensured, it remains to be seen in the context provided here whether sufficient competition can be guaranteed within the bounds of the 3-level model with tendering competition.

1.2. The deregulated market model

The prevailing fundamental principle of the organisational model of a deregulated and liberalised market is that market access for the potential local transport companies, in terms of the economic market access restrictions, is fully deregulated and liberalised. In contrast to the 3-level model with tendering competition, there is no legal protection from the competition. In place of the competition for the market, i.e. to win over the planning and licensing authorities, *competition on the market* emerges and, by the same token, competition for the passengers. The starting point of this model is the notion that, even in LPT, not only the development and provision of services are entrepreneurial tasks but also the planning and design of the range of services. Strictly dividing into the centralised public planning of the range of services provided by LPT and private provision such as is the case with the 3-level model is not therefore envisaged in this model; both tasks are taken on by the transport companies operating on the market (European Commission, 1995).

For the purposes of analysing the complementary attainment of goals with respect to cooperation and competition, the following analysis will assume for the deregulated market model that the achievement of the objectives relating to competition is in place. This is founded in the model itself which seeks to generate competition as its sole objective. Given the focus on

public road passenger transport, the problems arising in connection with issues relating to rail transport, such as discrimination when it comes to accessing the infrastructure or high sunk costs, do not occur since the road infrastructure is usually publicly owned and can be used by all market players to an equal extent without having to make cost-intensive infrastructure investments (Vuchic, 2005). Instead, an analysis will be made as to whether cooperation among the transport companies concerned can be expected on a deregulated public road passenger transport market with a view to achieving coordinated and integrated timetables.

2. Analysis of the complementary attainment of goals

2.1. Description of the method

The aim of the analysis conducted in the following sections is to examine how the two organisational models presented here can be assessed in terms of the goals of cooperation and competition. As already outlined, this paper assumes that both the 3-level model with tendering competition and the deregulated market model each ensure that one of the two envisaged goals is reached. The aim of the analysis is therefore to examine whether, when applying the two organisational models, it can be expected that the other goal can be achieved (see Figure 2).

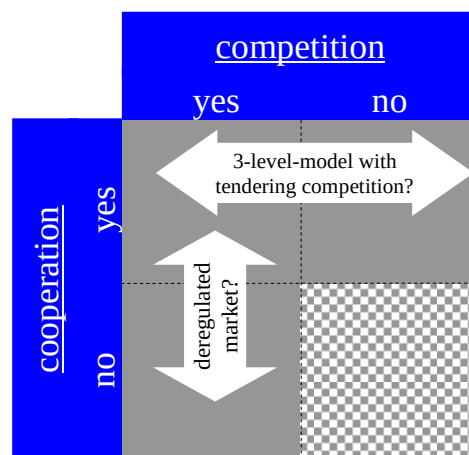


Figure 2: Subject of analysis

As a theoretical framework for evaluating the anticipated willingness of the local transport companies operating on the market to cooperate on a deregulated public road passenger transport market, an approach will be sought which deals with the analysis of the strategic decision-making situations of the (market) players. The various variants of the game theory provide an instrument that can further help to assess the cooperation potential. In concrete terms, the *theoretical approach of the social dilemma* will be taken for the context given here. The social dilemma approach was originally developed in order to analyse social problems and issues which are associated with the self-interest actions of individual groups resulting in socially sub-optimal conditions (Dawes et al., 2000).

In contrast to the prisoners' dilemma approach which finds widespread use in economic literature, the social dilemma approach offers the possibility of including both more than two players and more than two strategy alternatives: "In a social dilemma, the strategy space of any player is a continuum, whereas in a prisoners', it typically has just two elements, [...]" (Eaton, 2004, p. 806). Both aspects are of relevance to this paper since, on an LPT market, more than two players usually operate and more than two strategy alternatives are required.

In answering the question as to whether, by applying the 3-level model with tendering competition, the envisaged competition can be achieved, with the positive effects that it brings for public road passenger transport, the criteria derived from expert literature for a properly functioning competitive situation on the market will be taken. This paper will examine whether the criteria for public road passenger transport can be seen as being fulfilled and whether true competition can be expected in the 3-level model.

2.2. *Tendering in public road passenger transport: The road to true competition?*

Relevant literature refers to a variety of criteria which are required in order to evaluate whether using invitations to tender can produce the positive effects for the markets concerned. The following analysis examines whether these criteria can be met on the public road passenger transport market and whether sufficient competition can be expected.

An essential requirement for achieving functional competition for the market has been provided by Demsetz (1968). He believes it is vital that all potential competitors must be afforded the *same access to the input factors required for production* to prices determined on the market. This is intended to eliminate any distortion of competition. With respect to *infrastructure*, the requirement mentioned by Demsetz is deemed to have been fulfilled in public road passenger transport. The road infrastructure is publicly owned, which does not levy any direct user fees for its use. In contrast to rail transport, no discrimination therefore occurs. The story is very different when it comes to the *suprastructure* where there is a risk of competition being distorted. Many former publicly owned transport companies have, as part of their privatisation, kept their favourably situated suprastructure. This can mean that the corresponding companies reap cost benefits over their competitors (Lehmann, 2000).

Cox (2003) has established the understandable condition that the *number of bidders for a licence* must be *correspondingly large* in order to achieve true competition. In this context, the question that begs to be asked is to what extent *economies of scale* and *economies of density* play a role in public road passenger transport and therefore only a few large suppliers are expected on the market. Economies of scale exist in public road passenger transport to the extent that operating several routes is linked to making better use of the fleet and personnel. Economies of density are also of relevance to public road passenger transport because demand for local transport services will not usually be spread evenly across the route. Demand is greater in some areas than others. To contain the drawbacks linked with the economies of scale and density, the public transport authority should pay special attention to tailoring the routes or sub-networks subject to the invitation to tender (Cambini, et al., 2003). An invitation to tender covering too large sub-networks would run counter to the notion of competition. At the same time, attention must be given to achieving as even a spread of consumers across the sub-networks as possible.

Another aspect linked to a sufficiently large number of providers is the *determination of suitable incentives* for the potential candidates involved in the tendering process. In public road passenger transport, for example, it must be ensured that the risk is suitably spread between the public transport authority and the local transport company, i.e. that each should only assume the risks that they can best foresee or, where appropriate, influence, and therefore can best calculate. In this connection, for invitations to tender relating to public road passenger transport, two different forms of contract – gross and net contracts – are available which can be applied in any given situation (Cambini, et al., 2003).⁴

Cox (2003) also refers to the *length of the contracts* for which the invitations to tender are

⁴ In the case of gross contracts, the transport companies only bear the production risk, whilst the risk of reaping proceeds is borne by the public transport authority. To perform the services, the company receives a compensatory payment. In the case of a net contract, the transport company bears both the risk of production and reaping proceeds.

conducted. Whilst contracts which run for a relatively short term involve higher transaction costs given the repetitive frequency of the tendering phase, they exert a certain degree of pressure on the operator. If the operator wants another chance at winning the contract, he must prove he is the best choice by offering correspondingly good and efficient services for the duration of the contract. This does not pose any difficulties for public road passenger transport. Given the aforementioned fact that the infrastructure is already in place, operators do not have to make any corresponding high-cost and highly specific investments and do not need long contract periods to recoup their investment costs. Short contract periods would therefore be possible.

With respect to the other criteria also mentioned in literature for functional competition for the market, such as *transparency* in the context of the invitation to tender process, *free access to the invitation to tender* for the potential applicants, or the *prevention of cartel-like agreements* between the transport companies (Demsetz, 1968; Cox, 2003), it should be possible for public road passenger transport to fulfil these through the corresponding conduct of the public transport authorities as well as corresponding measures, such as monopolies and mergers commissions.

In summary, it can be said that functional competition for the market would appear to be possible in public road passenger transport. It is vital that the public transport authorities are aware of their responsibility and that they plan and perform the invitations for tender in accordance with the criteria outlined above.

2.3. Will cooperation on a deregulated market become a reality on the market for public road passenger transport?

In answering this question, it is meaningful to apply the theoretical approach of the *social dilemma*.

A key assumption of this approach is that “humans are self-interested and seek to maximize their monetary pay-offs in strategic decision-making situations.” (Chaudhuri et al., 2002, p.231). According to Dawes (1980), the following two features are characteristic of social dilemma situations :

1. Uncooperative behaviour brings the individual player a greater pay-off than cooperative behaviour – irrespective of the conduct of the other players.
2. If every individual in a society behaves in an uncooperative manner, each of them would receive a smaller pay-off than if they were to cooperate.

Accordingly, the dilemma is that, in the case of universal cooperation, everyone could be better off than is the case if universal defection, in other words uncooperative behaviour, applies. For each individual player, however, the rational thing to do would be to behave in a defective manner.

The following hypothetical example is intended to illustrate this fact. Let us assume that a public road passenger transport network consists of 6 bus companies ($n=6$). Each company has 10 units of resource R with $R=R^D+R^K$ available. R can either be used in full to pursue a company's own interests (R^D) (i.e. to strengthen its own position against the competition through defection), used in full for the purposes of cooperating (R^K) with other market players (coordination of the range of services), or be spread as needed across the two strategies. Each unit R used to defect brings that company a pay-off of $P=R^D$. If every company invests its resources in cooperation (and therefore extends the market share of public road passenger transport), each company will receive a pay-off of $P=2R^K$, i.e. the use of these resources

would double. The greater pay-off created through cooperation is spread evenly across all market players, irrespective of whether the individual company has cooperated or not, since individual bus companies cannot afford to exclude themselves from a strengthening of the local public transport position against motorised individual traffic. Whilst resources which are used to pursue a company's own interests (R^D) generate a lower pay-off, the pay-off is available exclusively to the company in question. The pay-off P for the local transport companies h is calculated as follows:

$$P_h = R_h^D + 2 \left[\frac{[(n-1)\overline{R^K} + R_h^K]}{n} \right]$$

where

P_h = Pay-off P of the bus company h where $h=1,2,\dots,6$

R_h^D = Share of the resource R which company h invests in pursuing its own interests (defection)

R_h^K = Share in R which company h spends on cooperative behaviour

$\overline{R^K}$ = Average share of R which the remaining market players i (excluding company h) have spent on cooperative behaviour.

$\overline{R^K}$ is calculated as follows:

$$\overline{R^K} = \frac{\sum_{i=1}^n R_i^K}{n-1} \quad \forall i \neq h \text{ where } i=1,2,\dots,6$$

This gives rise to the following pay-off matrix:

Contribution for cooperation of company h (R_h^K)	Average contribution for cooperation of the other local public transport companies $\overline{R^K}$				
	0	1	2	...	10
0	15,00	16,67	18,33	...	31,67
1	13,83	15,50	17,17	...	30,50
2	12,67	14,33	16,00	...	29,33
...	...	...	...	...	...
10	3,33	5,00	6,67	...	20,00

Source: Own concept

Table 1: Pay-off matrix

Table 1 illustrates the social dilemma. Universal cooperation (10,10) would bring a greater pay-off for each bus company where $P=20$, as opposed to universal defection (0,0) where $P=15$. Table 1 also shows, however, that – totally irrespective of how the other market players behave – each player can be better off the less the player contributes to the cooperation: the pay-off values in the upper rows are always higher than those in the lower rows. It would therefore seem rational to each individual transport company to utilise its own resources in the pursuit of its own interests as it will also benefit from the cooperation of the other players, in other words from a rising share of the market in public road passenger transport (free-rider).

The consequence of this is that no cooperation would come about.

It remains to be seen, however, whether the characteristics listed by Dawes for a social dilemma actual fit in with the local transport under examination here. In order to evaluate the transferability of Condition 1 to public road passenger transport, it is first necessary to clarify the competitive conditions that prevail on the deregulated LPT market (in theoretical terms with respect to this model). Due to the fact that there will no longer be any barriers to accessing the market, there will not only be competition with other routes but also competition with other transport companies as they vie for position on the route operated by the transport company in the spotlight. If, in such a situation, a transport company utilises its available resources in a defective manner in order to pursue its own interests of strengthening its own market position, this would result in the company gaining a competitive edge and would therefore generate a higher pay-off in the event that the other market players were to invest their resources (in part) in cooperative behaviour. In the opposite case, where the other market players also act defectively, the transport company in the spotlight would admittedly not reap any benefits as compared with its competitors as a result of its defection, but it would, however, most certainly achieve a greater pay-off than if it were to behave cooperatively in such a situation and would be at a competitive disadvantage compared with the other market players. Condition 1 therefore applies to public road passenger transport.

Whether or not Condition 2 can be related to public road passenger transport can be derived from the development of the modal split. Over the past few decades, during which the transport companies operating in a given region have not worked in cooperation, and the coordination of transportation services therefore did not ensue, the market share of local public transport has dropped at a steady rate. As a reaction to this trend, integrated public transport systems, so-called *Verkehrsverbünde*, were formed in certain towns and cities which sought to coordinate the range of services more effectively (cf. here Munich and Zurich, for example) and were incorporated into all of the transport companies operating on that market. The number of paying local transport passengers stabilised in these towns and cities as a result (Pucher, et al., 1996). This (universal) cooperation among the market players led to a greater pay-off than could have been achieved through (universal) defection. These arguments show that both of the outlined characteristics of social dilemma also apply to public road passenger transport.

According to Dawes (1980) one means of overcoming a social dilemma and its related problems would be to modify the pay-off structure. By integrating reward payments for cooperative behaviour or by implementing sanction payments for defections, this structure could be modified to such an extent that, in place of defective behaviour, cooperation would reap the greatest possible pay-off for the players concerned. With respect to the deregulated market model in public road passenger transport, however, it is necessary to question who should be responsible for enforcing the reward or sanction mechanisms. For public institutions to assume this responsibility would not be equitable with the principles of the ideal type of deregulated market model, which requires that the public sector withdraws entirely. A type of self-regulation on the part of the private local transport companies along the lines of the self-regulating process found in the bank sector, for example, might well be conceivable. The local transport companies, or the institutions representing them, would, under this model, be vested with the task of passing regulations of its own and monitoring them, which would ensure that sufficient coordination ensued, with respect to timetables, for example. Only where the self-regulation of the local transport companies proved not to be sufficient to achieve the desired results would a public regulation be applied instead of a private one. In other words, the private local transport companies themselves have an opportunity to provide for the desired cooperation in the “shadow of hierarchical authority” (Scharpf, 1994, p. 41) of a public regulation.

In summary, it can be said that an ideal form of full deregulation of public road passenger

transport would result in a situation in which no cooperation would ensue among the local transport companies. By creating consummate governance structures, however, an attempt could be made to cause the local transport companies to lean towards greater cooperation.

3. A look at Great Britain and Sweden

3.1. *Invitations to tender in public road passenger transport in London and Sweden*

In contrast to the rest of Great Britain, public road passenger transport in London has not been fully deregulated but has been subject to the central planning and coordination of the public transport authority, *London Transport (LT)*, ever since the “London Regional Transport Act” was passed in 1984. In this respect, competition has been introduced to the extent that the Act provides for transportation services to be rendered on the basis of tendering competition. To this end, the *London Transport Buses Procurement* unit was formed which is responsible for conducting the invitations to tender. Once the initial bidding process is completed (whereby the bid with the lowest need for subsidies is awarded the contract), the transport service contracts are awarded for a period of 5 years. Since 1997, 22% of all bus miles have been offered for tender every year. As a consequence, every route has been subject to competition at least once (Hendy, 2004). The competition for the market which arises as a result of the invitations to tender has enabled London to make significant cost savings in local public transport, which has led to a lesser need for subsidies. In the meantime, it has not been possible to increase the market share of local public transport. In contrast to local public transport in the rest of Great Britain, however, the modal split has remained constant at least, which, according to Mackie et. al. (1995), is due to the centralised planning and coordination of public transport through the tactical level at local public authority level.

With respect to the competition that has emerged, it can be stated that over 50% of the invitations to tender have been won by the 11 *London bus companies* which materialised from splitting up and materially privatising the long-standing nationalised operator, *London Bus Limited*. That this large share of the market has been cornered by the once nationalised company is due to the fact that, whilst *London Bus Limited* was undergoing privatisation, the bus depots were transferred to the *London bus companies*. Since, for urban development reasons, it was no longer possible to set up bus depots in the vicinity of the routes subject to the invitations to tender, the competitors were forced to switch to the peripheral areas, which involved high costs for empty payloads in addition to the construction costs, thereby giving the *London bus companies* a competitive edge (Lehmann, 2000). Clearly, the criterion addressed by Demsetz (1968) and discussed in Section 2.2 aimed at preventing any distortion of competition was not afforded sufficient consideration, the consequence being that competition for the market was only able to develop to a limited extent.

Responsibility for awarding contracts in the public road passenger transport market in Sweden lies jointly with the provinces and the municipalities which have established a corresponding tactical level in order to conduct their responsibilities in each province. These institutions are responsible not only for planning and coordinating local public transport as part of the transport system but also for awarding contracts for transport services. Until 1989, licences were awarded which ensured that the services operated were free from any competition, out of the reach of competition. In 1989, in the course of opening up the public road passenger transport market, every existing licence was revoked or declared ineffective. The local public authorities were then granted a variety of possibilities of awarding services: 1. the licences declared ineffective could either be reinstated, or 2. the tactical level was able to commission its own public transport companies with the performance of public road passenger transport services, or 3. the transport services were offered as part of a tendering competition process. Since the

local public authorities made heavy use of the last option, virtually every transport service is awarded through invitation to tender in Sweden these days (Svenska Lokaltrafikföreningen, 2002). The effects of opening up the market in terms of modal split development, productivity increase, cost and subsidy reductions and customer satisfaction have been positive; the share of market enjoyed by public transport companies has dropped from a good 80% in the early 1990s to its present level of 10%. This positive trend is, however, increasingly under threat from a gradual process of concentration to a mere few major providers of local public transport services. By way of example, in the province of Stockholm, only three transport companies have been awarded contracts for transport services, all of them belonging to major groups. Forecasts suggest that this process of concentration will continue so that, in the long run, only a few large-scale companies plus some small-scale niche operators will most likely remain (Palm, 2006). An aspect of relevance in this context is the change in strategy adopted by Sweden's local public authorities where, for the purposes of making the safeguarding of a coordinated all-in-one offer simpler and more cost-effective, only the larger-scale (sub-) networks are offered under the invitation to tender process and not every individual route or line. This strategy implies on the one hand, however, that a small number of invitations to tender exist and, on the other hand, only the larger companies come into question for the running of such networks. Consequently, the provision of transport services in larger-scale networks requires more extensive capital and human resources than smaller networks or individual routes. In conclusion, it can be maintained that the experiences gained in Sweden show that, whilst focus largely falls on a coordinated all-in-one offer in public road passenger transport, this should not imply that tailoring the transport networks offered in invitations to tender will accordingly prevent competition in the long term.

3.2. *Deregulating public road passenger transport in the rest of Great Britain*

With the coming into effect of the Transport Act in Great Britain in 1985, Britain's local public transport market was completely deregulated with the exception of London. In passing the Transport Act, the government of the time, led by Margaret Thatcher, ventured on a radical departure from the route-related licensing system of previous years and subsequently enabled any provider meeting certain subjective approval requirements (such as safety requirements) to render local public passenger transport services with buses at their free discretion. Entering or leaving the market was no longer subject to approval and – just as with major changes in the range of services – only needed to be reported to the state's *traffic commissioners* six weeks in advance together with detailed information relating to the route, bus stops and timetable. Through its deregulation measures, the British government primarily sought to reduce the high subsidy burden (approx. £ 800 million per annum) that came with local bus services (Pickup et al., 1991). Moreover, there was a firm belief that the market share trend for public road passenger transport could be reversed, since Britain's local public transport had long been battling with a long-term drop in passenger volumes. In addition to repealing the regulation system, the Transport Act provided for the privatisation of the once nationalised local transport companies. As a result, the country's two largest nationalised local transport companies, the National Bus Company and the Scottish Bus Group, for example were split into regional companies and substantially privatised.

The result of Great Britain deregulating its bus service has been analysed in detail in a number of contributions (Nash, 1993; Mackie, et al., 1995; White, 1995; White, 1997 to name a few). As a consequence, the number of transport companies operating on the market rocketed as a result of the deregulation. This competition has led to operative cost savings of up to 25% being achieved, for example. In terms of this paper, however, one significant issue is whether the range of services offered by the local transport companies was coordinated following the deregulation of Britain's public road passenger transport service as a means of contributing to

strengthening public road passenger transport against the motorised individual transport or whether cooperation among the market players – as derived from the social dilemma approach – was not forthcoming. To begin with, it can be said that the anticipated turnaround in the numbers of passengers failed to materialise, which indeed have continued to fall as a result of the deregulation in an environment showing increasing mobility: between 1985 and 1992, the number of local transport bus trips in Great Britain fell by 21.6%; the trend in the metropolitan areas was even greater, with a recorded decrease of 28.4% (Nash, 1993). Two main reasons for this have been cited in various papers: rising fares⁵ and the unreliability of services provided by the transport companies (Ellis et al., 1998). By way of example, for the year 1998, Tyson (1990) determined that in every region of Great Britain with the exception of London, between 850 and 2000 (more or less short-term) timetable changes were made which resulted in a loss in faith in the country's local public transport system. In a report published on bus services, the Department of the Environment, Transport and the Regions (1999) (these days known as the Department for Transport) noted that almost 15 years after deregulation was introduced, over 22,000 changes to timetables are registered on average every year. These constant changes to timetables have been (and will continue to be) caused by a form of conduct displayed by the market players which experts call "schedule jockeying". This refers to a strategy whereby bus companies repeatedly amend their timetables to enable them to reach a bus stop before their competitors do (Klein, et al., 1997). By virtue of the six-week registration process mentioned earlier, market players have been able to learn of market changes in good time and to tailor their services to meet the changing conditions. Bus companies entering the market have developed strategies at the expense of those already operating on the market: "Competitors use schedule jockeying to snatch away the waiting passengers that the incumbent firm's investment has brought to the kerb." (Klein, et al., 1997, p. 30).

As a consequence of the deregulation, a situation emerged in which, in each city or town in Britain, a variety of privately owned bus companies began operating with inconsistent fares, timetables and route networks. In the years following deregulation, the market players did not cooperate in terms of coordinating or integrating their range of services.

Shortly after coming into power, the Labour government and its Department of the Environment, Transport and the Regions (1997, p. 9) has since repeatedly made it clear that it intends to effect changes to the way local public transport is organised: "Regulation will help achieve efficient, high quality bus services at the local level, providing an adequate framework and real choice. We do not want to lose the best of what we already have, but we believe that changes are needed to allow the bus to play its full part in an integrated transport strategy." It is now envisaged that the role of coordinator played by the local governments especially, which, in the course of deregulation, had disappeared entirely, should be reconsidered. Whilst it remains to be seen when and in what form these proposals should be implemented, it is fairly certain that there will be a departure from a fully deregulated public road passenger transport system.

4. Conclusion

Both the theoretical analysis and the practical experience made in Great Britain show that fully deregulating the public road passenger transport market does not bring about satisfactory results. The behaviour of the market players, that has been induced through deregulation, of

⁵ Despite a 36% drop in the costs per bus mile, fares had risen by an average of 12.6% by 1992 (Nash, 1993). The reason for this lies in the cutbacks in subsidies offered to public road passenger transport which overcompensated for the efficiency benefits gained through competition (Klein, et al., 1997). In this context, it should be borne in mind, however, that, in LPT, a negative price elasticity is to be assumed with rates of up to -0.65 (Goodwin, 1992). For this reason, other factors are key to the drop in demand experienced by Britain's public road passenger transport.

pursuing their own personal interests to the detriment of the competition, and even more importantly, to the detriment of the public road passenger transport system, is preventing the requisite coordination of services provided by the transport companies in a given region from occurring. The deregulated market model cannot meet the two complementary goals of cooperation and competition and is therefore not a suitable organisational model for public road passenger transport.

The assessment of the 3-level model with tendering competition is a different story. If the criteria discussed in section 2.2 are observed, this model is not only capable of ensuring coordination but also of achieving properly functioning competition. The practical experience gained in Sweden and London shows, however, that meeting these criteria does not go without saying and must be taken into account by public decision-makers in terms of every decision made on public road passenger transport. Special attention must be given to preventing any potential distortion of competition which may arise from giving unilateral preferential treatment to individual companies.

In summary, it can be said that the goals of competition and cooperation do not necessarily have to cancel one another out. The 3-level model with tendering competition represents an organisational model with which the requirements placed on local public transport can be met, provided that certain criteria are observed when putting the model into practice.

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