The distinction between commercial and non-commercial bus services in Germany: Given by nature?

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Working Paper

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ABSTRACT

German public transport services by bus are characterized by a regulatory framework that distinguishes between commercial and non-commercial services. Contrary to the apparent views of legislators, this paper shows that costs and revenues are not the only parameters determining whether or not operators are able to provide services in a commercially viable way.

Apart from the local characteristics of the specific service, we show that the classification of services as commercial versus non-commercial is determined in large part by the public transport authorities that set minimum quality standards to be provided by operators. Our analysis shows that the authorities awarding the contracts in some cases affect market organization significantly depending on how they make use of this power. Furthermore, market organization differs substantially with respect to the awarding structure and the contractual relationships, creating a challenge for operators and authorities in this embryonic market.

**JEL Classification:** K23, L51, L92, L98, R48

**Keywords:** Public transport, bus, tendering, regulation, commercial services, market organization
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1 Introduction

The institutional framework of the German public transport bus services is characterized by a fundamental distinction between commercial and non-commercial services. Legislators seem to think that this distinction is unambiguous, since—in their thinking—the costs and revenues of public transport bus services are mainly determined by local conditions (population density, land use patterns, etc.). For example, the revenue potential of an urban bus line will usually be higher than that of a rural one. Conversely, costs per vehicle kilometer will usually be lower in rural districts than in cities due to the higher average speed.

If this were true, the classification of services as commercial or non-commercial would depend mainly on the local characteristics of the specific service, and would thus be given exogenously (“given by nature”). The question arises whether local conditions are really the only distinguishing feature for operators, or whether market participants also can have a significant impact on this distinction. Considering the usual influence of authorities within this industry, it is fair to assume that their activities do have a major impact on the distinction between commercial and non-commercial services. To enable further analysis, the regulatory framework has to be examined to consider the possible courses of action available to market participants, and their main activities and prospects.

The institutional framework of the German bus industry has evolved over time. To help explain the real options that have emerged over decades and are now available to the market participants, Section 2 presents an overview of the developments to date. Section 3 describes the current legal framework, which forms the basis for the subsequent discussion. This institutional framework is then transferred into a theoretical framework in Section 4, which will constitute the starting point for our analysis of market participants’ possible courses of action in Section 5. Here, we will also analyze whether market participants actually do have a major influence on the categorization of their services. In Section 6, we present the key findings and conclusions. An index, glossary, and list of abbreviations and
symbols are included in the Appendix. It may ease understanding of specific terms for readers not familiar with the regulatory framework of German public transport by bus.

Regulatory and institutional frameworks and their effects on the public bus transport market have been the subject of many papers. The first to discuss this issue was that of Chadwick (1859), who analyzed competition for a field (regulated competition) as compared to competition within it (unregulated competition or free market regime).

In recent years, tendering models for (non-commercial) bus services have been analyzed in several international articles (e.g., Alexandersson and Pyddoke 2003, Hensher and Wallis 2005, Amaral et al. 2006, Cantillon and Pesendorfer 2007, Mathisen and Solvoll 2008). Furthermore, some papers have analyzed free, unregulated (commercial) market regimes (e.g., Romilly 2001, Roberts 2005, Gómez-Lobo 2007, and Leopairojna and Hanoaka 2007), with a focus on Great Britain as well as South American and Asian countries.

General aspects of different market models have been discussed in a number of papers (e.g., Macário 2005 and van de Velde et al. 2007). Van de Velde et al. (2008a, 113–115, 24–25) described the different European forms of market organization with respect to the right of initiating “the creation of passenger transport services” as is possible under the new regulation EC 1370/2007.

In the German literature, the distinction between commercial and non-commercial services has been analyzed by several German lawyers (e.g., Werner 1998 and 2001). Furthermore, legal aspects of tendering (Werner et al. 2004, Klinger 2006) and competition for commercial services (Landsberg 2003, Werner 2004, Nareike and Walter 2006, Recker 2007) have also been discussed in many papers.

Economic papers on the institutional framework of German public transport services by bus are rare. In recent years, major studies have been published by Sterzenbach (2008), with a focus on public funding, and Knieps (2004), examining the structure of the German “Verkehrsverbünde” (public transport associations). Some articles focus on the economic
effects of tendering (e.g., von Berlepsch 2005, Achenbach 2006, Beck and Wanner 2007, Beck and Wanner 2008). Furthermore, a limited number of papers consider competition for commercial services (see Beck 2007, Beck and Wille 2009, and Walter et al. 2009). Nevertheless, to the best of my knowledge, economic papers analyzing the effects of commercial and non-commercial services within one (regulated) market have not yet been published. Maybe this is why researchers—as well as global players entering the German public transport market—usually describe the regulatory framework as initially incomprehensible.\footnote{At least this is my experience from five years of consultancy work for the German public transport system, and from numerous discussions with (foreign) researchers.} The present paper therefore aims to narrow this “gap of understanding” by putting forward the first comprehensive economic analysis of the main aspects of the institutional framework of the German bus industry and the distinction between commercial and non-commercial services. The results provide an understanding of the main options for action for market participants and are relevant for researchers, businessmen, and policymakers.
2 The regulatory framework and its resistance to change: where are we coming from?

2.1 Movement towards market reform—a history of regulation

According to Köberlein (1997, 137–139), the German public transport system has always been subject to heavy regulation. Due to increasing competition from motor vehicles after World War I, efforts were undertaken to regulate public bus transport in order to strengthen the state-owned railway monopoly. The first German restrictions on competition from motorized public transport were laid down in the decree “Verordnung betreffend Kraftfahrzeuglinien” (see Werner 2001, 16) and in the law “Kraftfahrtenliniengesetz” of 1928. From then on, operators required a license to provide public transport services using motor vehicles. If an application to operate a new bus line competed with existing public transport services by rail or bus, the licensing authority (LA) responsible for granting the licenses to operate the lines in question had to reject the application during the license term. This amendment can also be classified as a measure to ensure the profitability of existing lines by giving operators virtual exclusivity in a business environment that was becoming increasingly competitive. This principle is still in effect in the current Passenger Transport Act.

After World War II, German public transport, as in many other regions worldwide, faced diminishing passenger numbers due to an increase in motorized private transport. To sustain a minimum level of public transport, the legislative body implemented a steadily increasing number of compensation payments (subsidies) in the sector over the following decades. These were financed by various local and regional authorities, and through a multitude of federal and national systems.²

Before the market reform of the mid-nineties, the public transport sector in West Germany appeared virtually unregulated with respect to the non-railway services of bus and light

² See Köberlein (1997, 137-139).
rail. Even at the beginning of the nineties, compensation payments were normally made without any legal obligation for providers to deliver a specifically defined service or for public authorities to enforce a control mechanism. Subsidies were frequently granted, especially by municipalities or rural districts, without a public service contract (see Beck 2007, 425).

2.2 Market reform in the mid-nineties and its main innovations

The market reform of the mid-nineties was a reaction to the changing regulatory environment in the European Union (EU) and a result of a long period of increased loss-making by the national railway operator, Deutsche Bundesbahn. This process also initiated a debate about comprehensive reform of the entire public transport sector. Furthermore, the Regulation (EEC) No. 1191/69 and its revised version, (EEC) No. 1893/91, encouraged more competition for subsidies within the EU. Their transposition into the German legal framework pushed the debate further. As part of this discussion, the German federal states demanded new regulation of public transport organization for all sectors. They argued that within the current regulatory framework, the positions of the existing operators were highly protected (see Werner 1998, 2-3).

The market reform went into effect on January, 1, 1996. At the national level, the federal constitution (Grundgesetz), the Common German Law for Railways (Allgemeines Eisenbahngesetz, or AEG) and the Passenger Transport Act (PBeF) were amended. Furthermore, a new law, the “Regionalisierungsgesetz” (RegG) was introduced. By shifting responsibilities to the federal states (Länder) and asserting the principle of subsidiarity, the law made the states responsible for regulating public transport in detail. The federal government retained very few regulatory responsibilities, especially in the railway sector.

The reform introduced three major innovations. The first was the establishment of the supply-demand (principal-agent) principle, where public transport authorities (PTAs) plan, organize, and finance public transport services at what they consider an appropriate level
of quality (see §§ 1, 3, and 4 RegG), if they consider the results out of market initiatives to be insufficient. In conjunction with the amendment of the federal law, the states changed their own public transport laws, filling in the legal framework established at the federal level. Almost all states assigned the PTA responsibilities for public transport by bus and light rail to the rural districts or larger cities (municipalities) (see Barth 2001, 127–128).

The second major innovation was the introduction of the obligation for PTA’s to define minimum standards for public transport services, by way of (local) public transport plans (PTPs) (see § 8 (3) PBefG).

The third major innovation was the introduction of the definition of so-called “non-commercial” services. If PTAs are paying direct subsidies not classified as “other operational revenues” from an operator’s point of view, the regulations require these subsidies to be subject to tendering (see §§ 8 (4) and 13a PBefG and the EU decree 1191/69). With respect to competition in public transport services by bus, this was the main innovation from a regulatory point of view.

Nevertheless, according to Gerrit Landsberg, a lawyer at BBG and Partner specializing in public transport, most of the authorities and operators went on to classify subsidies as non-operational revenues, which still enables them to classify services as commercial according to § 13 PBefG. In only very few cases have the PTAs tendered financial support for services classified as non-commercial in practice. This is why this innovation in the regulatory framework has still failed to induce the authorities to introduce competitive instruments on this market to any appreciable degree.

2.3 Classification as commercial or not: the transition phase
After the revision of the legal framework in 1996, the legal obligation to tender was discussed extensively among German lawyers. Some came to the conclusion that EU regulations regarding grant systems required that most of the public transport services in Germany be tendered. From their point of view, all public grants—including compensation for
reduced fares for pupils and the disabled, as well as direct subsidies classified as “other operational revenues”—should be classified as payments. Services for which such compensatory payments are granted should be classified as non-commercial and their public funding should thus be tendered out. Furthermore, they argue that licensing authorities should verify whether applications for operating commercial lines are subsidized or not. In the case of public (co-)funding, they should refuse licensing for commercial services (see Werner 2001, Werner et al. 2004).

In its Altmark judgement, the European Court of Justice ruled on July 24, 2003, that it is possible to waive tendering procedures and to award subsidies directly, providing that authorities take four strict criteria into consideration (see Altmark Trans Judgement of the European Court of Justice, Judgment C-280/00, and Ronellenfitsch 2004). Furthermore, the German federal administrative court ruled in 2006 that there is no obligation for licensing authorities to check the legality of the service financing (see the decision BVerwG 3 C 33.05 of October 19, 2006).\(^3\)

These court decisions\(^4\) reversed the decision on tendering financial subsidies to PTAs. With respect to the award of financial subsidies in-house, no legal obligation to tender currently exists. The expected economic advantages and disadvantages, together with political and/or social criteria, remain the only decisive criteria for the PTAs. Even the new regulation (EC) No. 1370/2007, which will enter into effect by December 3, 2009, will enable the authorities to award tenders directly in many cases. Furthermore, it is not expected that the upcoming amendments of the national legal framework to include this new regulation will significantly limit the PTAs’ options. Nor is any major change expected in the aspects of the regulatory system as it exists today (e.g., parallel provision of commercial and non-commercial services). These forecasts have already been confirmed by the first official

\(^3\) Although it might be interesting to analyze whether the financing systems are free of discriminating potential, as the long history of this legal proceeding indeed indicates, this paper will not discuss this matter in detail.

\(^4\) See Beck (2009) for a more detailed description of these court decisions.
proposal to amend the PBefG, published by the federal Ministry of Transport (the “Proposal,” see BMVBS 2008). It has to be noted that a revised version of the Proposal may be put forward in the upcoming legislative procedure.

3 The current institutional framework

The distinction between commercial and non-commercial services is still one of the key elements of the German institutional framework. The characteristics of commercial and non-commercial services, in terms of financing and/or exclusive rights and the modes of awarding these instruments of compensation, will be explained in the following chapter. These explanations will form the basis for the theoretical framework to be developed for the analysis.

3.1 Financing structure for commercial and non-commercial services

The funding structure of local and regional public bus transport services in Germany is characterized by a system of subsidies provided by all three tiers of the government.5 Payments are made using a broad variety of instruments such as co-funding of investments in infrastructure, tax exemptions, compensation payments for fare reductions, direct subsidies, etc. In the following, we describe, based on Figure 1 below, the basic funding structure of the public bus transport services, divided according to the main sources at the federal, state, and local levels.

The federal level (the top tier: the Federal Republic of Germany) provides direct co-funding for selected long-term investments in major infrastructure projects. These are based on the Local Authority Traffic Financing Act (Gemeindeverkehrsfinanzierungsge- setz, GVFG). Furthermore, the federal government waives taxes through reduced tax scales and tax exemptions for public transport (e.g. for value added tax and motor vehicle tax).

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5 See Hickmann (2004, p. 34), Sterzenbach (2008, p. 75-104) and Wissenschaftlicher Beirat beim BMVBS (scientific council at the federal Ministry of Transport) (2008, p. 82-86) for a detailed explanation of the financing structure in Germany.
Figure 1: Scheme of funding structure for public transport services by bus (main aspects)


The states (the second tier: the Länder) also waive some tax revenues to assist the industry. To be able to subsidize public transport services within their territory, the states receive “Regionalisierungsmittel” (regional funds, paid according to § 5 RegG). These funds, which amounted to €6.675 billion in 2008, are used primarily for funding rail services. Nevertheless the states also use a portion of these funds for general public transport purposes.\(^6\)

Furthermore, the states also receive funds from the federal government to support infrastructure investments (for depots, bus lanes, operation control systems, etc.) and/or vehicle investments at the local level.\(^7\) These funds, formerly paid under the Local Authority Traffic Financing Act, are currently paid under the Demerger Act of 2006\(^8\) (amounting to €1.336 billion per year). Two other state-level instruments that of primary importance for

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\(^7\) See §§ 1 and 2 GVFG.

\(^8\) See the “Entflechtungsgesetz” (Gesetz zur Entflechtung von Gemeinschaftsaufgaben und Finanzhilfen) or EntflechtG.
bus services are compensation payments to operators for reduced fares for pupils (including trainees and students up to a specific age) and the disabled under § 45a PBefG and §§ 145 ff Sozialgesetzbuch, the code of social law), provided for operators directly. According to Hickmann (2004, 34) and Sterzenbach (2008, 93), compensation for reduced pupil fares is one of the main sources of public funding for operators of short-distance services in the German public transport system. The states can also make other payments to local or regional authorities enabling them to fund their public transport services directly.

The local or regional authorities (the third tier), which usually act as Public Transport Authorities (PTAs) for bus services, provide subsidies for infrastructure investments under the Local Authority Traffic Financing Act through co-financing subsidies. Some local school authorities cover the remaining costs of pupil public transport tickets.

Where necessary, to ensure an adequate level of service from a PTA point of view, direct supplementary subsidies are paid to operators by the PTAs. Whether these payments are considered “other operational revenues” or not forms the fundamental basis for distinguishing between commercial and non-commercial services. If the subsidies are classified as “other operational revenues”, the services are classified as commercial according to the Passenger Transport Act (§ 8 (4) PBefG) although direct subsidies are paid. When they are not categorized as “other operational revenues” by the PTA and/or the operator, the services are classified as non-commercial.

To enable municipal operators to deliver adequate levels of service, deficit compensations and cross-subsidies are also usual instruments for supplementary funding of public transport services by PTAs. Direct awarding is not the intended focus of our analysis, and as a result, the funding of municipal operators will not be considered in detail here.

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9 Cross-subsidies are financial benefits resulting from reduced corporate tax payments due to interconnected associations with profitable public companies (such as municipal energy suppliers).
In many regions of Germany, public transport associations (Verkehrsverbünde) can be found. A study by Graetz et al. (2007, 11), using a database on 150 German PTAs, showed that a public transport association existed in the area of more than 80% of the PTAs in the study. Some states—usually in coordination with PTAs—subsidize the public transport associations in their territory. Usually these associations act as “clearing houses” to distribute fare revenues between operators. Several of these associations have also been entrusted with the duties of PTAs at the regional and/or at the local level, and with the provision of subsidy payments to operators.

As can be seen, even an outline of the main aspects of the financing structure in Germany is rather complex. Moreover, the financing structure differs between the states and often also differs at the regional and/or local level without any clear obligation for authorities to publish all the information on public funding.

Our examination shows that German legislation provides authorities with a certain level of freedom to structure their financing schemes according to their local needs. Indeed, incumbent operators who have been provided services over years or decades should be able to calculate all the public funds they can expect to receive for a specific service based. For newcomers to the market, the multitude of financing instruments available will make it difficult for them to assess the subsidies to be expected. Sterzenbach (2008, 105) therefore classifies the German financing structure for public transport with its numerous financing sources and streams as “intransparent.”

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10 See van de Velde et al. (2008a, 53) for a short explanation of the German Verkehrsverbund.
11 See Sterzenbach (2008, 97) and, for an example of a state that revised its financing structure in recent years, Hickmann et al. (2008).
12 See Sterzenbach (2008, 101) for an example in the Stuttgart region.
13 See the statement by the Wissenschaftsrat of the BMVBS (2008, 82), who describe the German financing structure as “historically developed, complicated, and widely intransparent.”
3.2 Awarding of exclusive rights for commercial services

There are three main participants in the market for commercial public transport services to passengers: the PTAs, the LAs, and the operators. The figure below provides a brief overview of the obligatory collaboration among commercial services under the PBefG.

If operators decide to initiate new, or to carry on existing commercial services, they need to apply for a license to operate these services, which is granted by the LA (see § 2 (1) and § 11 (1) PBefG). This application needs to contain the major characteristics of the service planned, e.g., length and route of the line, timetable, tariff system, and number and type of vehicles (see § 12 (3) PBefG). The license might be granted for only one line, or for a whole network (see § 9 (2) PBefG), e.g., a whole city. Following the approval by the licensing authority, operators are obliged to deliver the service.

Figure 2: Main participants within the market for commercial services

The responsibilities of LAs within the national market are to safeguard the security of operations for passengers and to secure the continuous delivery of services to passengers, during both the validation of applications and the license term. Their main tasks are to provide access to the profession and, in case of commercial services, to provide access to the
market—both of these through the granting of licenses. They have to reject applications if they identify problems with the security or continuous delivery of public transport services (for minimum requirements for market entry, see § 13 PBefG and Werner 2001, 61-63). In comparison, the responsibility of PTAs in the market for commercial services is restricted to providing just an adequate level of public transport quality.

The LAs’ obligation to ensure commercial stability for existing services includes the duty to reject new applications to establish commercial services if the demand for public transport can be met by existing providers. An incumbent provider may also agree to adapt part or all of the proposals of competitors if profitable (see Werner 2001, 97). This design of an exclusive right granted via a license (see § 13 (2) PBefG and BLFA 2006, 2) may explain why, so far, competing applications of newcomers against existing lines have seldom been observed during the license term. Nevertheless, they are lawful (see Beck 2007, 426).

Within the market for commercial services, the only direct relationship is between the LA and the licensee. From an economic point of view, this can be classified as a contract between the state authority and the operator, which is based on a principal-agent relationship. This contract sets out the rights and obligations of both parties. It regulates the obligation of the operator to deliver the service as approved (see § 21 (1) PBefG) and the right to receive a specific level of exclusivity in return. During the license term, the LAs act as inspection authorities to secure the delivery of public transport services (see § 54 PBefG and Werner (2001, 131–145).

In fulfilling their responsibilities, LAs have to take the PTP “into account,” without any clear guidelines on this subject (§ 8 (3) PBefG). They just “may deny” applications which do not comply with it (§ 13 (2a) PBefG). According to Werner (2001, 90) and Gerrit landsberg, the main focus lies essentially on awarding concessions, and includes very weak instruments to withdraw authorisations or impose fines if operators do not deliver services as promised (see also §§ 25 and 61 PBefG).

Please note that lawyers are still discussing the extent of this “exclusive right”; see inter alia Werner (2004, 91–96).
Landsberg, PTPs are nevertheless usually a minimum standard for LAs that always depend on the level of detail in the PTP established by the respective PTA.

In the case where operators hand in competing applications to operate specific commercial services, this situation is classified as Competition for Commercial Lines (CCL). If a CCL occurs, the LAs still have to validate the offers with respect to compliance with the above-mentioned minimum criteria (security aspects, economic capability, reputation, delivery of appropriate service according to PTP, etc.; see §§ 12, 13, and 14 PBeFG and Werner 2001, 90–102). This represents an examination to prevent negative selection.\textsuperscript{16} In a second step, they have to select the best of the remaining offers with respect to public interests (mainly quality aspects from a passenger point of view, e.g., frequency, tariff system, etc. (see Werner 2001, 102–104).

Licensing authorities are allowed to design the conditions in detail in the validation procedure. As LAs assign an exclusive right to the successful applicant only, they can be classified as auctioneers. The procedural conditions and the PTP can then be seen as a take-it-or-leave-it offer for applicants. They are therefore in a position to utilize their first-mover advantage by determining procedural conditions. If utilized properly, this advantage of the LAs may influence market results significantly.

Licensing authorities also have the obligation to look after the integration of public transport services (according to § 8 (3) PBeFG), especially cooperation schemes such as tariff or public transport associations (Verkehrsverbünde). Please note that they merely have to take this issue into consideration when making their administrative decisions, without a clear obligation to initiate activities in this matter.

The rights and obligations of the PTAs are limited within the market for commercial services. According to § 1 RegG, their main task is to determine and secure an adequate minimum level of public transport service for the citizens in their territory. It is the PTAs’
responsibility to provide services of general interest (see ForsthoFF 1938, 36–37, and EU Commission 2001 for the classification of PT services as services of general interest). Usually, a direct contractual relationship between PTA and operator does not exist within the market for commercial services. The PTP then has to be seen as the PTAs’ main instrument for fulfilling its obligation to provide an adequate level of services (see Barth 2001, 56–63, 94–97, for the importance of the PTP in this matter). PTAs have to incorporate operators into the establishment of the PTP.

3.3 Granting of supplementary subsidies for non-commercial services
If the provision of services is not commercial in that it uses exclusive rights only, supplementary direct subsidies are necessary. If these funds are not categorized as “other operational revenues,” the specific services have to be classified as non-commercial. According to § 8 (4) PBeFG, PTAs are then obliged to award these subsidies. This is usually carried out through tendering procedures under the legal jurisdiction of the Official Contracting Terms for Awarding Service Performance Contracts, Part A (Verdingungsordnung für Leistungen, VOL/A).

Following the award of the contract, the winning bidder has to apply for a license to operate, usually through a formal procedure for LAs only (see Werner 2001, 36). In case of a competing application for commercial services, LAs have to decide in favor of the commercial market initiative (priority of commercial services; see § 8 (4) PBeFG and Werner 2001, 82–83), as long as the minimum criteria are met. At present, this is also the case during or after a tendering procedure, as long as the LA has not approved the service.

The proposal for an amendment of the German regulatory framework for public transport with respect to the implementation of the new EU regulation 1370/2007 excludes the option to counter the tendering procedure itself. It obliges PTAs to waive tendering if services are commercial (see BMVBS 2008, 2–3) and PTAs do not use their option to award services directly to operators according to the conditions of the new regulation
EC 1370/2007 (e.g., in-house awarding to municipal operators, direct awarding to small and medium-sized operators). This legal framework intends to maintain the general priority of commercial services.

It is important to note that PTAs, although responsible for securing services of general interest, usually do not have any direct influence on the procedure for controlling the quality provided by the operator of commercial services. This applies to the awarding phase and the license term (phase of granted exclusivity). They may only notify when quality is not delivered by the operator as laid out in its application. In contrast, the awarding of non-commercial services is characterized by the use of a public service contract.

Public service contracts set the standards of quality to be delivered by operators (including control mechanisms) and the subsidies to be paid by PTAs within tendering procedures. With respect to revenue risk, two main concepts have to be distinguished: net cost contracts, where the operator bears the revenue risk, and gross cost contracts, where the PTA bears the revenue risk.

Summing up, permits for commercial and non-commercial public transport bus services in Germany are awarded through a system of a (controlled) competition for the market. Furthermore, the role of the PTAs is weak within the market for commercial services, compared to their strong position in the business of non-commercial services. Nevertheless, even in the market for commercial services, their position is stronger than in open market regimes like Britain (outside London). In these markets, PTAs merely arrange to provide additional services (usually evenings and Sundays, see van de Velde et al. 2008a, 114–115), while in the market for commercial services in Germany, they are at least obliged to set minimum standards that apply to all operators.
4 Transferring the institutional into a theoretical framework

To enable an analysis of the interaction between commercial and non-commercial services, we now transpose the current institutional framework into a more theoretical setting. The following assumptions and definitions are based on the descriptions presented in Chapter 3 and on procedures observed in various cases. The focus will be on the competitive bus market. We will not discuss direct awarding of licenses.

A license provides an operator with real exclusivity for the license term and is granted as compensation for the delivery of services of general interest. The license obliges him to deliver the service as promised for the entire license term. Awarding of licenses to operate specific public transport bus services will take place either through quality competition (Competition for Commercial Lines—CCL) or through price competition for supplementary direct subsidies for non-commercial services (tendering).

Auction design for tendering procedures will be based on the first-price auction method (bid within closed envelope, just one trial, no negotiations before awarding to winning bidder, see Krishna 2002, 2–3), as is recommended (and usual) for bus tendering procedures (see VDV 2007). Within the existing regulatory framework, competitors may outbid each other in CCL procedures (resulting in an English auction design; see Recker 2007, 71, and Beck 2007, 426–429). Notwithstanding the current framework, an auction design based on the first-price auction method, as was suggested by the Proposal (see BMVBS 2008, 4), will be assumed for CCL procedures as well.

CCL procedures will be executed by Licensing Authorities (LAs), while Public Transport Authorities (PTAs) will be responsible for tendering procedures. The minimum quality

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17 Altogether, n = 123 CCL cases in the period 2003–2008 and various tendering procedures were observed. The results of this empirical analysis will be presented in a CNI Working Paper forthcoming at the end of 2009.

18 Please note that within the real German public bus transport market, only a very small market share has been exposed to competition so far.
level \( mq \) to be delivered by operators, as laid down in the Public Transport Plan (PTP), is a fixed quantity at the beginning of the analysis that is set by Public Transport Authorities.

The fare revenue risk is borne by the operator. For this reason, public service contracts, which will be used in case of tendering, have to be classified as net cost contracts. We will assume that the level of fares (the price) will be set by all members of a Verkehrsverbund, as it is one of their main tasks in Germany (see Knieps 2004, 80). For simplicity, prices (or fare levels) are therefore determined exogenously.

Subsidies for fare reduction (SFR)—e.g., compensations for pupils and the disabled, as well as supplementary direct subsidies classified as other operational revenues (OR)—shall be equal for all operators and fixed, so they can be normalized to zero. All other (remaining) supplementary direct subsidies (SDS), necessary to sustain the level of service with the minimum quality level \( mq \), will be net subsidies from an operator point of view.

The cost function \( C \) shall be the same for all operators (all \( C \) are assumed to be identical).\(^\text{19}\) Costs depend on the (quantity of) quality \( q \) offered \( (C(q)) \) and \( C \) shows a convex shape. The quantity of quality may be, for example, the scheduled frequency. There will be fixed costs (e.g., for building a bus depot, buying vehicles, etc.) on the level \( a \). The cost function shall be \( C(q) = a + b(q) \)

where \( \frac{\partial C(q)}{\partial q} > 0 \) and \( \frac{\partial^2 C(q)}{\partial q^2} > 0 \)

The real sum of all fare revenues to be generated by the operator out of a specific license depends on the quantity of quality delivered by the operator \( (FR(q)) \). For simplicity, we assume a linear shape

where \( \frac{\partial FR(q)}{\partial q} > 0 \) and \( \frac{\partial^2 FR(q)}{\partial q^2} = 0 \)

\(^{19}\) This assumption is based on neoclassical economics. In reality, inefficiencies must be assumed.
Expectations about fare revenues $E[FR(q)]$ (based on expectations about elasticity with respect to quality)\textsuperscript{20} may differ for market participants due to different levels of information.

Profits ($\pi$) for operators are

$$\pi(q) = (FR(q) + SFR + OR) - C(q) = FR(q) - C(q)$$

Due to perfect competition, in equilibrium, profits for operators are $\pi = 0$. Operators will enter the market (and hand in an offer for the specific services) as long as they expect $\pi \geq 0$ to be the participation constraint for these auction procedures.

\textsuperscript{20} The elasticity of passengers for a specific license with respect to the quantity of quality is given by nature and therefore set exogenously.
5 Market participants’ opportunities for action

5.1 The distinction between commercial and non-commercial services

If, initially, \( q = mq \) (with, e.g., \( mq = z \), as can be seen in the first interval in Figure 3 below) and \( \pi(mq) < 0 \), the level of \( mq \) is too low to be commercially feasible for operators. Fare revenues \( FR(mq) \) will not cover costs \( C(mq) \) here. Nevertheless, operators are free to increase their quality offered \( (q) \) to reach a level which is commercially feasible with \( \pi(q) \geq 0 \). This first interval, where services are “virtually” non-commercial, is not stable. It will therefore not be discussed further.

Figure 3: Commercial and non-commercial services from an operator point of view

If, initially, \( q = mq \) (with, e.g., \( mq = z' \), as can be seen in the second interval in Figure 3) and \( \pi(mq) \geq 0 \), the level of \( mq \) is commercially feasible for operators from the outset. Supplementary direct subsidies are not necessary here. These services have to be classified as
commercial. According to the specific institutional framework of Germany, operators will have to participate in a CCL procedure for the right of exclusivity. Assuming, for simplicity, a perfect auction (perfect competition with $n \to \infty$ bidders and no profits), operators will have to transfer their full “potential profit” $\pi(mq) > 0$ (if existing) into an advanced level of quality $q > mq$ as long as $\sum \geq 0$.\(^{21}\) For example, if PTAs determine $mq$ to be $z'$, operators will transfer $\pi(mq) = x' - y'$ into an advanced level of quality $q$ until $\pi(q) = 0$ (being point B in Figure 3).\(^{22}\)

Point A then represents the threshold for the operator, where services are starting to become commercial on a level of $q = T^A$. Point B represents the threshold, where services would start to become non-commercial due to a relatively high level of $q = mq = T^B$.

If, initially, $q = mq$ (with, e.g., $mq = z''$, as can be seen in the third interval in Figure 3), and $\pi(mq) < 0$ as well as $\pi(q) < 0$ for any $q > mq$, the level of $mq$ is too high to be commercially feasible for operators. Production costs $C(mq)$ for the specific quality requirements as defined by the PTA are too high to be covered by the sum of the fare revenue potential $FR(mq)$ for the specific quality level $mq$.\(^{23}\) These services have to be classified as (real) non-commercial services. Operators are not able to increase their quality $q$ to reach a level that is commercially feasible with $\pi(q) \geq 0$. If PTAs set $mq$ on the level $z''$, supplementary direct subsidies $SDS(mq) = x'' - y''$ are necessary to enable operators to deliver these services without deficits.

Profits for operators are then $\pi(mq) = FR(mq) + SDS(mq) - C(mq) \geq 0$. In the case of non-commercial services they will (have to) receive supplementary direct subsidies on the level $SDS(mq) = C(mq) - FR(mq) > 0$.

\(^{21}\) Setting up this as a maximization problem from an operators point of view: max $q$ such that $\pi(q) = 0$.

\(^{22}\) If no competitive application is expected by the incumbent, a maximisation of $\pi(mq) = x' - y'$ has to be assumed, what will then result in a quantity of quality $q = z'' < T^B$ only, being the usual result within a monopolistic market.

\(^{23}\) In other words: the level of $q$ that is commercially viable for operators without payments from PTAs is $q < mq$. 

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From a PTA point of view, the amount of $SDS(mq)$ necessary to enable the delivery of non-commercial services is the sum of payments necessary to compensate operators for the deficits resulting out of the obligation to deliver a quantity of quality higher than commercially feasible. These compensation payments ($CP$) in favor of the operator charged to the PTA’s budget with a value of $– CP(mq) = SDS(mq)$. The three-dimensional figure below sketches the relation between commercial and non-commercial services with respect to $CP$ (simplification assumption for figure: $CP(mq)$ and $q$ are linear).

**Figure 4: Interaction of commercial and non-commercial services from a PTA point of view**

![Diagram](source: own figure.)

As shown in Figure 4, the main characteristic of non-commercial services is that the level of quality $q = mq$ requires compensation payments $CP(mq) < 0$ in charge of the PTA (see, for example, point D). To win the awarding procedure, operators will have to hand in their offers based on a minimization of $SDS(mq)$. 
If \( q = mq \) and \( CP(mq) \geq 0 \), these services can be classified as commercial. At the threshold \( T^B \), services will start to be commercial with \( CP(mq) = 0 \). The quality offered by an operator will be \( q = mq \) here.

If \( FR(mq) > C(mq) \), operators would be able to pay a franchise fee for the right of exclusivity to operate the specific services for the license term (see, for example, point E). With respect to Figure 3, this franchise fee could be in the amount of \( CP(mq) = x' - y' \) for \( mq = z' > 0 \). Despite this potential to solve budgetary problems, the German market organization for commercial services produces the effect that operators have to raise their quality level \( q \), which they offer to win the auction procedure, until \( CP(q') = 0 \) with \( q = q' > mq \) instead.\(^{24}\) Quality competition then leads to a maximization of the additional quantity of quality \( q^a = q' - mq \) from a PTA (and passenger) point of view.

5.2 Effects of commercial services for market participants

It might be interesting to investigate what franchise fee \( CP > 0 \) operators would have to pay for a license to operate a specific (commercial) service on a quality level \( q = mq \) under exclusivity instead of organizing a quality competition. PTAs would then be able to spend these franchise fees for cross-subsidies for non-commercial services and/or for general budget purposes. Given a specific level of \( mq \), this would lead to a maximization of the single-dimension criteria \( CP(mq) \) by operators. Compared to this, the German institutional framework in force at the beginning of 2009 leads to a maximization of a multi-dimension criteria \( q \). In the case of \( mq < z' \), operators will then offer an additional \( q^a = z' - mq \). Nevertheless, in the case of commercial services, this specific framework protects a specific level of quality \( q' > mq \) for passengers instead of minimizing debts for PTAs.

The current regulatory framework enables operators to determine \( q^a \) on their own. The determination of \( q^a \) is based on marginal revenues with respect to \( q \) as expected by operators and marginal costs with respect to quality. Therefore the level of freedom for operators to

\(^{24}\) This regulation to increase quality instead of paying a franchise fee poses a contrast to some, e.g., British railway franchises (see Nash 2006, 3, 9), where in such a case, operators pay a franchise fee to PTAs.
design the service is higher within the market for commercial services\(^{25}\) than within tendering procedures, where usually, gross cost contracts with a detailed service specification are used\(^{26}\). So operators are able, to some extent, to bridge the gap if PTAs are not putting much effort into the determination of a high level of \(mq\) within their local public transport network.

PTAs who do not want to involve themselves in public transport via a public service contract may prefer commercial services. They are able to avoid the need to conduct a tendering procedure, control the quality delivered, and settle accounts. A further aim might be to avoid financial risks such as energy price risk (see van de Velde et al. 2008a, 59–65, 2008b, 62–63), which are usually covered by PTAs via a public service contract. On the other hand, licenses for commercial services will hinder PTAs from controlling services based on a contractual relationship\(^{27}\) in order to secure a level of service in line with their own interests.

5.3 The challenge of different expectations

Within the existing institutional framework, the critical factor for whether services have to be determined as commercial or non-commercial from a market participant’s point of view is the level of their expectations of revenues at or around the threshold \(T^{\theta}\) with a given \(q = mq\). They need to calculate the maximum revenues they expect to be generated out of the specific license. This may differ between operators (o) and PTAs. One could imagine a situation where \(E_{o}[FR(mq)] \neq E_{PTA}[FR(mq)]\) and therefore \(E_{o}[CP(mq)] \neq E_{PTA}[CP(mq)]\).

Different prospects for passenger reactions to \(q\) can be classified as usual market developments, but some problems remain.

\(^{25}\) See van de Velde et al. (2008b, 31–33) for an example. Some selected German PTAs also have used net cost contracts with less detailed service specifications. Nevertheless, these are still more detailed than most of the PTPs observed on the German public transport.

\(^{26}\) See van de Velde et al. (2008a, 51–56) and van de Velde et al. (2008b, 25–27, 49–52, 62–64, 83–85) for case studies of these tendering procedures from London, Stockholm, and some German cities.

\(^{27}\) See van de Velde et al. (2008a, 72–80) for an overview of possible instruments, pros and cons and case studies on this aspect.
A main problem is that operators will anticipate a different model of market organization (commercial or non-commercial) than authorities. Even market participants’ expectations about the awarding procedure (quality versus price competition, market versus authority initiative) and the contractual relationship (license between operator and LA only or additional direct public service contract between PTA and operator) may differ in such cases.

If operators’ expectations are $E_o[CP(mq)] \geq 0$ and PTAs expectations are $E_{PTA}[CP(mq)] < 0$, this is positive from a budgetary perspective. But PTAs may have developed a public service contract and started a tendering procedure several months in advance (usually costly and time consuming, see VDV 2007).

An analysis of 123 CCL cases with start of operations within the period of 2003–2008 shows that 37% of all 76 market initiatives had different expectations with $E_o[CP(mq)] \leq E_{PTA}[CP(mq)]$. Originally they were tendering procedures initiated by PTAs. Most of these cases can be found in the state of Hesse, which decided to claim all public transport services as non-commercial (see Beck 2009). Where large differences were found between $E_o$ and $E_{PTA}$, the PTAs might have been interested in increasing $mq$ instead. Possibly they facilitated a quality increase on specific criteria that was not profitable for operators (e.g., services during evening hours), but also not financially feasible for the PTAs due to budgetary constraints.

In the case of $E_o[CP(mq)] < 0$ and $E_{PTA}[CP(mq)] \geq 0$, PTAs might not start a tendering procedure early enough. Problems will then arise in carrying out a formal tendering procedure, allowing bidders to develop well-calculated bids and enabling the winner to prepare for starting operations in an adequate manner. Please note that VDV (2007) recommends a total period of almost two years for German tendering procedures to organize a smooth procedure for authorities and operators. In contrast to this, applications to operate commercial services are usually submitted by operators several months before the start of operations.
5.4 The threshold as a break-even point for PTAs

The figure below focuses on the threshold with $CP(mq^0) = 0$, where all revenues are expected to balance operational costs for the minimum level of quality (point $T^B$ with $FR(mq^0) = C(mq^0)$). From a PTA point of view, this is the break-even point. Starting with $mq^0$, the decision regarding the level of $mq$ determines whether subsidies are necessary (non-commercial lines with $mq'' > mq^0$, e.g., point $z''$) or not (commercial lines with $mq' < mq^0$, e.g., point $z'$).

Figure 5: Break-even-point from a PTA point of view

Generally speaking, if PTAs decrease or increase $mq$ for a specific service, ceteris paribus, these services are more likely to be commercial or non-commercial, respectively. Setting $mq$ then determines the difference between the level of services of general interest in a controlled competition regime and what might be commercially possible in a free market regime.
Given that $E_o[CP mq]$ is at least similar to $E_{PTA}[CP mq]$, PTAs are able to influence the market organization (commercial or non-commercial) to be selected for their services within this institutional framework. Political decisions with respect to the level of services of general interest to be provided (level of $mq$), the level of direct influence on services wanted (with or without a direct contractual relationship between PTA and operator) and budgetary constraints are expected to influence their efforts in this matter. The hypothesis that local parameters with respect to costs and revenues are the only criteria allowing an efficient, competitive bus operator to deliver public transport bus services in a commercial way (commercial services as “given nature”) has to be rebutted.

Operators might welcome the existence of commercial and non-commercial services alongside each other within one market. This provides them with a greater variety of business opportunities. However, a conscious decision regarding $mq$ is necessary to provide clarity for operators about the market model to be expected. Questions arise whether sufficient analytical capabilities are in place within PTAs, although they are compulsory to avoid undesired side-effects at the threshold.

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28 Treasurers, for example, are able to “optimize” $mq$ with the aim of minimizing $CP mq$ before any tendering procedure for non-commercial services has to be initiated.
6 Conclusion
The study has analyzed the institutional framework for German public transport services by bus and whether the classification of a specific service as commercial or non-commercial depends on the local conditions and the scale of costs and revenues in isolation. The results show that the level of minimum quality standards imposed on operators is also a decisive parameter. This level is set by public transport authorities, which thus exert a major influence on the classification of services as commercial or non-commercial. If they decide to decrease or increase the minimum quality standards for a specific service, ceteris paribus, these services are more likely to be commercial or non-commercial, respectively.

The survey of the existence of commercial and non-commercial services alongside each other underscores doubts in the feasibility and ease of using this system. This applies especially to a market organization and an awarding procedure that differs fundamentally from one kind of service to the next. According to this, a clear classification of services is important information for operators and authorities when developing their strategies for the market. The potential for uncertainty identified at the threshold then has to be classified as one of the main pitfalls of this system.

Nevertheless, the current framework enables operators to bridge the gap if PTAs are not putting sufficient effort into their local public transport and/or if the sum of fare revenues is high enough to enable commercial services. This possibility for operators to be involved in the market for commercial services represents an important advantage of the existing framework: based on the minimum quality level, operators are free to attract new customers for public transport (and increase their profits) via their entrepreneurial search for better solutions. The co-existence of commercial and non-commercial services then has to be seen as a toolbox for PTAs to organize their local markets according to their own aims.
From a policy (and theoretical) perspective, an interesting question is whether the co-existence between commercial and non-commercial services in Germany, with different forms of market entrance and market organization, is favorable to a market where licenses for commercial services are awarded after payment of a franchise fee. A comparison to truly free market regimes, where the establishment of services is initiated by operators only, or markets where services are tendered only, might also be an interesting subject for further investigation. A third comparison between commercial and non-commercial services would be possible as well.

A potential problem with such an analysis may be the question of the criteria valid overall for the assessment. While the decision criteria for operators are profits, usually in combination with a preference for entrepreneurial freedom, these criteria are heterogeneous for PTAs. Here the difficulty of optimization lies within the combination of the (minimum) quality level and budgetary effects that politicians want to achieve. Further (political) constraints on contractual relationships (aspects of control), risk, and entrepreneurial freedom granted to operators may also be relevant. Only a comprehensive welfare analysis based on the relevant criteria will provide conclusive results on which market model is to be preferred. With respect to the multidimensional criteria mentioned above, this analysis of the optimization potential for PTAs will be a challenging task for future research.
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Wissenschaftlicher Beirat beim BMVBS—Bundesminister für Verkehr, Bau und Stadt-
8.2 Acts of law


Law on the Regionalisation of Public Transport (Regionalisierungsgesetz—RegG): Law as amended and promulgated on December 27, 1993 (see BGBl. I, 2378, 2395), last amended by article 1 of the law from December 12, 2007 (see BGBl. I, 2871).

Demerger Act (Gesetz zur Entflechtung von Gemeinschaftsaufgaben und Finanzhilfen, or Entflechtungsgesetz—EntflechtG): Law as of September 5, 2006 (see BGBl. I, 2098, 2102).


## 9 Index
### 9.1 List of abbreviations

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<td>BGBl.</td>
<td>Bundesgesetzblatt</td>
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<td>CCL</td>
<td>Competition for commercial lines or services (see glossary for further explanations)</td>
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<td>Personenbeförderungsgesetz (Passenger Transport Act, see glossary for further explanations)</td>
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<td>(Local) Public transport plan (see glossary for further explanations)</td>
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<td>VOL/A</td>
<td>Verdingungsordnung für Leistungen, Teil A (Official German Contracting Terms for Award of Service Performance Contracts, Part A)</td>
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### 9.2 List of symbols

- **a**: Fixed costs for operators
- **C**: Cost function
- **CP**: Compensatory payments charging the budget of the authority
- **$E_o[CP]$**: Level of fare revenues as expected by operator
- **$E_o[NS]$**: Level of net subsidies as expected by operator
- **$E_{PTA}[FR]$**: Level of fare revenues as expected by PTA
- **$E_{PTA}[CP]$**: Level of net subsidies as expected by PTA
- **$FR(q)$**: Fare revenues (depending on the quality level delivered)
- **mq**: Minimum quality level as defined by the PTA in its PTP
- **OR**: Other operational revenues
- **q**: Quality delivered by operator
- **$q^*$**: Additional quality exceeding **mq**
- **SDS**: Supplementary direct subsidies, necessary to enable a non-deficitary delivery of services by operators on the minimum quality level **mq**
- **SFR**: Subsidies for fare reductions
- **T**: Threshold (see glossary for further explanations)
- **π**: Profits for operators
9.3 Glossary

Application or application form (Genehmigungsantrag): Offer or request by an operator as an applicant to operate commercial or non-commercial services on a specific line or network bundle, filed with the licensing authority by using a specific application form (see website under Bezirksregierung Detmold 2008 in the references for an example).

CCL—Competition for commercial lines or services (Genehmigungswettbewerb): Situation where at least two operators are filing an application for licenses for commercial services.

Commercial lines or services (Eigenwirtschaftliche Verkehre): Operating costs for these services are covered by fare and other operational revenues (see § 13 PBefG).

Common German Law for Railways (Allgemeines Eisenbahngesetz—AEG): Main legal basis for railway services.

Competition for non-commercial lines or services: PTAs have the obligation to award subsidies for non-commercial services at lowest cost possible (see §§ 8 (4) and 13a PBefG). PTAs are allowed to award their supplementary direct subsidies through tendering procedures (Ausschreibungswettbewerb) similar to tendering procedures conducted in Denmark or Sweden.

Exclusivity: If a new application to operate a bus line competes with existing public transport services, and the operators of the existing lines claim convincingly that the profitability of these services is jeopardized, the licensing authority has to reject the new application. In reality this has resulted in a status of more or less exclusivity for holders of existing licenses (incumbent operators).

German Law on the Regionalization of Public Transport (Regionalisierungsgesetz—RegG): Legal framework to regionalize and re-finance public transport, established during market reform in the mid-nineties.
**Gross cost contracts**: Contracts where the PTA bears the revenue risk.

**Incumbent**: The incumbent operator, possessing the existing (old) license to operate.

**Institutional or regulatory framework**: Legal framework for the public transport sector as established at the national level (including the crucial laws PBefG, AEG and RegG).

**LA—licensing authority** (Genehmigungsbehörde): This authority grants the licenses to operators, who apply for them. This authority is entrusted with the obligation to safeguard security of operation for passengers and to ensure a continuous delivery of services.

**License or license for public transport services** (Genehmigung): Authorization to operate public transport services as defined in the bid filed by the operator (application), and based on § 13 or § 13a PBefG. It is awarded by the licensing authority and provides exclusivity (see above) to operators.

**License term** (Laufzeit der Genehmigung): The period the operator is authorized to operate the services granted under the existing license

**Licensee** (Genehmigungsinhaber): Operator holding a license to operate a specific line for the duration of the license term

**Local Authority Traffic Financing Act** (Gemeindeverkehrsfinanzierungsgesetz—GVFG): Main legal basis for subsidies paid by national, state, and local authorities to support long term investments in infrastructure and vehicles for public transport.

**Market initiative**: Initiative to operate services by operators.

**Market participants**: PTAs, LAs and operators.

**Net cost contracts**: Contracts where the operator bears the revenue risk.

**Non-commercial lines or services** (Gemeinwirtschaftliche Verkehre): Operating costs for these services are not covered by fares and other revenues; supplementary di-
rect subsidies by the PTA are necessary to ensure these services run at an adequate level (see § 13a PBefG).

*Non-railway services:* All public transport services, including bus and light rail services, excluding heavy railway services.

*Other operational revenues* according to § 8 (4) PBefG (sonstige Unternehmenserträge im handelsrechtlichen Sinne): Direct or indirect subsidies granted by state authorities for a specific purpose, not accounted as “subsidies” for non-commercial services.

*Passenger Transport Act* (Personenbeförderungsgesetz—PBefG): Main legal basis for organizing the German public transport market for non-railway services.

*Priority of commercial services:* In case the licensing authority has two applications to operate a specific service or line, one commercial and the other non-commercial, it is mandatory to grant the license to the operator applying for a commercial license. See § 8 (4) PBefG.

*Proposal:* First official proposed amendments of the PBefG to amend the national legal framework to comply with the new EU regulation 1370/2007 coming into effect on December 3, 2009 (see BMVBS 2008).

*PTA—public transport authority* (Aufgabenträger): Authority responsible for securing an adequate level of public transport services in its territory in accordance with the provision for essential public services (“Sicherung der Daseinsvorsorge,” see § 1 RegG).

*PTP—(local) public transport plan* (Nahverkehrsplan): Plan as set by PTAs on minimum quality standards (e.g., minimum frequency of service, junctions, vehicle standards such as air-conditioning and low-floor entry), and their goals for improving public transport in the near future within their territory.
Short distance services: Regularly operated lines of up to 50 kilometers distance and/or one hour travelling time, as defined in both § 2 RegG and § 8 (1) PBefG.

T-threshold: Point where all operational costs for the minimum level of quality, as defined by the PTA in its PTP, are covered by fare and other operational revenues.