



Bundesnetzagentur

Railway Market Analysis

2011

Bundesnetzagentur für Elektrizität, Gas,
Telekommunikation, Post und Eisenbahnen

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Rail market in figures

Revenues RUs (in € bn)			Δ09/10
2010	Total	17.1	↗
	Freight	4.3	↗
	Long-d. pass.	3.7	↗
	Short-d. pass.	9.1	↗

Revenues IMs (in € bn)			Δ09/10
2010	Total	5.2	↗
	Track charges	4.2	↗
	Station charges	0.7	→
	Other charges	0.3	→

Operating performance			Δ09/10
2010	Freight	107 bn tkm	↗
	Long-d. pass.	36 bn pkm	↗
	Short-d. pass.	47 bn pkm	↗

Competitors' share			Δ09/10
2010	Freight	25%	→
	Long-d. pass.	<1%	→
	Short-d. pass.	12%	↗

Where final figures were not yet available at the time of going to press of this report, the data were marked with an „e“ (estimate).

Summary

After a significant downturn in 2009, German economic performance rebounded in 2010. The gross domestic product rose price-adjusted by 3.7 per cent compared with the previous year. The economy is expected to grow by about 2.8 per cent in the current year (2011).

Spurred on by the positive trend, turnover in rail transport rose again in 2010 (+4%). The rail freight service posted the highest gains (+10%). The rail passenger service also posted slight increases. The rail infrastructure segment likewise reported positive growth. Earnings from rail infrastructure access charges totalled €5.2 billion in the year under review.

Transport volumes and transport performance increased in all transport segments in 2010. Here again, the rail freight service reported the highest increases.

In the rail freight segment the competitors were able to retain their market share of 25 per cent of transport performance. It is worth noting that the competitors in the rail freight segment did not lose any market shares to DB Schenker Rail Deutschland AG despite a disproportional increase in transport services. In the short-distance rail passenger transport segment their share rose to 12 per cent (+1%). In the long-distance passenger transport segment, competitors' share continues to stagnate below 1 per cent.

The operating performance (train-kilometres) on public tracks recorded a positive trend in 2010. It rose from 1.02 billion train-km in 2009 to just under 1.06 billion train-km in 2010, a year-on-year change of nearly 4 per cent. A major growth driver was the rail freight service which posted a gain of about 25m train-km compared with 2009.

The rail infrastructure access charges - which are a key cost factor for railway undertakings - rose in 2010. All in all, the freight transport companies, long-distance rail passenger transport companies and short-distance rail passenger transport companies had to set aside just under 18 per cent, roughly 25 per cent and even as much as 37 per cent of their revenues, respectively, for infrastructure charges.

1. Introduction

1.1 Railway sector mandate of the Bundesnetzagentur

Since January 2006, the Bundesnetzagentur has been tasked with monitoring compliance with the legal provisions regulating the non-discriminatory access to rail infrastructure (tracks and service facilities) and the levying of non-discriminatory charges with a view to ensuring well-functioning competition in the railway sector.

The specific tasks and rights of the regulatory authority are set forth in Sections 14 to 14g of the General Railway Act (AEG), supplemented by the provisions in the Rail Infrastructure Usage Regulations (EIBV).

1.2 Basis for this report

The Bundesnetzagentur's manifold tasks in the railway sector, such as the examination of the terms of use of rail networks and service facilities and of the arrangements pertaining to charge structures and levels, are necessarily dependent on direct access to up-to-date and valid information about the rail market in general and the railway companies in particular.

For this reason the Bundesnetzagentur has been carrying out a market survey since its inception in 2006. The annual questionnaire is mailed to railway companies and to other access beneficiaries and responsible entities, e.g. public-service entities, some time between April and July. In 2010, the year under review, the Bundesnetzagentur sent its questionnaire to more than 700 market participants.

The results of the survey are published not only in the "Railway Market Analysis" but also in the Bundesnetzagentur's Annual Report and Activity Report Railway¹. The latter two publications focus on the regulatory perspective of the market whereas the Market Analysis contains up-to-date statistical core data, enabling interested parties to gain an insight into the developments and structure of the railway sector.

¹ Both the Annual Report and Activity Report can be downloaded from the regulatory agency's website <http://www.bundesnetzagentur.de>.

1.3 Market definition

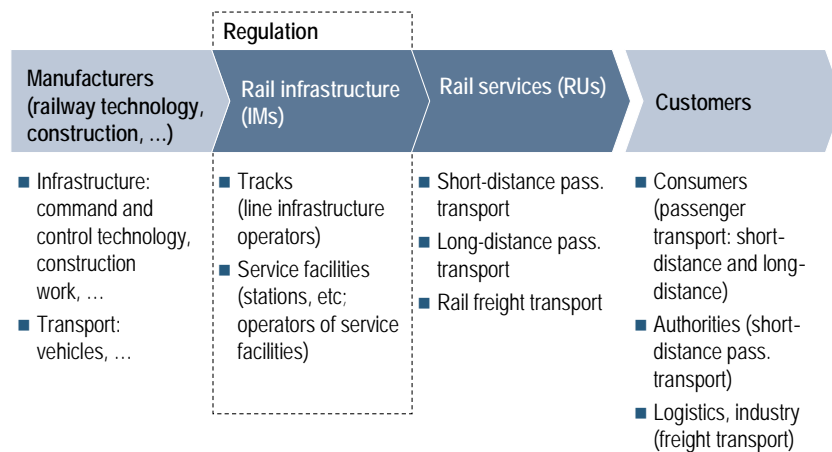
The Railway Market Analysis 2011 focuses on rail transport on public rail infrastructure.

This covers the infrastructure managers (IMs) who must provide access and, depending on the type of infrastructure they operate, are referred to as public railway line infrastructure operators and/or public operators of service facilities. In Section 2(3)c of the General Railway Act (AEG), the service facilities are further broken down into refuelling facilities, passenger stations, freight yards and freight terminals, marshalling yards, train formation facilities, storage sidings, maintenance facilities and ports.

Rail transport is the rail infrastructure market's downstream market in which passenger and freight transport is provided. An overview of the relevant market definition for the Railway Market Analysis is given below.

Market definition for the Railway Market Analysis

■ Market analysis focus: public railway undertakings and infrastructure managers



Source: Bundesnetzagentur

Figure 1: Market definition for the Railway Market Analysis

1.4 Methodology for the evaluation of influencing factors

Chapter 4 (rail infrastructure market) and Chapter 5 (infrastructure access charges and prices) deal with the issue how railway undertakings (RUs) rate the factors influencing the railway market. These evaluations are based on the section titled „Factors influencing the railway market“ in the survey for RUs².

In this part of the survey RUs are given the opportunity to **subjectively** assess aspects such as the status quo regarding access to tracks and service facilities. They can allocate marks from „1 - excellent, no need for action“ to „5 - inadequate, urgent action needed“.

Responses to this part of the questionnaire are voluntary. Nevertheless, quite a few RUs submit their views on the state of the market so that the results are deemed to mirror market conditions from a representative perspective and not just a purely regulatory one. The ranking of similar indicators also indicates the areas in which RUs feel there are major problems.

Since RUs usually assess the market from their current point of view, these findings – unlike the other evaluations in the Railway Market Analysis 2010 – do not relate to the year under review but to the year in which the Bundesnetzagentur carried out the survey, i.e. 2011.

² The questionnaire for RUs can be downloaded from <http://www.bundesnetzagentur.de>.

2. Market structure data

2.1 Market environment

After a record deficit in 2009, German economic activity posted a significant surplus in 2010. Gross domestic product increased price-adjusted to 3.7 per cent compared with the previous year. The whole of Europe (EU27) also recorded positive growth over the same period but to a lesser extent than Germany (+1.9%).

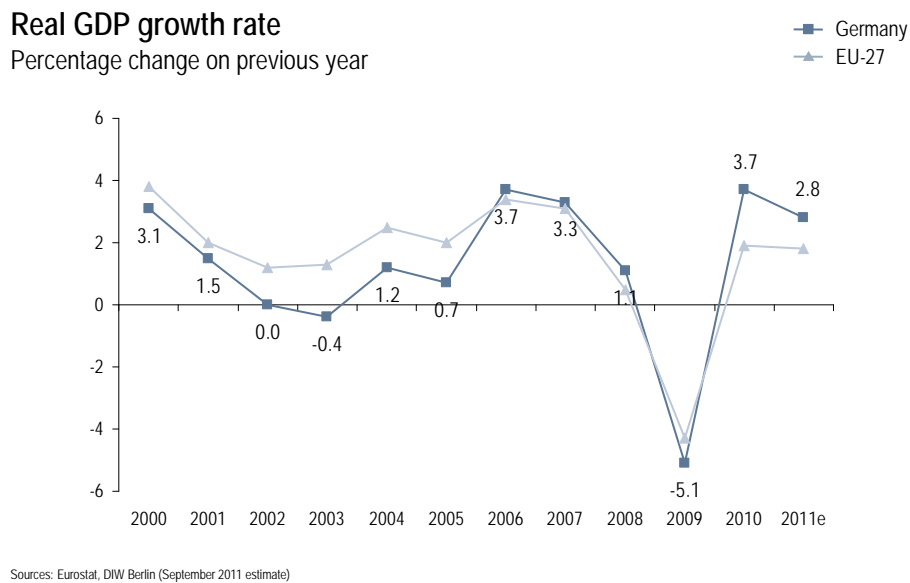


Figure 2: Real GDP growth rate

The German economy is expected to grow by about 2.8 per cent in 2011. Growth will be based largely on the dynamic economic upturn in the first six months of the year.

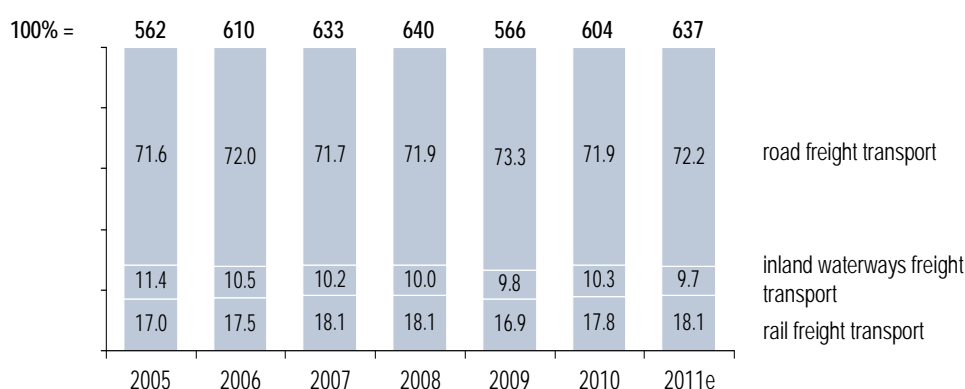
2.2 Modal split

After losses of just under 11 per cent in 2009, the overall freight transport market (road, inland waterways and rail freight transport) in Germany in the year under review rose by 6.7 per cent and has hence recovered. The overall performance 2010 totalled 604 billion tonne-kilometres (tkm). The road freight transport segment posted losses. Its percentage share in the modal split dropped from 73.3 per cent in 2009 to 71.9 per cent in 2010. The inland waterways freight transport segment was able to expand its share to 10.3 per cent. The rail freight transport segment also recorded a positive trend, with its percentage share in the modal split in 2010 reaching 17.8 per cent.

This trend is expected to continue in 2011, with the rail and road freight transport segments possibly regaining shares from the inland waterways segment due to inclement weather conditions and the blocking of the Rhine River at the beginning of 2011, coupled with a long period marked by low water levels in the fourth quarter. The inland waterways freight transport segment will therefore probably again drop to below 10 per cent in 2011. With an overall performance of 637 billion tkm, it is estimated that the road freight transport segment's share in the modal split will rise to 72.2 per cent and that the rail freight transport segment's share will increase to 18.1 per cent.

Modal split of freight transport

Figures in bn tkm, shares in %



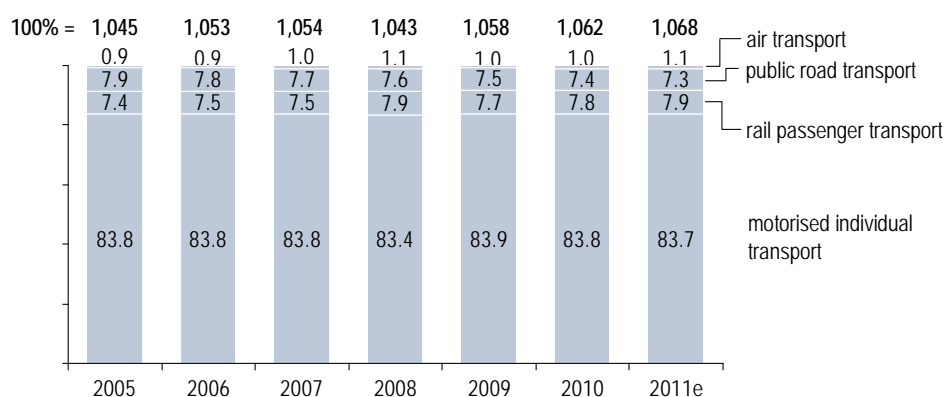
Source: Federal Statistical Office

Figure 3: Modal split of freight transport

In 2010, transport performance in the passenger market rose by 0.4 per cent to 1.062 billion passenger kilometres (pkm). The rail passenger transport market was able to increase its market share from 7.7 per cent to 7.8 per cent. Motorised individual transport dropped slightly. The public road transport segment's share decreased from 7.5 per cent in 2009 to 7.4 per cent in 2010, continuing this segment's 2005 downward trend in the modal split. Air transport (inland transport) recorded a slight increase in its percentage share.

Modal split of passenger transport

Figures in bn pkm, shares in %



Sources: BMVBS, transport in figures 2009/2010

Figure 4: Modal split of passenger transport

Overall transport volumes are expected to continue to grow in 2011. The motorised individual transport and the public road transport segments' shares are expected to decline to the benefit of rail passenger and air transport.

2.3 Revenue development

In 2010, the rail transport market was again able to increase its revenue (+4%). The rail freight transport segment recorded the highest revenue increase (+10%) and recovered from the effects of the economic and financial crisis. The rail passenger transport service also posted slight increases. The rail infrastructure segment also reported positive growth. Earnings from access charges for rail infrastructure totalled €5.2 billion.

2.3.1 Railway undertakings

In the year under review, the German rail transport segment's revenue increased to €17.1 billion, corresponding to a rise of 4 per cent.

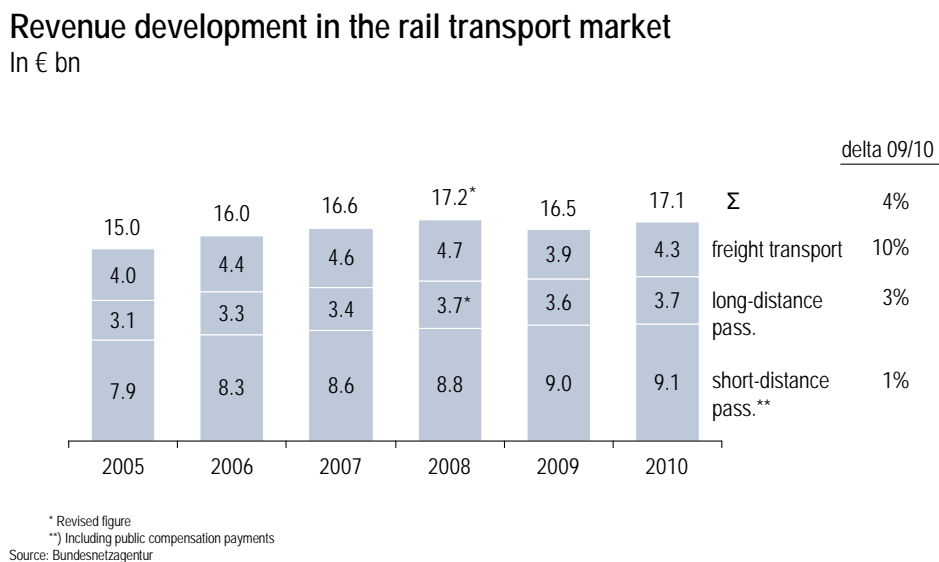


Figure 5: Revenue development in the rail transport market

As shown in the above chart, the RUs of all transport services have gained. Particularly noteworthy is the positive trend in the rail freight transport segment where revenue totalled €4.3 billion after a severe decline in 2009 (+10%). By contrast, the passenger transport segments remained stable. Revenue in the long-distance rail transport market rose by 3 per cent to €3.7 billion. In the short-distance rail passenger transport segment the RUs had sales of €9.1 billion (+1%).

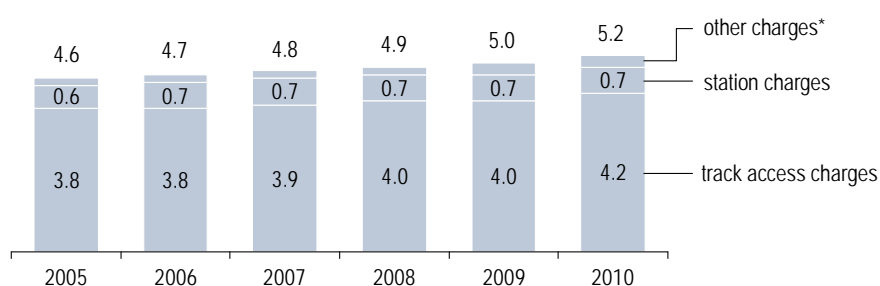
2.3.2 Infrastructure managers

The IMs derive their income from the charges collected from RUs for the use of rail infrastructure, such as train paths and service facilities.

As shown in the chart below, income from track access charges in the year under review accounted for about 81 per cent of the revenues totalling €5.2 billion. €700m were raised in the form of station charges and some €300m were charged for the use of other service facilities, such as marshalling yards, maintenance facilities and ports.

Revenue development in the rail infrastructure market

In € bn



*) Including access charges for service facilities other than maintenance and refuelling facilities
Source: Bundesnetzagentur

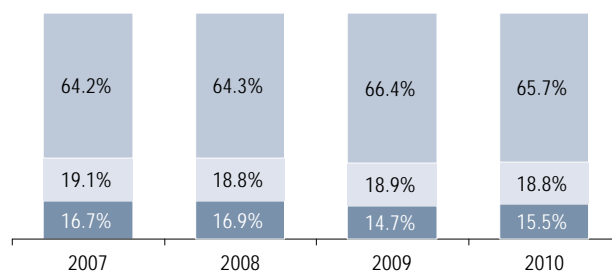
Figure 6: Revenue development in the rail infrastructure market

Since 2005, annual revenues have risen by about 2 per cent. The rail infrastructure market continued its growth during the crisis. This was mainly due to the fact that short-distance rail passenger transport, which is relatively immune to economic fluctuations, forms the bulk of railway line infrastructure operators' income. In the course of the economic recovery, the rail freight transport segment was able to increase its share of the revenues after 2009 (see Figure 7).

German line infrastructure operators' share of total revenues from track access charges by type of transport*

Percentage shares

■ share short-distance pass. transport
■ share freight transport
■ share long-distance pass. transport



*) Excluding other types
Source: Bundesnetzagentur

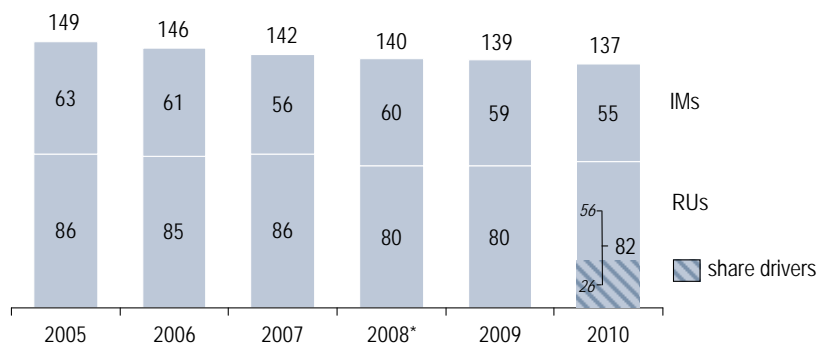
Figure 7: German railway line infrastructure operators' share of total revenues from track access charges by type of transport

2.4 Employment

In 2010, the rail market's workforce totalled 137 thousand people, of which roughly 82 thousand were employed by the RUs and nearly 55 thousand by the IMs. As Figure 8 shows, employment in the rail infrastructure segment is declining. Part of this trend was compensated by new jobs in the RUs.

Employment in the rail market

Figures in thou



* From 2008, changed allocation of several large integrated companies to transport and infrastructure sectors
Source: Bundesnetzagentur

Figure 8: Employment in the rail market

For the first time, the Bundesnetzagentur's survey for the year under review also specifically targeted the number of drivers employed by the RUs. As Figure 8 shows, of the 82 thousand RU employees, 26 thousand are drivers.

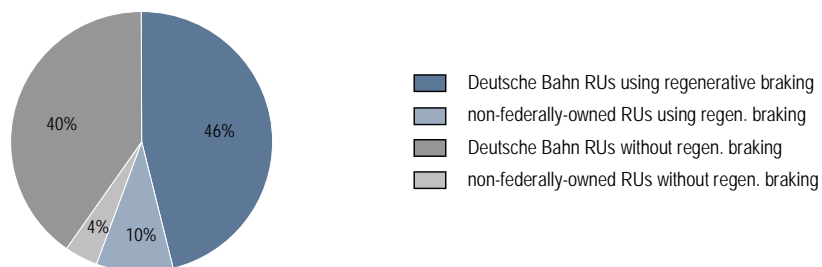
2.5 Rolling stock

The rolling stock of the companies in Germany currently consists of about 11,000 powered vehicles³. These include locomotives, driving units of a rail motor set, railcars and multiple units, as long as they can operate as smallest unit. The companies also have more than 9,200 passenger carriages and just under 150,000 freight cars⁴.

Roughly 45 per cent are electric-powered vehicles or vehicle units. Most of these are vehicles featuring three-phase AC propulsion, i.e. these vehicles use regenerative braking (56%).

Rolling stock – electric vehicles

Vehicles with regenerative braking



Sources: Federal Railway Authority, National Vehicle Register

Figure 9: Rolling stock – electric vehicles

Approximately two-thirds of the freight cars belong to the Deutsche Bahn AG, the rest belong to the non-federally-owned RUs or wagon keepers (mostly private leasing companies). Nearly a quarter of the passenger carriages are privately owned.

³ Excluding the S-Bahn Hamburg and S-Bahn Berlin

⁴ Source: Federal Railway Authority

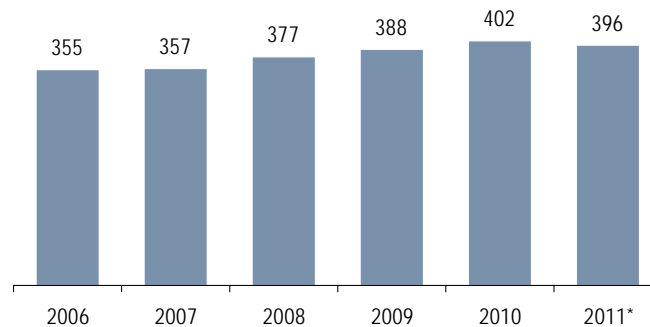
3. Rail transport market

3.1 Number of public railway undertakings

Under Section 3(1) para 1 of the AEG a railway undertaking is deemed a public one if it is run on a commercial basis and may be used by anyone for the conveyance of persons or goods (see also section 1.3). The Federal Railway Authority in Bonn maintains a list of the public RUs. As can be seen from the chart below, about 400 RUs have been issued a licence to provide public railway services.

Licensed public railway undertakings

Number of RUs in Germany at year's end



*) September 2011
Source: Federal Railway Authority

Figure 10: Licensed public RUs

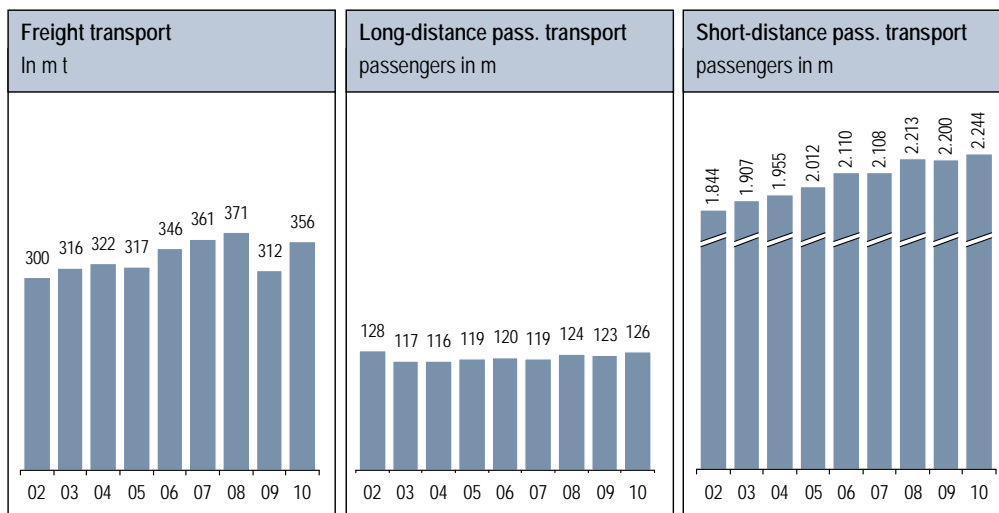
According to the information available to the Bundesnetzagentur, in 2010 about 250 RUs were actively involved in providing railway services. Nearly 100 RUs offer short-distance rail passenger transport and more than 10 RUs long-distance rail passenger transport. Approximately 140 RUs provide rail freight or other transport services.⁵

⁵ In some instances RUs provide services in several market segments.

3.2 Transport volumes

Transport volumes rose in all traffic segments in the year under review. As can be seen in the charts below, 365m tonnes of freight were transported by the RUs in 2010, an increase of 14 per cent compared with the previous year. Other segments also experienced moderate growth. According to the Federal Statistical Office, long-distance rail passenger traffic rose to 126 million people (+3m passengers carried, ca. +2%). In the short-distance rail passenger transport segment, 2.244m people used the services offered (+44m passengers carried, ca. +2%).

Development of transport volumes



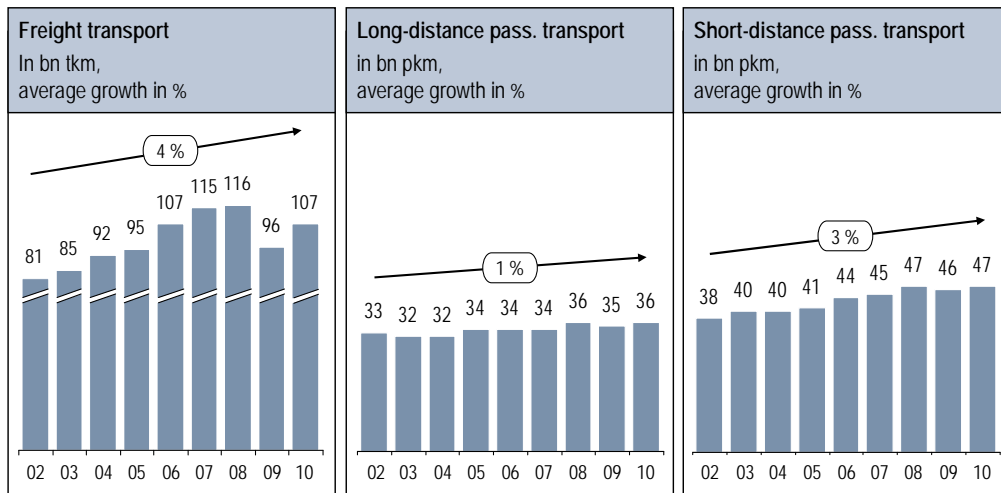
Source: Federal Statistical Office

Figure 11: Development of transport volumes

3.3 Transport performance

As illustrated by the following charts, the negative trend of the previous years has been broken. In all transport segments, especially the rail freight transport segment, the overall upward trend continued.

Transport performance



tkm: tonne-kilometres, pkm: passenger kilometres
 Sources: Bundesnetzagentur, Deutsche Bahn AG, Federal Statistical Office

Figure 12: Development of transport performance

The rail freight transport segment is very susceptible to the performance of the overall economy. This led to a significant fall in rail freight transport during the 2009 economic and financial crisis. By contrast, the rail freight service is currently benefitting from the positive market environment (see also section 2.1).

Rail freight transport performance

Monthly performance in m tkm

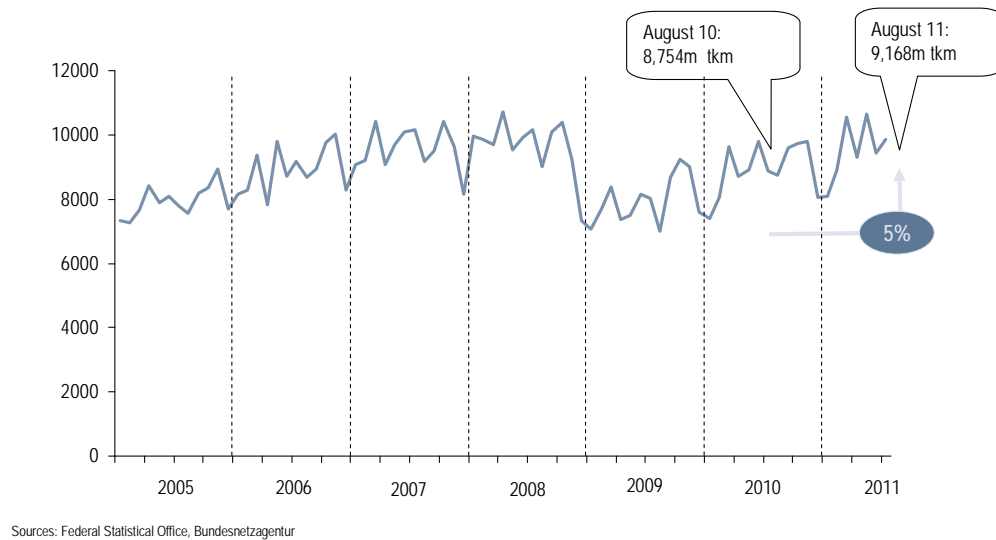


Figure 13: Rail freight transport performance

As shown by the above graph, the performance in the rail freight transport segment is gradually returning to its peak levels in 2007 and 2008. Traffic levels in August 2011 were 5 per cent higher year-on-year. Since rail freight traffic is continuing its upward trend, the segment could reach or even exceed its 2008 record high of 116 billion tkm in 2011.

In the short-distance rail passenger transport segment, performance has been increasing by an average 2 per cent since 2002. The decrease by 1 percentage point in 2009 was offset by an increase by 1 percentage point in 2010 to 47 billion pkm.

The upward trends are expected to continue in 2011.

3.4 Revenue development in the short-distance rail passenger transport segment

The revenue of the RUs which operate under a public service obligation (PSO) agreement is made up of farebox revenues and public compensation payments. The latter mainly consist of funds made available by the federal government to the Länder under the Regionalization Act.

Figure 14 illustrates the significance of the two revenue sources. Whereas the share of market revenues rose between 2005 and 2007, it has now stabilised at around 40 per cent.

Public compensation payments as a percentage of revenues in the short-distance pass. transport segment

Total income in € bn, shares in %

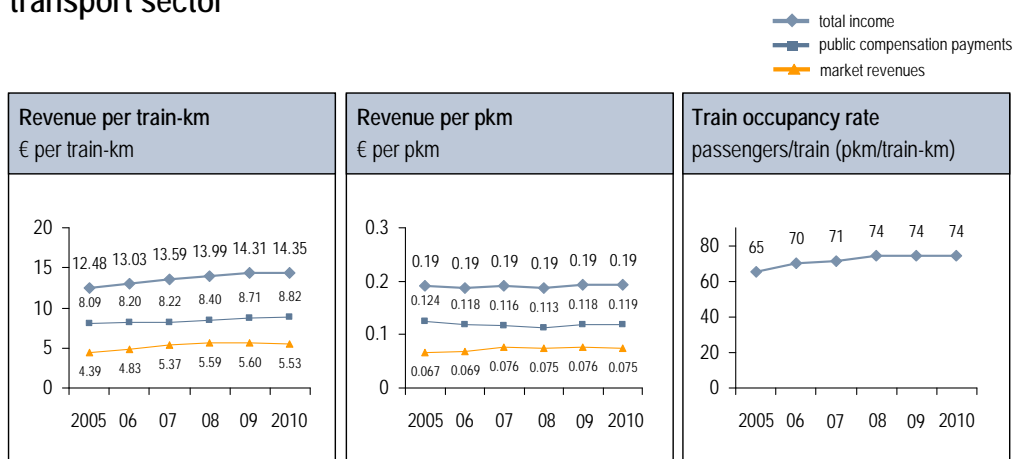


Sources: Bundesnetzagentur, VDV

Figure 14: Public compensation payments as a percentage of revenues in the short-distance rail passenger transport segment

All in all, revenue per train-km has risen slightly since 2005 whilst revenue per pkm has more or less remained constant. The compensation payments granted per train-km have increased slightly from €8.09 in 2005 to €8.82 in 2010. As far as performance in terms of pkm is concerned, compensation payments decreased from 12.4 cents in 2005 to 11.9 cents in 2010.

Specific revenue and mean train occupancy in the short-distance passenger transport sector



Sources: Bundesnetzagentur, VDV, Competition Report

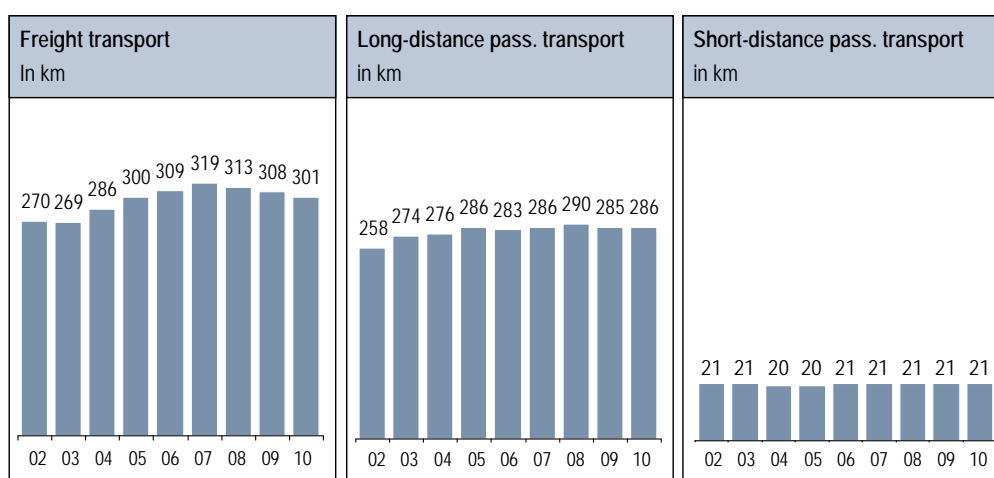
Figure 15: Specific revenue and mean train occupancy in the short-distance rail passenger transport sector

The seemingly inconsistent development is explained by an increase in the load factor. In 2010, the mean train occupancy rate was 74 passengers per train whereas in 2005 an average of just 65 passengers were transported per train.

3.5 Transport and travel distances in the rail transport segment

The average transport and travel distances are calculated on the basis of the quotient of performance and volume in the various segments. The charts below show the average distance travelled by passengers and the average distance over which freight was transported within Germany, illustrating how this performance indicator evolved.

Evolution of transport and travel distances



Sources: Federal Statistical Office, Bundesnetzagentur

Figure 16: Evolution of transport and travel distances

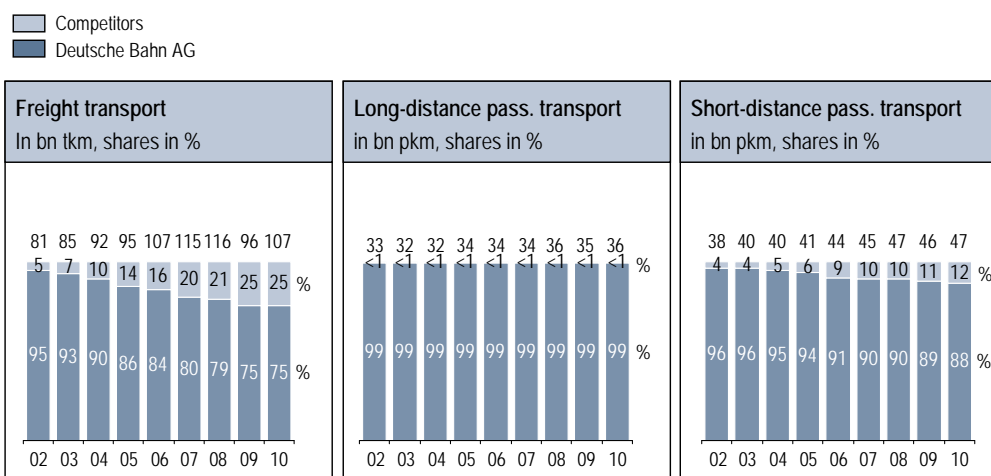
In long-distance rail passenger transport, the average travel distance again rose by one kilometre to 286 kilometres. The travel distances in short-distance rail passenger transport remained unchanged. In the rail freight transport segment, the average transport distance again declined and in 2010 was about 301 km compared with 308 km in 2009.

When looking at the average travel and transport distances, it should be borne in mind that in its market analysis the Bundesnetzagentur only takes inland transport services into account. This means that in the case of cross-border services, only the distance to and from the border is included in the calculations. Since in the rail freight transport segment roughly 50 per cent of all goods are transported across borders, especially the mean transport distance in relation to the goods is much higher.

3.6 Competitive trends

Both in the rail freight transport segment and the short-distance rail passenger transport segment the competitors' share continued its upward trend.

Competitive trends in the various segments



Sources: Bundesnetzagentur, Deutsche Bahn AG, Federal Statistical Office

Figure 17: Competitive trends in the various segments

In the rail freight transport segment, the competitors' 25 per cent share of transport performance remained stable. In the short-distance rail passenger transport segment, their share rose to 12 per cent, up by 1 percentage point from the previous year. In the long-distance rail transport market, their share continues to be less than 1 per cent.

On the positive side it should be noted that the competitors were able to keep pace with the steep rise in demand and that gains were posted not only by the market-dominating enterprises. DB Schenker Rail Germany AG still holds 75 per cent of the overall transport performance in the German rail freight transport market.

The competitors' share of the long-distance rail passenger transport market continued to stagnate at less than 1 per cent in 2011 as well, indicating a lack of genuine competition in this market. Announced market entries, such as by MSM and HKX, have been postponed and will take place at the earliest in 2012, if at all.

In 2010, the competitors' share of the short-distance rail passenger transport market edged up to 12 per cent and hence accounted for nearly each eighth pkm. Largely

due to the Federal Court of Justice's ruling that inviting tenders for transport services should be the norm, competition in this segment is expected to increase. Since about two-thirds of the transport services in Germany will be put up for tender in the next five years, both the competent authorities and the RUs will face a major challenge.

4. Rail infrastructure market

4.1 Number of infrastructure managers

About 180 railway line infrastructure operators and 450 service facility operators providing access are currently registered with the Bundesnetzagentur. As some of these companies operate both line infrastructure and service facilities, there is some overlap so that from a legal point of view just under 500 companies are subject to regulation.

However, the actual number of IMs may differ from the number stated above as the Bundesnetzagentur does not have definitive figures on the number of IMs active in the market. There is no complete list of IMs which is maintained by a central office. Some IMs are obliged to apply for a licence but this work is spread across numerous licensing authorities. It should also be borne in mind that for most of the service facilities, no operating licence is needed.

According to the data available to the Bundesnetzagentur, some 120 IMs operate about 37,700 km of route length and 62,600 km of track length (exclusive of tracks in service facilities). Of these, public non-federally-owned railway line infrastructure operators operate approximately 4,300 km of route length and 4,700 km of track length (exclusive of tracks in service facilities).

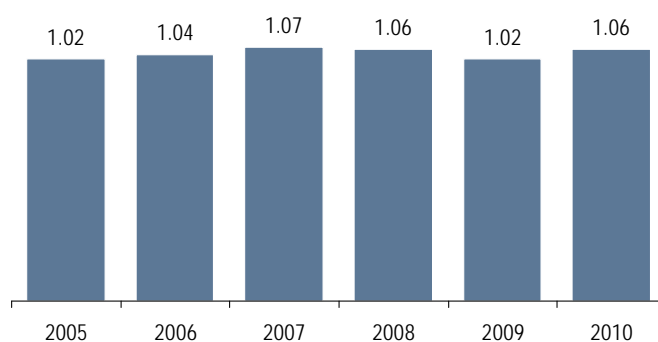
4.2 Operating performance

The operating performance on public railway lines increased in the year under review. It rose from 1.02 billion train-km in 2009 to just under 1.06 billion train-km in 2010 which translates into an increase of nearly 4 per cent.

This growth was driven mainly by rail freight traffic which posted an increase of about 25m train-km compared with the previous year. Short-distance rail passenger traffic also rose whereas long-distance rail passenger traffic stagnated.

Operating performance

Bn train-km on the railway lines of public IMs



Source: Bundesnetzagentur

Figure 18: Operating performance

The share of operating performance on Deutsche Bahn AG's rail infrastructure remained high at 98 per cent, leaving 2 per cent on non-federally-owned (public) infrastructure.

4.3 Terms of use for rail infrastructure

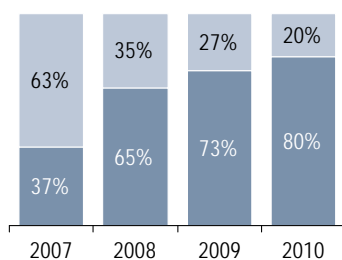
The legally mandated non-discriminatory access to rail infrastructure calls for all access beneficiaries being able to use the infrastructure on the same terms and conditions. The terms for using infrastructure have to be drawn up in the form of network statements (for railway line infrastructure operators) or service facilities statements (for service facility operators).

In the past few years, the number of companies complying with the legal requirements has steadily increased. On the whole, the service facility operators tend to lag further behind in their endeavours to fulfil requirements. Yet a quota of 70 per cent of companies that had drawn up terms for the use of service facilities in 2010 compares well with the figure of 48 per cent that had done so in 2007.

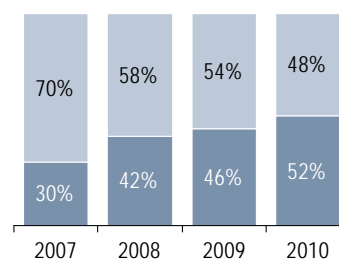
Number of infrastructure companies that have drawn up terms of use

■ Service facilities statement/network statement not yet available
■ Service facilities statement/network statement available

Number of IMs (railway lines) with network statement
Percentage of railway line infrastructure operators



Number of IMs (service) with service facil. statement
Percentage of service facility operators



Data based on partial analysis.
Source: Bundesnetzagentur

Figure 19: Number of infrastructure companies that have drawn up terms of use

The Bundesnetzagentur actively encourages infrastructure companies to draw up network statements and service facilities statements. The number of service facility operators that have done so is expected to rise steeply in the next few years.

4.4 Pre-designed train paths

With a view to creating a European rail network for competitive freight, EU Regulation 913/2010 calls for the reservation of capacity for international freight on freight corridors 1, 3 and 8 in 2013. To make sure that the capacity specified can be made available, the railway line infrastructure operators have to design train paths along predefined parameters rather than in accordance with individual customers' wishes.

In its 2011 market survey, the RUs were questioned about pre-designed train paths with a view to sounding out their attitude. Nearly 30 per cent of the RUs use the freight corridors defined by the EU, or at least parts thereof.

Thirty per cent of the RUs are in favour of pre-designing exclusively international freight train paths. Twenty-one per cent advocate pre-designing additional train paths for short-distance rail passenger transport and 17 per cent favour pre-designing train paths for long-distance rail passenger transport. Fifteen per cent support the idea of additional pre-designed paths for (national) freight transport. Twenty-nine per cent of the respondents deemed pre-designed train paths a suitable tool in the case of congested railway lines, 25 per cent consider pre-designed train paths to be suitable for other particularly busy main routes and 27 per cent supported them in the case of construction work.

Over 50 per cent of the respondents consider pre-designed train paths along the freight corridors to be of disadvantage, one of the reasons being that the RUs have specific train configuration requirements not covered by the array of pre-designed train paths, and are therefore dependent to a greater degree on individually designed ones. As shown in the chart below, this applies in particular to RUs operating in the rail freight transport segment (58%) or offering other railway services (25%)⁶.

⁶ "Other railway services" refer, inter alia, to transfer runs, service runs, work runs, recording runs, test runs or inspection runs and signal runs.

Market survey on pre-designed train paths

„Since I rely on very unusual train configurations, I will probably have to continue using custom-tailored train paths.“

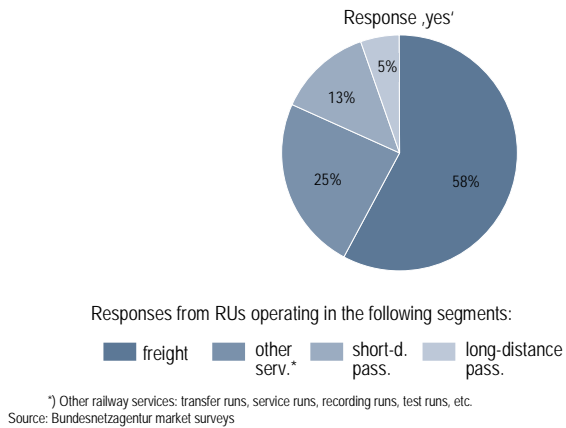


Figure 20: Need for custom-tailored train paths according to traffic type

Figure 21 shows that 54 per cent of the rail freight transport companies see the need for custom-tailored train paths. They handle 10 per cent of the overall operating performance in this mode of transport. Forty-three per cent of the RUs involved in other railway services confirmed the need for custom-tailored train paths.

Market survey on pre-designed train paths

„Since I rely on very unusual train configurations, I will probably have to continue using custom-tailored train paths.“

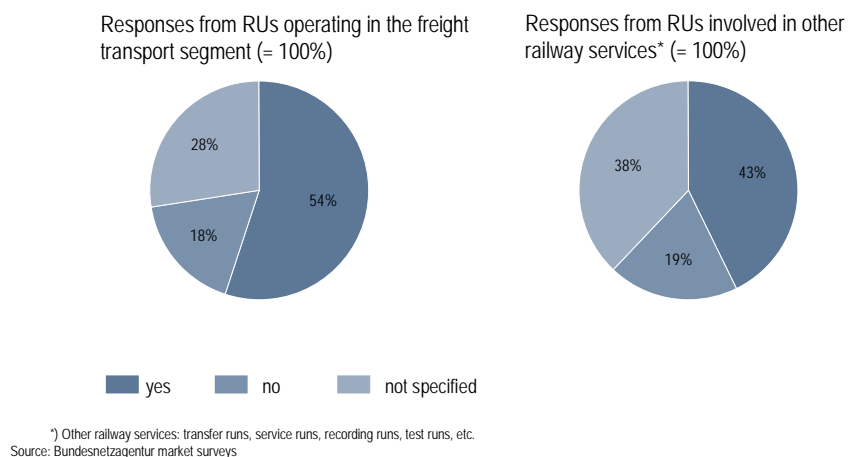


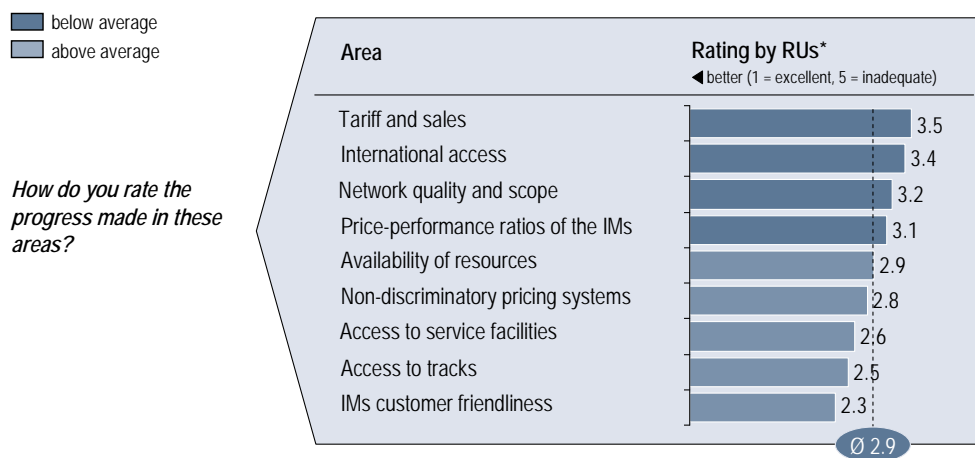
Figure 21: Responses for rail freight transport and other railway services

4.5 Rating access to rail infrastructure

As part of its annual market survey, the Bundesnetzagentur gives RUs the chance to rate market-relevant aspects (see section 1.4).

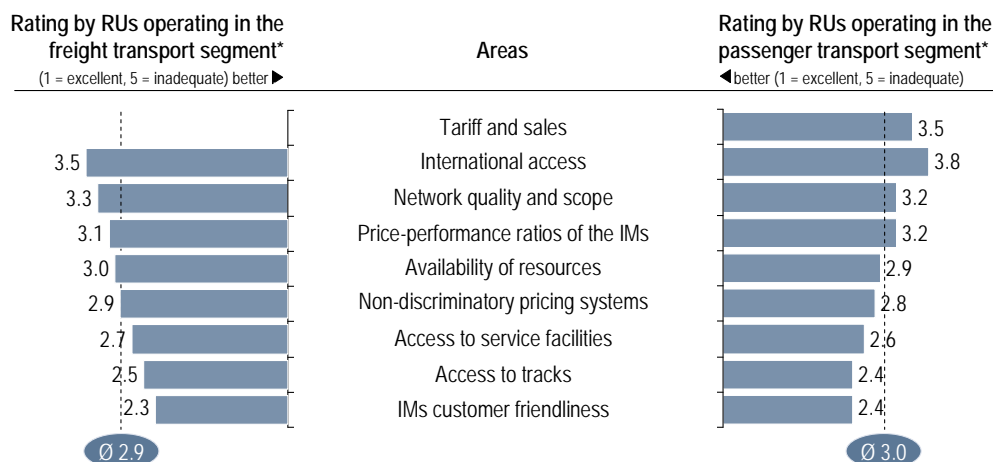
The RUs still identify numerous problem areas. Tariff and sales in passenger transport (rating: 3.5), access to international rail infrastructure (rating: 3.4) and network quality and scope (rating: 3.2) are deemed particularly critical.

Factors influencing the railway market



*) These figures have been calculated as the mean value of the critical aspects (individual values) in the listed areas.
Source: Bundesnetzagentur

Segment-related responses



*) These figures have been calculated as the mean value of the critical aspects (individual values) in the listed areas.
Source: Bundesnetzagentur

Figure 22: Factors influencing the railway market

Issues closely related to track access, train path allocation and rail timetable quality were rated as good or satisfactory.

Rating access to tracks

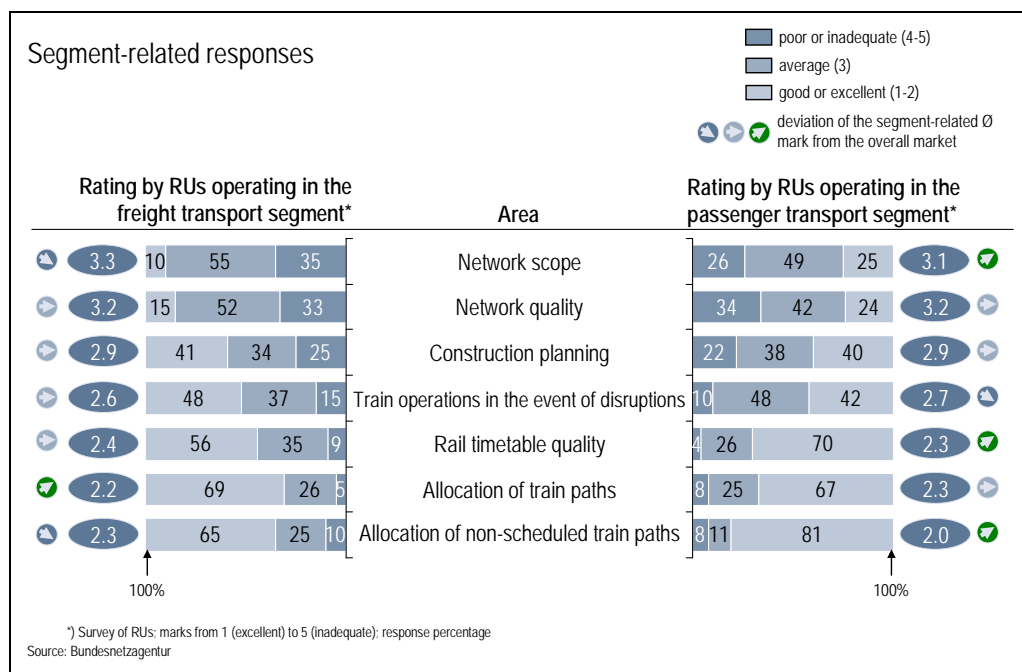
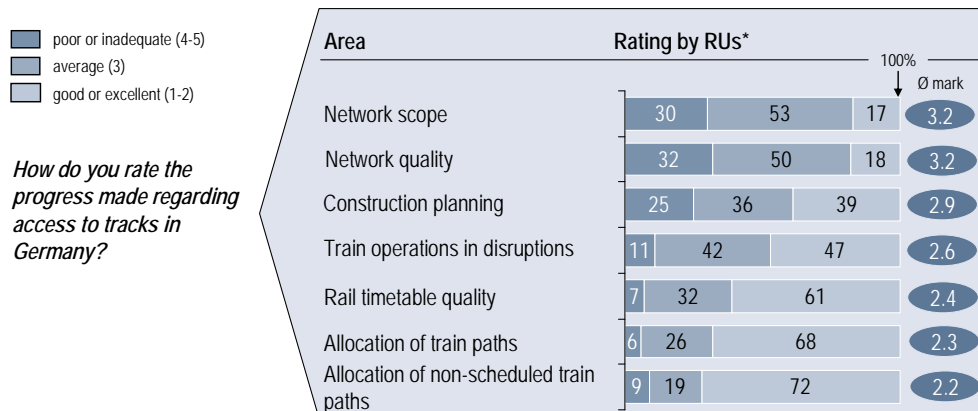


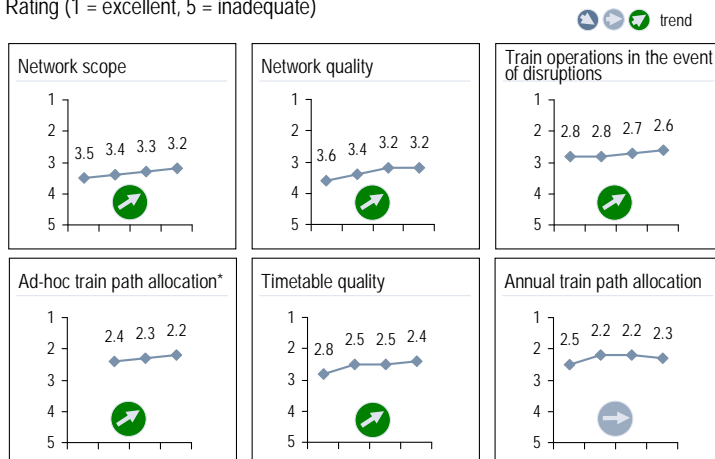
Figure 23: Rating access to tracks

Network scope and quality were deemed the most critical areas (rating: 3.2 in both cases). Construction planning and regulation of train operations in the event of disruptions were deemed adequate (rating: 2.9 and 2.6 respectively), followed by rail

timetable quality (rating: 2.4). Allocation of train paths and non-scheduled train paths was rated as good. Most areas revealed an upward trend.

Trends in the rating of track issues 2008 - 2011

Rating (1 = excellent, 5 = inadequate)

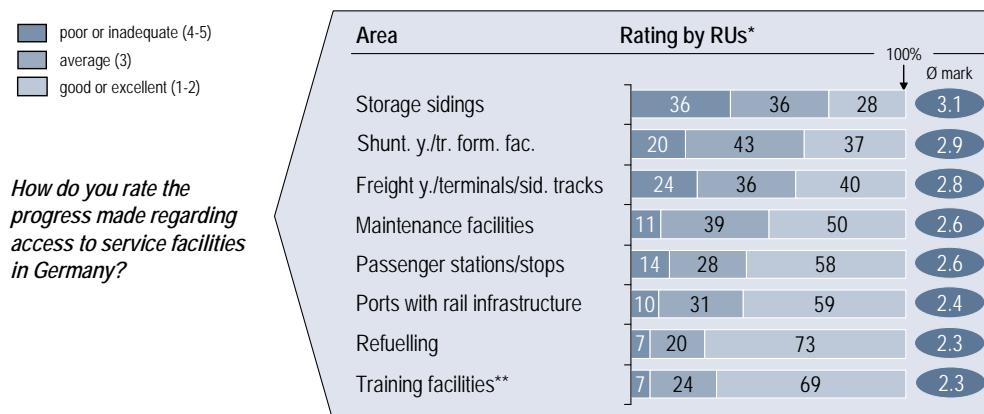


*) In 2008 no distinction was made between ad-hoc and annual train schedule
Source: Bundesnetzagentur

Figure 24: Trends in the rating of track issues

The following chart shows how access to service facilities was rated. Access to storage sidings (rating: 3.1) and access to marshalling yards, train formation facilities, freight yards, terminals and siding tracks (rating: 2.9 and 2.8) were clearly rated as below average. Access to maintenance facilities, passenger stations and stopping points was considered to be critical (rating: 2.6). Access to training facilities was considered to be critical (rating: 2.3).

Rating access to service facilities



*) Survey of RUs: marks from 1 (excellent) to 5 (inadequate); response percentage

**) Not a service facility in terms of § 2(3)c of the AEG

Source: Bundesnetzagentur

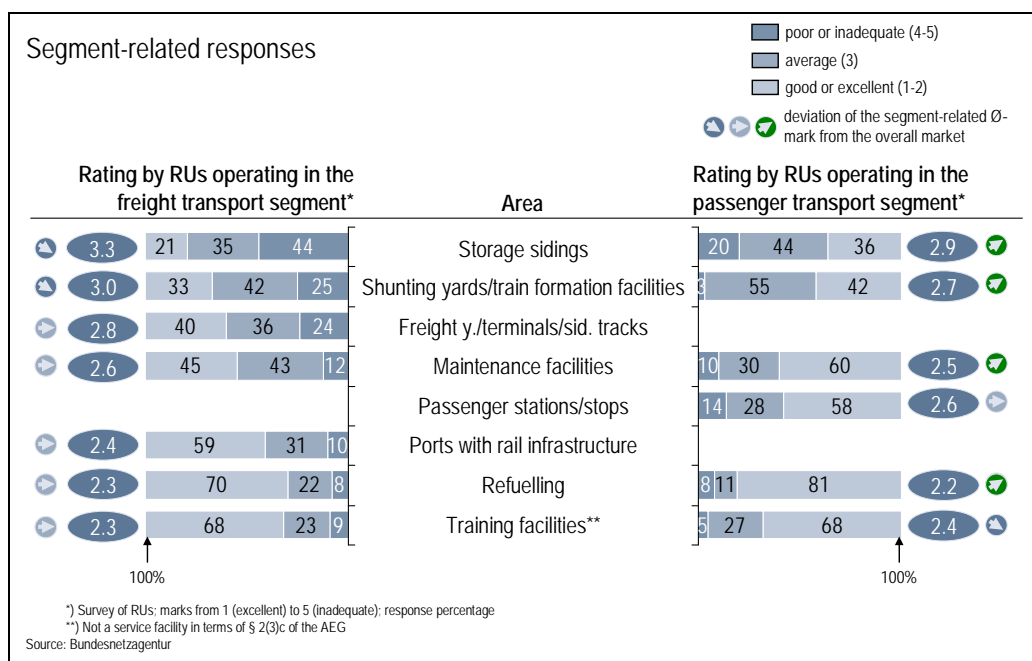


Figure 25: Rating access to service facilities

Although the trends in the rating of access to the service facilities are not as clearly discernible as in the case of track access, the grading factors nevertheless reveal a slight upward trend compared with 2008.

Trends in the rating of access to service facilities 2008-2011

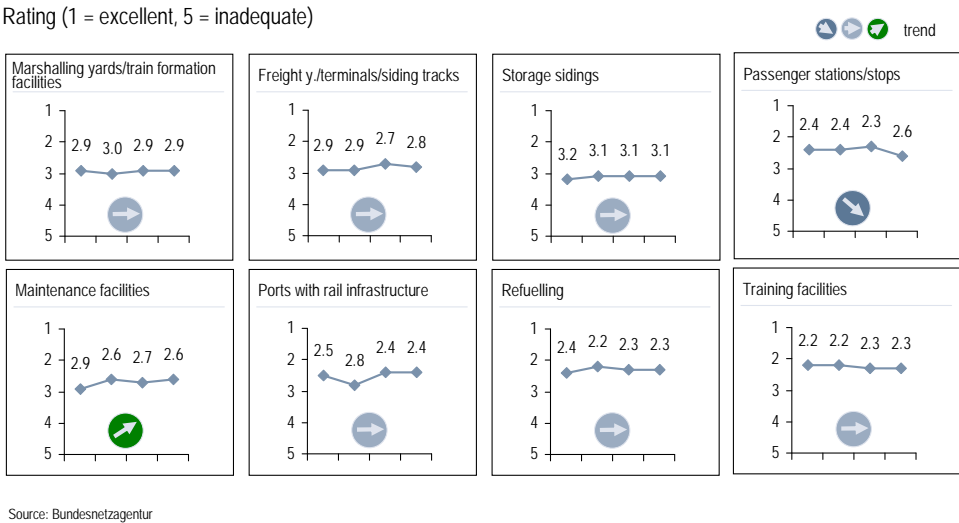


Figure 26: Trends in the rating of access to service facilities

Quality is essential for the transport offer in the rail passenger transport market. For this reason RUs were asked in the 2010 survey to rate scope and quality of passenger stations and stopping points.

Rating the scope and quality of passenger stations and stopping points

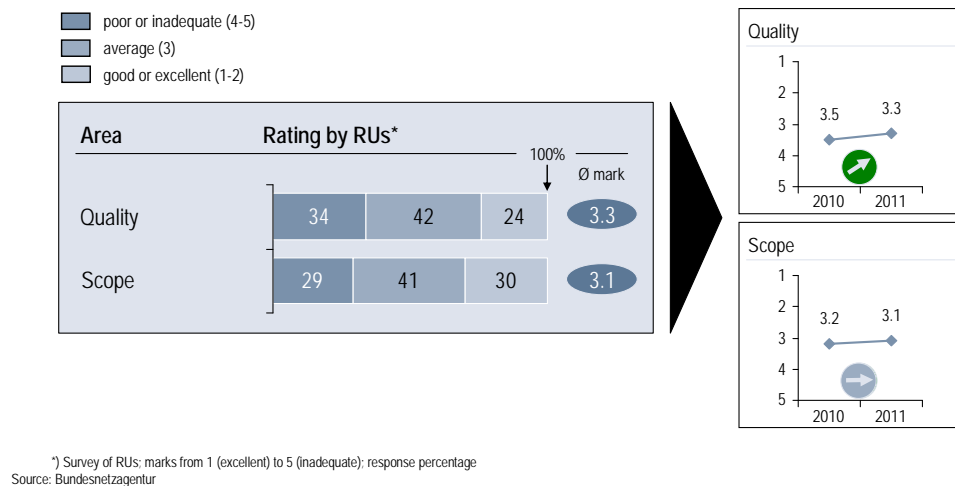


Figure 27: Rating the scope and quality of passenger stations and stopping points

4.6 Financing non-federally-owned railways

Apart from the federally-owned railway line infrastructure operators (IMs of the Deutsche Bahn AG), there are numerous non-federally-owned railway line infrastructure operators (see section 4.1). The financial circumstances and structures of these non-federally-owned operators are very heterogeneous and hardly documented in their entirety.

In its market survey, the Bundesnetzagentur also requests information about costs and revenues, about the level, source and the accounting method for compensation payments, and about the level and use of investments⁷, especially in the area of the public rail line infrastructure. The data garnered by the Bundesnetzagentur reveal that the non-federally-owned railway line infrastructure operators handle about 2 per cent of the train-km in Germany and generate more than 2 per cent of the track access charges paid. Just over 10 per cent of the length of all lines are operated by the non-federally-owned companies.

With regard to monetary data, the non-federally-owned companies have provided little information, and the quality and comparability of that furnished is limited, partly due to local particularities. All in all, the non-federally-owned railway line infrastructure operators posted track access charges of just under €100m. Roughly 20 per cent of the charges were paid by RUs not affiliated with the relevant IM which means that 80 per cent of the charges were received from their own organisation.

As far as investments are concerned, the non-federally-owned railway line infrastructure operators invested €100m in the year under review. Roughly 20 per cent of these investments were financed by own capital and the remaining 80 per cent through compensation payments. Most of the capital expenditure (around 60 per cent) was earmarked for the existing network, leaving 40 per cent for the scope of existing or the construction of new infrastructure. The compensation payments provided for investment purposes – about €80m in the year under review, according to the data furnished – were made available mainly by the state governments and

⁷ Railway market survey of the Bundesnetzagentur, questionnaire no. 2: questionnaire für IMs – railway line infrastructure operators.

local authorities. Only limited non-investment operating grants were provided (approximately €10m).

5. Infrastructure access charges and other prices

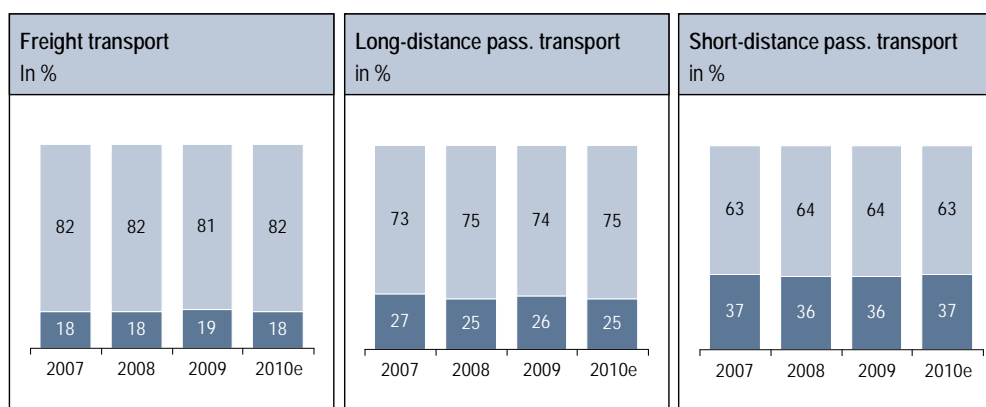
For the RUs, the charges payable for the use of rail infrastructure are a key cost factor that has a considerable impact on their financial performance. On average, the RUs spend 30 per cent of their turnover on infrastructure access charges. Hence the current level of these charges and their development are of prime importance.

5.1 Infrastructure access charges as percentage of RUs' revenue

The impact of the infrastructure access charges on company turnover largely depends on the transport segment. With less than 20 per cent, it is lowest in the rail freight transport segment. Infrastructure access charges take up more than a quarter of company turnover in long-distance rail passenger transport and the impact is highest in the short-distance rail passenger transport segment where it accounts for more than a third of company turnover. In specific instances, the charges even exceed 50 per cent of non-federally-owned RUs' turnover.

Infrastructure access charges as a percentage of RUs' turnover according to transport segment

other costs – rate of return
infrastructure costs



Source: Bundesnetzagentur

Figure 28: Infrastructure access charges as percentage of RU turnover

Although DB Netz AG's access charges have risen steadily in recent years, the impact of the infrastructure usage costs on the RUs' turnover largely remained

constant across transport segments. However, a closer look at the market of the non-federally-owned RUs reveals an increase of more than 1 per cent per revenue share both in the rail freight and the short-distance rail passenger transport segment.

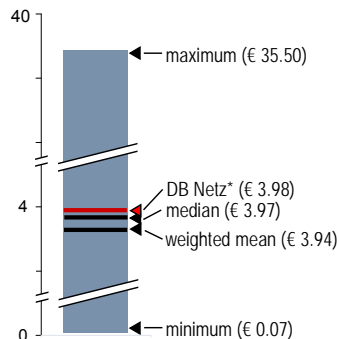
5.2 Level and development of track access charges

The track access charges levied may diverge considerably, depending on the infrastructure operator. Not only age and complexity of the infrastructure (tunnels, bridges, running track point density, electrification, etc.) but also topographical aspects and infrastructure utilisation are major cost drivers in pricing. The funds granted for infrastructure investments also affect the charges levied by the various infrastructure operators. The cost of poorly used infrastructure is allocated to few users, inevitably raising the charging level. The same applies to infrastructure operators who have to cover costs without public grants.

In 2010, both the weighted arithmetic mean and the median (50% of the unweighted individual values were below the level, 50% exceeded it) were just under €4.00 per train-km.

Bandwidth of average revenues from train paths

Bandwidth track access charges 2010
€ per train-km (IMs)



*) Calculated on the basis of the relevant company's annual report
Sources: Bundesnetzagentur; annual reports of DB Netz companies

Figure 29: Bandwidth of average revenues from train paths

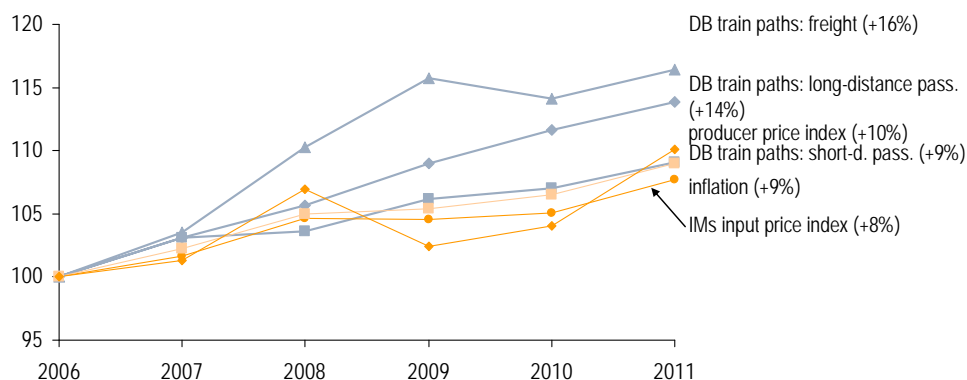
As has been the case in the past few years, the track access charges have risen yet again. The mean track access charges levied by DB Netz AG – calculated as the quotient of the track access charges and the operating performance in terms of train-km of Deutsche Bahn AG's RUs – have increased considerably since 2006. The prices in the short-distance rail passenger transport and in the rail freight transport segment have since risen by 9 and 16 per cent respectively. The average track

access charge in the long-distance rail passenger transport market has increased by 14 per cent (these figures include the price rise from 2010 to 2011).

By way of comparison, the general inflation rate for the period 2006 - 2011 will probably be around 9 per cent. At 8 per cent, the rise in infrastructure operators' key cost categories such as personnel and maintenance costs (see the IMs input price index in Figure 30) is even lower. Other specific indices, e.g. for producer prices, have also remained below the rate of most track access price increases.

Development of DB AG's rail infrastructure access charges

Index, 2006* = 100



*) Calculated as the quotient of DB RUs' track access charges and the operating performance (train-km) according to the group's internal cost allocations; for station charges as quotient of DB Station&Service AG's station charges and station shops
Sources: Bundesnetzagentur; DB AG

Figure 30: Development of Deutsche Bahn AG's rail infrastructure access charges

The trend in DB Netz AG's track access charges is mirrored in the product-based presentation. Since 2002, the charges for train-path products have increased by between 26 and 38 per cent, corresponding to an annual increase of between 2.4 and 3.3 per cent.

Development of selected DB Netz AG track access charges

€ per train-km for selected train-path products

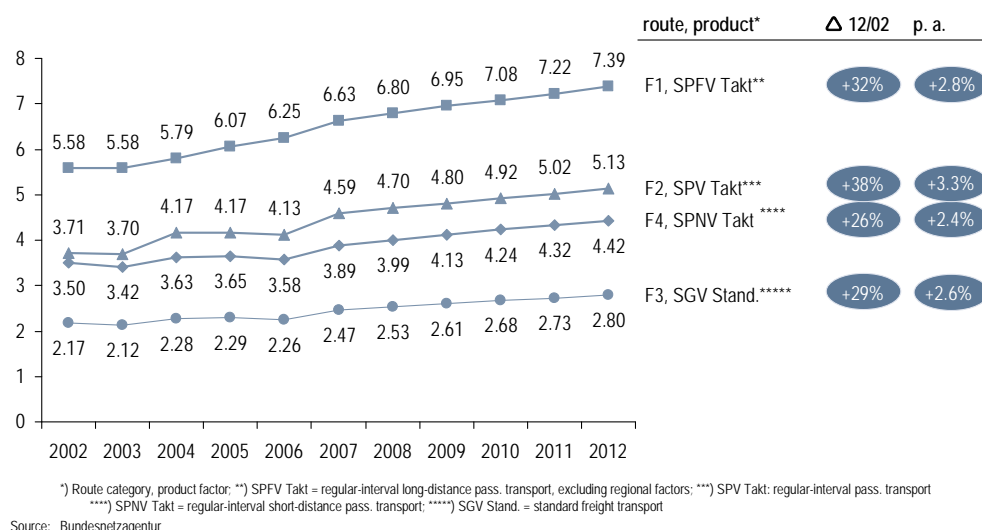


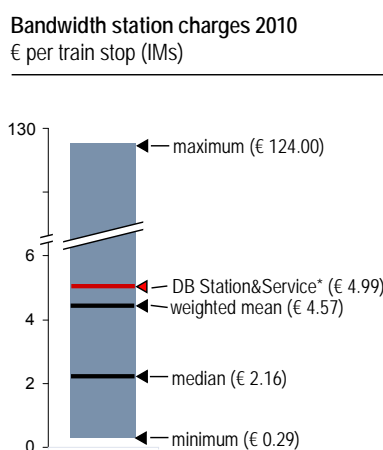
Figure 31: Development of selected DB Netz AG track access charges

Some non-federally-owned operators of line infrastructure also increased their access charges for the schedule year in question. Weighted according to the operating performance, the mean train-km charge increased by about 2 per cent.

5.3 Level and development of station prices

Station prices also diverge considerably from one operator to another. Average income per stop in 2010 was €4.57 (Figure 29). DB Station&Service AG's average income per stop is €4.99 and is therefore slightly above average. The median reveals that 50 per cent of all station operators in Germany charge less than €2.16 on average per train stop.

Bandwidth of charges per passenger station stop

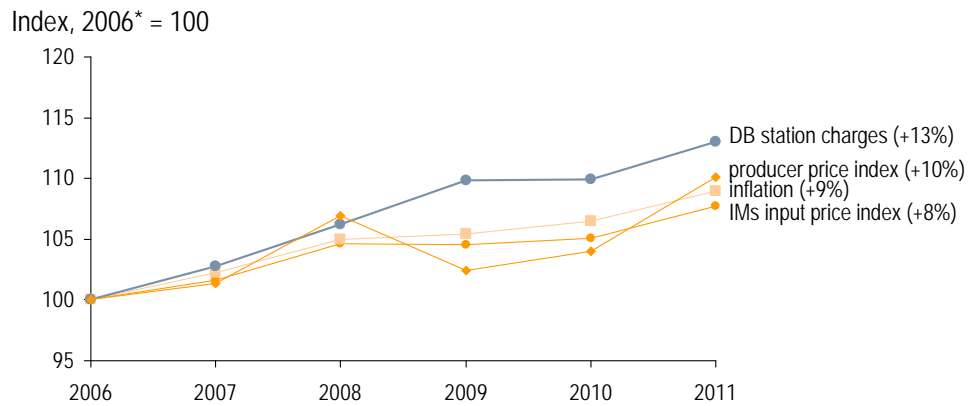


*) Calculated on the basis of the relevant company's annual report
Sources: Bundesnetzagentur; annual reports of DB Netz companies

Figure 32: Bandwidth of access charges per passenger station

Like DB Netz AG's track access charges, the charges levied for stops at DB Station&Service AG's passenger stations have also risen. Compared with 2006, station prices have increased by much more than the general inflation rate and the IMs input price index which reflects the trend in the price indices of relevance to railway line infrastructure operators in aggregate form (see Figures 30 and 33). In the period 2006 – 2010, DB Station&Service AG's station charge increased by 10 per cent. For 2011, the Bundesnetzagentur expects this increase to rise to 13 per cent.

Development of DB AG's charges per passenger station stop



*) Calculated as the quotient of DB RUs' track access charges and the operating performance (train-km) according to the group's internal cost allocations; for station charges as the quotient of DB Station&Service AG's station charges and station stops
Sources: Bundesnetzagentur, DB AG

Figure 33: Development of Deutsche Bahn AG's access charges per passenger station

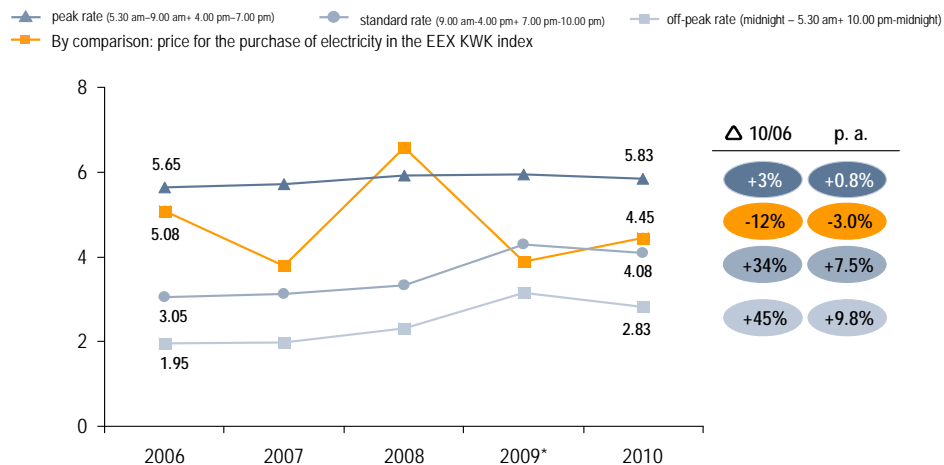
Certain non-federally-owned operators of passenger stations have also increased the prices they charge. On average, the rate increased by about 2 per cent between 2009 and 2010.

5.4 Traction current prices

Traction current prices have risen continuously. As shown in the chart below, the prices payable for the supply of traction current by DB Energie after deduction of the transmission fees from DB Energie GmbH's gross prices have increased by about 20 per cent since 2006.

Electricity prices*

Electricity prices in cent per kWh after deduction of DB Energie AG's transmission fees



* Prices after the decrease end of March 2009 (prior to that date: 12.11 ct (peak), 10.46 ct (standard), 10.01 ct (off-peak))
Sources: Bundesnetzagentur, DB AG, EEX (<http://www.eex.com/de/Downloads>)

Figure 34: Electricity prices

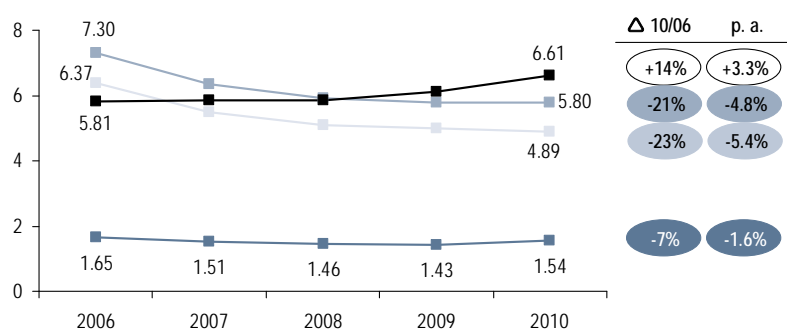
A contrary trend is observed in the other part of the electricity market where the price has dropped by more than 12 per cent since 2006. The discrepancy in trends is due to the fact that there is no competition on the market for traction current. This applies likewise to the transmission fees.

If the trends in the prices payable for the use of the grids of all transmission system operators (TSOs) in Germany are compared, a decline in prices is observed in those cases where TSOs are subject to regulation. By contrast, the price DB Energie GmbH charges for the use of its grid has increased over time.

Electricity grid operators' transmission fees

Transit prices in cent per kWh*

- DB Energie AG transmission fees
- transmission fees payable by household customers (annual power consumption 3,500 kWh at 400 V)
- transmission fees payable by commercial customers (annual power consumption 50 mWh at a maximum peak load of 50 kW and a yearly period of use of 1,000 hours at 400 V)
- transmission fees payable by industrial customers (annual power consumption of 24 GWh at a maximum peak load of 4,000 kW an a yearly period of use of 6,000 hours at 10 or 20 kV)



* Price valid on 1 April of each year

Sources: Bundesnetzagentur (Energy Monitoring Benchmark Report 2010), DB AG

Figure 35: Electricity grid operators' transmission fees

The transmission fees charged by DB Energie GmbH for grid usage are currently being examined by the Bundesnetzagentur.

5.5 Rating and development of charging systems

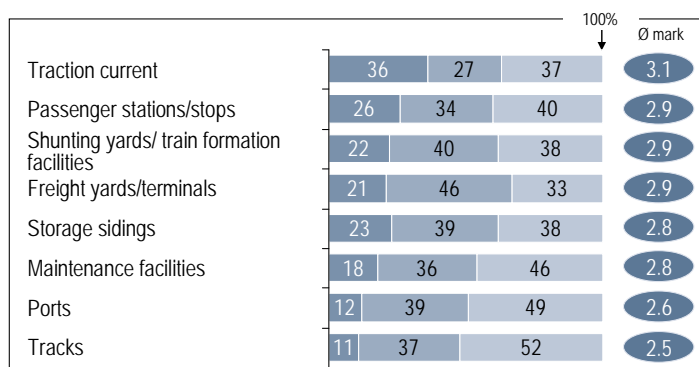
In its surveys, the Bundesnetzagentur differentiates between the non-discrimination and the price-performance ratio of pricing systems. On the whole, RUs tend to rate the price-performance ratio less favourably than the non-discrimination aspect. Generally speaking, pricing issues are judged much more critically than access issues.

The RUs tended to give an unfavourable rating especially to the non-discrimination of the pricing systems for traction current (rating: 3.1), passenger stations and stopping points, marshalling yards and train formation facilities, and freight yards and terminals (rating: 2.9).

Rating non-discrimination of pricing systems established by the IMs

Responses in %*

■ poor or inadequate (4-5) ■ average (3) ■ good or excellent (1-2)



*) Survey of RUs
Source: Bundesnetzagentur

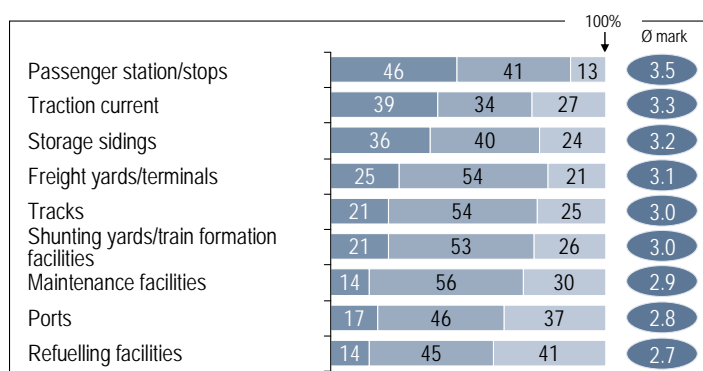
Figure 36: Rating non-discrimination of pricing systems established by IMs

However, the RUs gave the price-performance ratio of the use of rail infrastructure a much worse rating than the non-discrimination aspect. A particularly negative picture emerges from the rating of the price-performance ratio of passenger stations and stopping points (rating: 3.5), traction current (rating: 3.3) and storage sidings (rating: 3.2), which is symptomatic of the continued, widespread dissatisfaction with the disproportionate increases in the prices payable for infrastructure use.

Rating the price-performance ratio of rail infrastructure utilisation

Responses in %*

■ poor or inadequate (4-5) ■ average (3) ■ good or excellent (1-2)



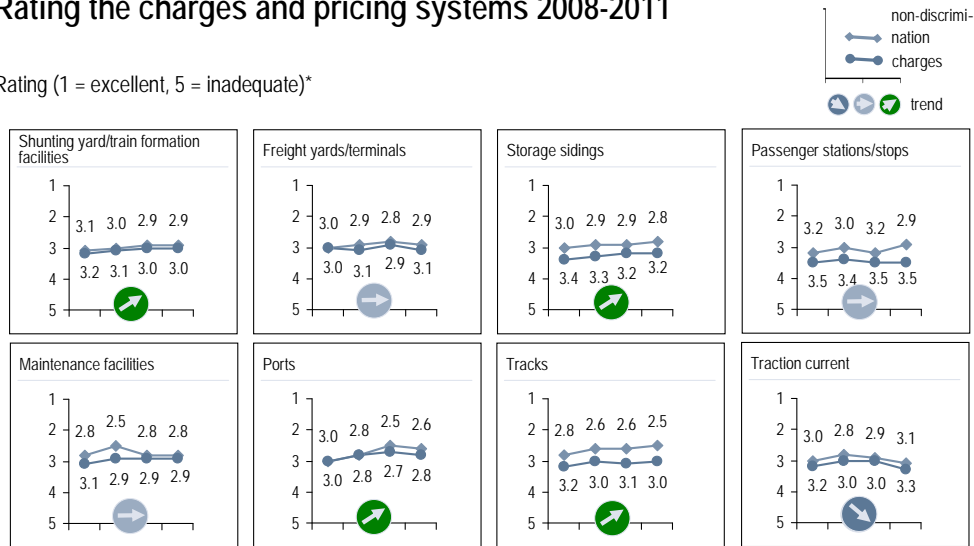
*) Survey of RUs
Source: Bundesnetzagentur

Figure 37: Rating the price-performance ratio of the pricing systems established by IMs

The trend shows that there has been a slight improvement in four of the eight pricing systems since 2008.

Rating the charges and pricing systems 2008-2011

Rating (1 = excellent, 5 = inadequate)*



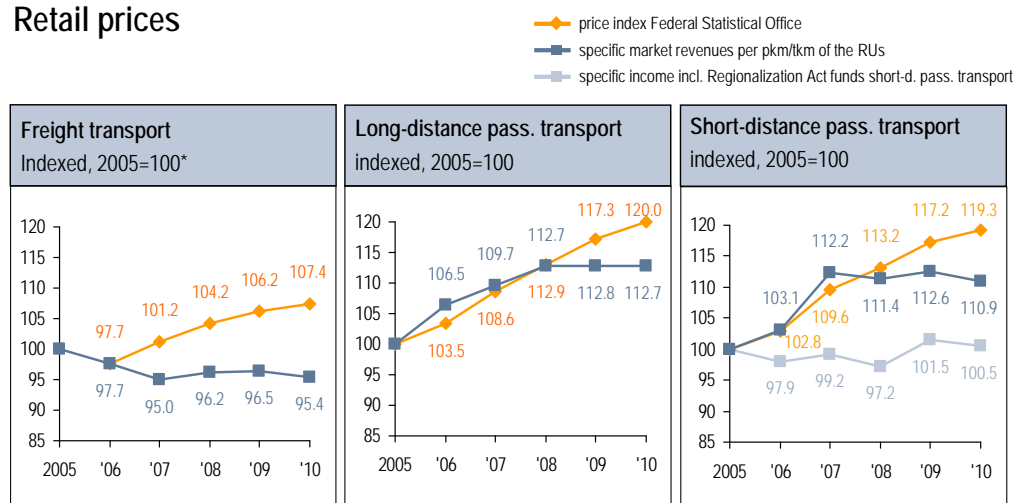
Source: Bundesnetzagentur

Figure 38: Rating the charges and pricing systems

5.6 Retail prices

Fixing rates for the rail freight and passenger transport services is not part of the Bundesnetzagentur's regulatory remit. Yet price developments on the transport markets are a key performance indicator for the overall development of the railway sector.

Retail prices



*) Index introduced in 2006
Sources: Bundesnetzagentur, Federal Statistical Office, VDV

Figure 39: Retail prices

Average income per tonne-kilometre in the rail freight transport segment has dropped below that of 2005. For the first time since 2007, the year 2010 was marked by declining average revenues. In contrast, the Federal Statistical Office's specific price index has risen in recent years.

According to the data supplied by the Federal Statistical Office, the fares for short-distance and for long-distance rail passenger transport increased at roughly the same rate during the period 2005 – 2010, viz. by 20 per cent for long-distance and 19 per cent for regional transport. It should be borne in mind that in the short-distance rail passenger transport segment, RUs revenues are based on farebox revenues (around 40%) and public compensation payments (roughly 60%). Although fares have increased dramatically, the sum of the two revenue elements have barely increased in relation to the operating performance. This is due to the fact that in the period under consideration, pkm rose more sharply than the compensation payments.

The reason for the diverging trend in the Federal Statistical Office's indices and in the specific market revenues is that the Office's indices are based on the price development of pre-defined services within a fixed quantity structure whereas average revenues per tkm or pkm are affected, inter alia, by shifts in the quantity structure.

5.7 Rates of return

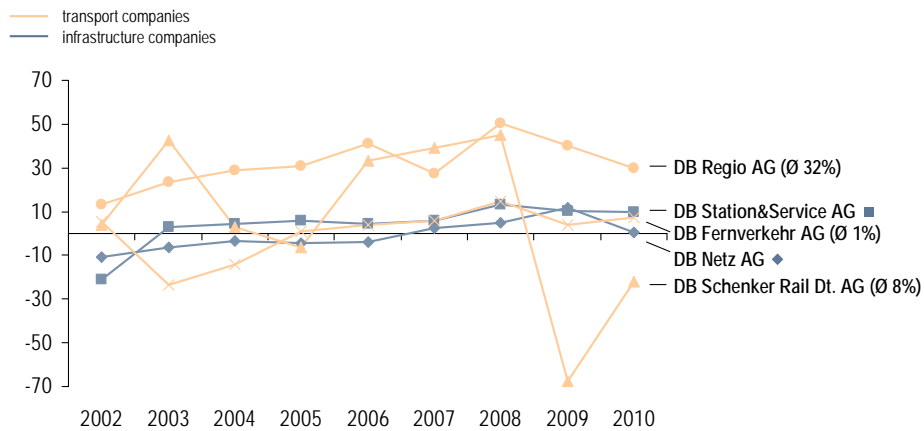
One of the key indicators for evaluating market developments, apart from the trend in retail prices, is the rate of return. It is possible to draw on the returns either at the value-added stage of the rail infrastructure or at the rail transport level. The return on equity, calculated as the ratio of profit before tax⁸ to equity, has different trends and characteristics, depending on value-added level and segment.

In the rail freight transport segment, the economic cycle has a disproportional effect on that segment's rate of return. DB Schenker Rail Germany AG's return on equity slumped from 45 per cent in its record-breaking year 2008 to minus 67 per cent in 2009 and rose to minus 22 per cent in 2010. In the short-distance rail passenger transport segment, DB Regio AG's return on equity was around 29 per cent in 2010. During the period from 2002 to 2010, DB Regio AG produced an average return on equity of roughly 32 per cent. Economic downturn and recovery are mirrored to a lesser degree in the rate of return. This is primarily due to the usually long-term contracts with public-sector entities for short-distance rail passenger transport. Furthermore, the bulk of RUs' revenues is derived from the compensation payments made available under the Regionalization Act which are largely immune to cyclical ups and downs.

⁸ Operating profits

Return on equity of selected Deutsche Bahn AG companies

Return on equity (before tax) in %



Source: Annual reports

Figure 40: Return on equity of selected Deutsche Bahn AG companies

In 2009, DB Netz AG had posted high pre-tax profits due to special items. In 2010, the company achieved a return on equity of 0.5 per cent (2009: 11.6%). DB Station&Service AG generated a return on equity of 9.8 per cent (2009: 10.5%) based on the company's full range of activities, i.e. on both the transport division (especially station prices, roughly two-thirds of total revenues) and the marketing division (approximately one-third of total revenues).

6. Annex

6.1 Train path pricing system of DB Netz AG, 2002 to 2012

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Base price (€)											
Fplus		8.30	8.30	8.30	8.30	7.90	8.09	8.30	8.38	8.55	8.76
F1	3.38	3.38	3.51	3.68	3.79	4.02	4.12	4.21	4.29	4.38	4.48
F2	2.25	2.24	2.53	2.53	2.50	2.78	2.85	2.91	2.98	3.04	3.11
F3	2.17	2.12	2.28	2.29	2.26	2.47	2.53	2.61	2.68	2.73	2.80
F4	2.12	2.07	2.20	2.21	2.17	2.36	2.42	2.50	2.57	2.62	2.68
F5	2.05	2.02	2.03	1.74	1.76	1.82	1.86	1.90	1.90	1.94	1.99
F6	1.93	1.92	2.00	2.05	2.06	2.13	2.18	2.25	2.31	2.36	2.64
Z1	2.12	2.11	2.13	2.13	2.14	2.21	2.26	2.34	2.40	2.45	2.74
Z2	2.20	2.19	2.20	2.20	2.21	2.29	2.34	2.42	2.48	2.53	2.82
S1	1.48	1.45	1.46	1.46	1.46	1.55	1.59	1.64	1.70	1.73	1.77
S2		2.09	2.09	2.09	2.09	2.09	2.14	2.20	2.26	2.31	2.37
S3				2.51	2.51	2.51	2.57	2.64	2.70	2.75	2.82
Product factors											
Passenger transport train paths											
Express train path	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
Long-distance regular interval train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Local transport regular interval train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Economy train path	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Light running engine (LZ) train path PV			1.00	1.00	1.00	0.65	0.65	0.65	0.65	0.65	0.65
Freight transport train paths											
Express train path	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65	1.65
Standard train path	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Feeder train path	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Light running engine (LZ) train path GV			0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65
Other surcharges											
Utilisation factor	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
Deviations from the minimum speed (factor)							1.50	1.50	1.50	1.50	1.50
Load component rail freight transport +3,000 t (in €)*	1.33	1.33	1.33	0.59	0.53	0.90	0.92	0.92	0.92	0.94	0.96

*Prior to 2007 surcharge already payable for 1,000 t; surcharge payable for 3,000 t

Source: Train Path Pricing System DB Netz AG

Abbreviations

AEG	General Railway Act of 27 December 1993 (Federal Law Gazette I p. 2378 (2396) (1994,2439)), last amended by Article 2 of the Act of 26 May 2009 (Federal Law Gazette I p. 1146)
bn	billion
EIBV	Rail Infrastructure Usage Regulations of 3 June 2005 (Federal Law Gazette I p. 1566)
freight y.	freight yard
GDP	gross domestic product
IM	infrastructure manager
long-d.	long-distance
m	million
pass.	passenger
pkm	passenger kilometre
RU	railway undertaking
serv.	services
service facil.	service facilities
short-d.	short-distance
shunt. y.	shunting yard
sid. track	siding track
t.	tonne
tkm	tonne-kilometre
train-km	train-kilometre
tr. form. fac.	train formation facilities
TSO	transmission system operator