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Public Interest Services Revisited

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1 Question

The provision of utilities for all at an affordable price has long been regarded as a prerequisite for everyday life, generally guaranteed by the state. But in recent years, publicly-owned utilities throughout Europe have come under increasing fire for their poor performance – their lack of productive efficiency, their failure to identify consumer demands, and their wanting service innovation. As a consequence, and driven by the influence of neo-liberal thought, many public monopolies have been or are in the course of being privatized, and utility markets are being deregulated. This on-going process has spread across a variety of utilities: transportation, telecommunications, postal services and the provision of energy, to name just a few. While some countries, such as Britain, took radical measures early on, others, such as France, have been more hesitant. The experience of early reform measures, instruments and institutional arrangements allow us to tentatively take stock of the situation with regard to the quality of service provision. Are the public-service goals¹ of accessibility, security, continuity and affordability still in place in the countries that have undergone reform? If so, to what extent have they been achieved and what are the differences between sectors and countries? What are the underlying causes?

In what follows I will start by presenting the empirical data on service provision in two sectors, rail and telecommunications, and three countries, the UK, Germany and France². I will then discuss possible explanations for the level of performance. In another step I will discuss the general explanations in the light of the empirical data.³ I will conclude by presenting some general insights comparing sectors and countries.

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- 1 The commission defines services of general interest as “market and non-market services which the public authorities class as being of general interest and subject to specific public service obligations”. Services of general economic interest as used in Art. 86.3 (formerly 90.3) of the Treaty are defined somewhat more narrowly as “market services which the member states subject to specific public service obligations, such as transport networks, energy and communications”.
“Universal services”, a concept developed in Community bodies, are “a set of general interest requirements which should be satisfied by operators of telecommunications and postal services, for example, throughout the Community. The object of the resulting obligations is to make sure that everyone has access to certain essential services of high quality at prices they can afford” (European Commission Communication 1996:2).
 - 2 The French notion of “public service” developed as a counterpart to “puissance publique” in French administrative law at the end of the 19th century gave rise to an extended debate in the discipline. The advocates of “puissance publique” conceived of the state as a sovereign power dealing with its subordinate subjects by means of command and control and other rules. The adherents of the “public-service school” conceived of administrative action less in terms of super- and sub-ordination. Rather – under the impact of economic liberalism and the beginnings of social benefits bestowed by the state – they viewed the state as delivering services and benefits to citizens. Today public service in France is defined as an activity which is deployed by a public enterprise in the general interest. However, the government can also charge privat actors to perform these activities (Le Nestour, Zinow 1994:129/30). It is strongly influenced by the “esprit de corps” of the engineering schools and their centralist and technocratic views of the utilities (Schmidt 1998:227).
 - 3 The data found are not in all instances complete and entirely comparable. This is due to different types of measurements in the three countries and different times of measurement. However, the tendencies extracted from the data do offer insights into the overall development of service quality.

2 Performance before and after the reform

2.1 The status quo ante: rail

Railways were long considered a natural monopoly because of the high fixed sunk costs of investment in network and rolling stock and the recurrent and extensive phases of excess capacity (Baumol, Panzar and Willig 1982). Consequently, they were dominated by single public enterprises that both owned the infrastructure and provided services. As public services, company railways were subject to state intervention, leaving limited management autonomy. One goal of state intervention was to impose public-service obligations in order to secure mobility for all and to enhance regional integration within the nation-state.

In Britain, British Rail (BR) consisted of a single hierarchically structured organizational public entity, fulfilling all functions from the provision and the maintenance of the infrastructure and rolling stock to the freight and passenger operations (Knill 2001). A similar structure existed in Germany, where the railways were publically owned. The German Railway, *Deutsche Bundesbahn* (DBB), was an administration with special status, under the auspices of the federal transport ministry (Teutsch 2001). The same holds true for the *Société Nationale des Chemins de Fer Français* (SNCF), which, as an integrated public enterprise, is subject to government intervention (Douillet and Lehmkuhl 2001). Thus, prior to reform, all three rail industries were publically owned and subject to considerable political intervention.

The first period of performance focused on in this paper is the last five years prior to reform in each country. The respective periods in Britain and Germany are from 1988 until 1993; in France, from 1992 until 1997. First, overall performance is examined in terms of the ‘take-up rate’ of the railways compared to other modes of transport, both in absolute terms and relative to other means of passenger transport. Then the performance is measured with respect to particular public service goals: i.e. ‘accessibility’, ‘continuity’, ‘affordability’ and ‘safety’. These dimensions, constituting a ‘public service’, need some further specification in order to be measured. ‘Accessibility’ and ‘continuity’ are measured in reference to the development of the lengths of the passenger services network and services offered. ‘Affordability’ is measured on the basis of the price development indicator. ‘Safety’ is measured in reference to the frequency and gravity of accidents.

In Britain, the number of railpassenger kilometres (excluding metro systems) remained relatively steady at 29.7 billion (1985) and 29.3 billion (1995). In Germany, it fell from 66.0 billion (1985) to 63.6 billion (1995) (DETR 2002). Its share in relation to all transports increased from 6.4 percent in 1992 to 7.3 percent in 1994 (excluding public transport) (BMVfW 2001/2002). In France, passenger kilometres fell from 63.740 billion in 1990 to 56.850 billion 1995 (Annuaire statistique de la France 1998: 756).

With respect to the public service dimension of accessibility and continuity the following results were found:

In Britain the length of the network decreased from 17,500 km in 1985 to 16,900 km in 1995 (DETR 2002). In Germany the length of network was reduced from 44,001 km in 1990 to 43,687 km in 1993 (Stat. BA 2001:11). By 1995 it had fallen to 41,700 km (DETR 2002). In France the length of the network decreased from 45,500 km in 1985 to 41,700 km in 1995 (DETR 2002).

Affordability, measured by price development, has decreased since prices have increased. In Britain, despite the drop in the number of passenger kilometres, customer expenditure for rail services (corrected for inflation) increased from 2,002 million in 1989 to 2,754 million pounds in 1995 (Annual Abstract of Statistics 1997: 291), reflecting price increases. In Germany second class return fares for a 100 km trip rose from DM 39.53 in 1988 to DM 42.80 in 1993 (Stat. BA 2001:9); the consumer index for the former Federal Republic (with 1991 = 100) was at DM 103.5 in 1992, DM 111.5 in 1993 and DM 110.80 in 1994 (Stat. BA 2002). In France between 1990 and 1998 the fares of SNCF only moderately increased – less than other public transport prices (Annuaire statistique de la France). In 1990/91 they increased by 3.6 percent, in 1994/95 by 1.8 percent, in 1995/96 by 1.6 percent (Direction des Transports terrestres 19.7.2001).

As regards safety, in Britain the number of persons killed fell from 18 in 1989 to 7 in 1995/6 and the number of those injured fell from 404 (1989) to 166 (1995/96) (Annual Abstract of Statistics 1997: 233). In Germany accidents increased from 1,602 in 1990 to 1,220 in 1995; the number of casualties went up from 256 to 284; the number of injured dropped from 1,755 to 1,085 (Stat. BA 2000:34). In France, safety increased. From 1995 to 1997 the number of casualties declined from 129 to 119, and the number of injured persons rose slightly from 101 to 105 (Direction des Transports terrestres 2001).

Table 1: Performance under the old regime: rail

	Pass/km	network length	prices	safety
UK	Less	Decrease	mod. increase	increase
D	Less	Decrease	mod. increase	increase
F	Less	Decrease	mod. increase	increase

In sum, this brief view of performance in reference to general-interest goals under the old regime reveals mixed results at best. The overall picture shows declining use, accessibility and continuity, as well as price increases and relatively good scores on safety.

2.2 The status quo in the rail sector: performance and reregulation

What are the main features of the new regimes? How do they perform, and what are the responses when there is a lack of performance?

2.2.1 UK

In 1993, a most extensive reform transformed British Rail from a public sector monopoly into multiple enterprises in private ownership, linked by contracts (Gibb *et al.* 1996: 36). Infrastructure and train operation services were separated institutionally. The infrastructure, together with its construction, management and maintenance (including stations, time-tabling, signalling), were transferred to Railtrack, a private monopoly. Train operation was split into twenty-five enterprises, and rolling stock was separated into three leasing companies. The break-up of the organization was followed by the privatization of these services. The twenty-five passenger services were franchised to private companies. Railtrack, the network, was privatised by stock market flotation.

Two new regulatory authorities were created. The Office of the Rail Regulator (ORR) and the Strategic Rail Authority (SRA). The ORR was created to deal with aspects of competition and monopoly control: it considers applications for operating licenses; it approves track access agreements and prices; and it protects consumer interests. Thus, the space within which Railtrack and train operators can negotiate on charges for track access is determined by the Regulator, depending on Railtrack's investment and performance on a five-year basis. The regulated price ceiling is adjusted in the light of general price level changes (Retail Price Index, RPI)⁴ (Kay and Thompson 1991: 27). In order to offer services, train operators have to apply to the Office of Passenger Rail Franchising (OPRAF, now the Strategic Rail Authority- SRA) for a franchise. To procure access to track they must obtain a contract with Railtrack and lease rolling stock from the Rolling Stock Companies. In most cases franchises are granted as regional monopolies after competitive bidding to run a service for a specified period, between seven and fifteen years. Lines that are not economically profitable, but that are in areas where it is deemed necessary to maintain passenger services still receive government subsidies, which, however, have been decreasing over the years. All contracts contain performance regimes, which offer economic 'benchmark' incentives to help meet contractual conditions. Fines are issued when contract conditions are not honoured. Yardstick competition is possible because the performance of the regional train operators can be compared.

How successful has the performance been under the new regime? Again the performance is assessed on the basis of the indicators used above for accessibility/continuity, affordability and safety. Between 1995 and 2001, the number of passenger kilometres increased by 30 percent, from 36,800 billion in 1995 to 47 billion in 2001. (SRA Report 2001:14). The increase in the number of passengers however had a negative impact on service quality. It led to overcrowding, which increased from 2.9 percent in 1999 to 3.6 percent in 2001 (SRA Report 2001:15).

Accessibility, as measured by the length of the network, increased from 14,395 kilometers to 15,042 kilometers (SRA 2002). However, accessibility and continuity, measured in terms of the

4 The price formula is RPI-x, where RPI stands for Retail Price Index, and x is the regulator's estimate of the presumed movement of productivity and costs within the industry, normally fixed in advance for a period of four to five years (Nicolaidis 1997).

cancellation of services, fares rather poorly. In particular, between 2000 and 2001 there were many disruptions of rail services. (SRA Report 2001). The frequency of trains was judged to be satisfactory by 72 percent in 2000, but only by 69 percent in 2001 (SRA passenger survey 2001).

The reliability of service provision suffered: at least the proportion of trains running late was rather high. While in 1999 87.8 percent of trains arrived on time, in 2001 it was only 79.1 percent (SRA 2001/2). While 74 percent of passengers were satisfied with punctuality and reliability in 2000, only 59 percent were satisfied in 2001 (SRA passenger survey 2001).

With respect to affordability, the results are mixed. To the extent that fares are regulated by the SRA (39 percent of train operators ticket revenue comes from fares regulated by the SRA), limited increases have been allowed since 1999 (most Saver tickets and unrestricted standard class returns and standard class weekly season tickets) to RPI minus 1 percent. Passengers judge prices very critically: In both years only 41 percent were satisfied with their 'value for the money' – as an indicator for affordability (SRA Report 2001:17).

Safety performance has turned out to be the most critical area. From 1995/96 –1996/97, accidents on railways increased from 989 to 1,753; In 1997/98 there were 14 fatalities. This was an increase from 1998/99, when there were 9 fatalities and 50 train accidents (HSE Statistics Bulletin). In 1999/00 there was an increase to 64 fatalities (HSE Statistics Bulletin 1999/00). In 2000/1 there were 39 fatalities (HSE Statistics Bulletin 2001).

In brief, while the number of passengers using the railways increased substantially after the reform, performance was rather poor, measured in accord with public service goals. In order to improve performance, measures were taken at the instrumental and institutional level. At the instrumental level franchises were replaced earlier than originally planned and their duration was extended. The on-going renegotiation of franchises is based upon competitive offers, the analysis of commitments and aspirations put forward against stated criteria, which focus on investment, service and quality improvement. (SRA Report 2001:25).

Additionally, the incentive regime is constantly used in order to promote good performance. In accord with the punctuality incentive payment punctuality and cancellations are measured against the planned timetable. If average punctuality is better than the benchmark, the SRA pays the operator; if it is worse, the operator pays a fine to the SRA. Each operator has a train plan, defining the required capacity, measured in terms of the length of train journey. If he fails to meet this plan, a charge is made, based on cancellations. Another incentive mechanism penalises operators who make short-term changes to the published timetables (SRA Report 2001:18). Thus, to combat overcrowding, companies had to pay 750,000 pounds for running short trains during peak hours in 1997 (interview with the RUCC, Oct. 1998; *The Guardian*, 27 March 1998, p. 4). Twenty-four train operators compensated for delays by doubling the minimum compensation payments for late arrivals to 20 pounds (interview with the RUCC, Oct. 1998; *The Guardian*, 10 March 1998, p. 12). The decline in overall performance was reflected in the high amount

of net incentive payments that SRA received for lack of performance from operators (SRA Report 2001:15).

The network operator, Railtrack, was blamed for poor performance in both track maintenance and signalling. After two major accidents, there was a critical discussion about the faulty signalling, the lack of track repair and RT's general lack of investment. The rail regulator, to whom RT is, by contract, publicly accountable for its performance, demanded 277 million pounds of investment in tracks (*The Guardian*, 5 March 1998, p. 1).

With respect to the second type of institutional measures, the overall institutional setup has been reconsidered so as to enhance political guidance and the power of the regulator. First, attempts were made to strengthen the regulator's authority by increasing his power to sanction operators and Railtrack (interview with OPRAF, Sept. 1998). Moreover, in 2001, when RT went bankrupt, it was taken into the administration. At present, there is a debate about whether RT should be turned into a non-profit organization. Another measure addressed the set-up of the regulatory institutions and eliminated the overlapping competencies of the Rail regulator and SRA, such as in consumer affairs.

2.2.2 Germany

In 1993 the former western *Deutsche Bundesbahn* and the eastern *Deutsche Reichsbahn* were transformed into a unified joint-stock company, the *Deutsche Bahn AG* (DBAG), of which the federal government is the sole owner. However, government intervention is contained by a legal division of competences, shared by the management board, the supervisory board and the shareholders of the DBAG. The rail network and rail operations were organizationally separated, and access to the network was opened for new operators. However, in long-distance passenger transport, DGAB still is the only service operator.

A new regulatory body, the Federal Railway Office, oversees the DBAG and is responsible for licensing railway enterprises and guaranteeing technical safety. The government assumed all financial liabilities of the former DBB, and it still plays a role in financing regional rail services and infrastructure. Nevertheless, there has been increased pressure on the railways to introduce more rigorous financial accounting, and a contract-based regime has been introduced in regional passenger transport, which has been put up for tendering. Whereas in the past the federal government paid an annual lump sum to the DBB by way of compensation for public service obligations, public actors now pay for those specific services that are deemed either necessary or expedient (Teutsch 2001).

What is the performance record of the reformed regime? In general, much less performance data are available than in the UK, which is an interesting fact as such. As regards the overall performance in intermodal competition, the German railways transported 1,939,100 million persons in 1998, 1,963,100 in 1999, 2,001,500 in 2000 (Verkehr in Zahlen 2001). The level of person kilometres has increased from 64,539 billion in 1994 to 74,388 billion in 2000 (DBAG 2000:4/5). As

a share of all transport, rail passengers kilometres (without public transport) decreased from 8.2 percent in 1996 to 8.0 percent in 2000 (BMVB 2001/2002).

With respect to accessibility, the length of the network kilometres has decreased from 67,357 km to 64,821 km (DB 2000: 21). The number of trains per day in long-distance travel increased by 8 percent from 1,441 per day in 1999 to 1,557 per day in 2000. In regional travel it decreased by 0.1 percent, from 29,036 in 1999 to 28,995 in 2000 (DB 2000:15). In 1998 there was a range of cut-backs of long-distance trains (SZ 14.7.1998). There is little systematic information on continuity and reliability. In 2000 92.3 percent of the trains were on time (Eurostat 2001). Overall satisfaction with intercity services is at 41percent (Eurostat 2001).

As to affordability, the price index for long distance passenger transport rose from 104.0 in 1996 to 112.0 in 2001, for ICE trains from 104.3 in 1996 to 115.3 in 2001 (1995 = 100) (Stat. BA 2002).

With respect to safety performance, accidents with persons involved decreased from 1,220 in 1996 to 946 in 1999 (Stat. BA 2000: 34).

The instrumental and institutional measures taken in order to improve performance primarily aim at increasing competition. The lack of competition in long-distance services and – to a lesser extent – in regional services is considered to be at the roots of the unsatisfactory performance. Thus the Federal Cartel Office has blamed DBAG for discriminating against other undertakings in their attempt to accede the network and offer services on the network owned by DBAG. At the institutional level, the competences of the Federal Railway Office have been strengthened. It can now impose fines when there is discrimination against network access.

2.2.3 France

The regulatory reform in France has been characterised by a twofold development. Although the public monopoly of the SNCF in the operation of services has been maintained, it has undergone a series of reforms. In 1983 it was transformed into an autonomous public enterprise, and management was given more independence *vis-à-vis* government. State influence is, however, still pronounced in regard to fares, investment decisions and employment (Douillet and Lehmkuhl 2001). The SNCF comprises all service operations (the *Grandes Lignes*, the suburbs of Paris, regional services and freight), whilst a separate railway infrastructure enterprise (*Réseau Ferré de France*) was created in 1997, which owns the infrastructure and is responsible for its planning and development, and for charging the operators of SNCF for using its network. The new corporation bears SNCF's infrastructure debt (Douillet and Lehmkuhl 2001). The SNCF manages the infrastructure together with RFF. Technical and security equipment has been left with the SNCF (Henry 1997: 93). Conflicts soon emerged between RFF and SNCF – in particular regarding the charges to the network demanded by RFF. The level of charges, set by decree, are too low to allow RFF to manage the network on an independent financial basis. It is thus dependent on state subsidies (RFF Report 2001).

The performance of SNCF and RFF after the reform, for which – as in the German case – only a little data is available, as well brought on an increase in overall take-up capacity. Between 1994 and 1999 passenger kilometres went up by 20.6 percent, to 14 billion (RFF Report 2001: 3). This is in large part due to the *trains à grande vitesse* which increased their passenger kilometres, while the *trains rapides nationaux* decreased theirs. The number of passenger kilometres with the TGV increased from about 22 billion in 1995 to about 35 billion in 2000 (RFF 2001 appendix).

Accessibility, in terms of the length of the network, has decreased from 49,241 km in 1997 to 49,168 km in 1998 (Yearbook of Internat. Statistics 2001). New lines of TGSs are presently under construction. Little information is available on punctuality. In 2000, 87 percent of the trains were on time (Eurostat 2001). Satisfaction with Intercity services is presently at 59 percent in France (Eurostat 2001). With respect to affordability, the data show that between 1997 and 2001 the prices of SNCF increased only moderately. They increased by 0.3 percent in 1996/97; they decreased by 0.1 percent in 1997/1998 and they went up by 1.0 percent in 1998/99 and by 1.5 percent in 2000/2001 (Direction des Transports terrestres 19.7.2001). As regards safety, there were 117 fatalities in 1997, 138 in 1998, 109 in 1999 and 123 in 2000. The overall number of accidents increased from 334 (1997) to 427 (2000) (Direction des Transports terrestres, 18.7.2001).

Table 2 : Performance under the new regime: rail

	Pass.km	network length	Cancel.	punctuality	prices	safety
UK	significant increase	mod. increase	high	low	increase	sign. decrease
D	mod. increase	mod. decrease	medium	(high)	mod. increase	medium?
F	mod. increase	mod. decrease	–	–	mod. increase	medium

The overall performance is as follows: There has been a small increase in the absolute ‘take up’ in Germany and France, and a considerable one in the UK. There has been a slight increase in network kilometers as a precondition of accessibility in all countries. There has been a cut in services in Germany and an increase of cancellations in the UK. Punctuality is higher in Germany than in the UK. Prices have moderately increased in all countries. Safety fares badly in the UK, and moderately in Germany and France.

2.3 The Status quo ante: telecommunications

In the past, the telecommunications industry was typically structured by a public monopoly. This was justified in economic terms by the high sunk costs for network construction and the economies of scope and scale of the service production, the non-storability of output, the time-varying and stochastic demands, and the positive network externalities for users that prevail as long as

existing subscribers benefit when new subscribers join. In political terms, the monopolistic market structure was legitimized with reference to the need to ensure universal access, that is, to connect remote areas to national networks and to provide services at a reasonable and geographically average price (Henry 1997: 166; OECD RRR 1997, Vol. 2: 48).

To the extent that data are available, the public service dimensions measured in telecommunications are accessibility and affordability. The pre-reform phase in Britain dates from 1979 to 1984; in Germany and France from 1990 to 1995. Accessibility is measured by the number of voice telephony lines per 100 inhabitants, the waiting time until connection and the type of services used. Affordability is measured in terms of the price development over the last five years prior to reform.

In France the number of lines increased from 41.7 in 1985 to 56.3 in 1995; in Germany they increased from 41.9 to 49.5 (Communications Outlook 1997, Vol. 1, Table 4.2). The number of cellular mobile subscribers in France in 1990 was 287,056 in absolute figures; in 1995 it was 1,302,400; in Germany numbers were 430,000 and 3,750,000 in those same years respectively (ibid. Table 4.3). The number of persons using the Internet in France increased between 1995 and 1997 from 113,974 to 245,501 (Communications Outlook 1997, Vol. 2, Table 4.7). In Germany the number rose between 1990 and 1994 from 4.29 per 1000 inhabitants to 8.84 (ibid. Table 4.8). Accessibility, measured by the time necessary to obtain a connection, fell in France from fifteen days in 1992 to seven days in 1995; and the number of outstanding connections dropped from 110,341 in 1992 to zero in 1995 (ibid. Table 7.1). In France the number of public telephones per 1,000 inhabitants declined slightly from 4.4 in 1993 to 3.6 in 1995. In Germany it remained the same, with 2.0 per 1,000 inhabitants, (ibid. Table 7.2).

As regards affordability, in Germany prices fell steeply relative to the general (retail or consumer) price index in the period from 1990–1994 (OECD RRR 1997, Vol. 2: 50). In current prices, the costs for national and international services fell by more than 60 percent from 1985 to 1996 (OECD RRR 1997, Vol. 2: 50).

Table 3: Performance under the old regime: telecommunications

	lines/100 people	Innovative services	time until connection.	public tel	prices
UK	–	–	–	–	–
D	increase	increase	decrease	mod. decrease	decrease
F	mod. increase	increase	decrease	mod. decrease	decrease

Altogether, the empirical data on accessibility, the quality of service and pricing indicate that the old regimes fared relatively well.

2.4 The Status quo: telecommunications

The telecommunications industry has undergone an extensive transformation. Different types of data transmission services between fixed points have given rise to specialised networks and digital technology. With the new technologies the cost of extending and maintaining networks has declined, thereby changing the competitive conditions in the industry and eroding its formerly monolithic structure (OECD RRR 1997, Vol. 2: 46). Regulatory reform has developed at a different pace in different segments of the telecommunications market. In the traditional fixed-network-based voice telephony and in the cellular telecommunications, market entry is subject to licensing, and most governments have allowed some competition in their domestic markets. Prices are generally regulated by the government, except in the cellular telecommunications market; and most countries have fully liberalised the market for equipment and value-added services (e.g. voice mail) (OECD RRR 1997, Vol. 2: 48). More recently, the Internet, electronic commerce and the demand for broadband communications access have been important in shaping telecommunication policy and the level of competition. However, competition in the provision of telecommunication services, as well as local voice services and local access are coming about slowly (OECD Communication Outlook 2001:25). Regulatory initiatives have sought to further stimulate local access competition by requiring local loop unbundling, but they have also focused on alternate networks (OECD Communication Outlook 2001:25).

2.4.1 Britain: the new regulatory regime and its performance

Entry restriction to the market has been eased substantially in Britain. With the privatization of the industry in 1984, a duopoly with price-cap regulation was established. This was subsequently abolished in 1991; thereafter a rapid entry of new companies ensued. In spite of the conferral of a large number of licenses, the domestic market remains dominated by British Telecom (Bishop, Kay and Mayer 1995: 14).

With liberalization, a new regulatory structure was established (Thatcher 1999). The Monopolies and Merger Commission, together with the Office of Fair Trading, is responsible for problems of competition. Licenses to service providers, specifying obligations and duties, are granted and amended by the Office of Telecommunications (OFTEL), a non-ministerial government department responsible for the enforcement of licensing conditions (Helm 1994: 19). The regulator heading OFTEL is appointed by the government. The regulatory instruments set maximum prices at levels calculated to produce 'normal' profits; in doing this, they use the RPI-minus-x-formula. Any profits above these levels can be retained. Every five years, price ceilings are adjusted to push profits back to the level that is thought to be normal (Spiller and Vogelsang 1996: 16).

How has the new regulatory regime performed? With respect to accessibility of the services, the performance has improved. The number of mainlines per 100 inhabitants increased from 44.2 in 1990 to 50.2 in 1995 (OECD Communications Outlook 1997, Vol. 2, table 4.2) and to 56.5 in 1999 (OECD Communications Outlook 2001:81, table 4.2). The number of cellular mobile tele-

phone subscribers rose from 1,230,000 in 1990 to 23,900,000 in 1999 (OECD Communications Outlook 2001: 85, table 4.5). This is 43 percent (ibid. P.85, table 4.5). In the same time period, the number of public telephones per 1,000 inhabitants has slightly increased, from 2.4 to 2.6 per 1000 people (OECD Communications Outlook 2001:219, table 8.3). The standard of services also improved between 1993 and 1999. 97 percent of orders are met within the time framework agreed upon with the customer (ibid. p. 217, table 8.1).

As regards the affordability of prices, the improvement in performance has been remarkable. Prices have fallen sharply. Relative to the general (retail or consumer) price index, they have fallen by more than 60 percent (as required by the RPI-x regulation) since 1985 (OECD RRR 1997, Vol. 2: 50). The price of long-distance calls fell by more than that of domestic calls, and business prices dropped more than residential charges (OECD RRR 1997, Vol. 2: 140–41). In 2000 the composite basket of residential telephone charges (including international calls and calls to mobile networks) were U.S.\$426.78 (OECD Communications Outlook 2001: 196, Table 7.9). In terms of international collection charges per minute, at peak rates the costs decreased from U.S.\$ 0.59 in 1995 to U.S.\$ 0.54 in 2000 (ibid., p. 201, table 7.15).

2.4.2 Germany

The regulatory reform in Germany – Postreform I – of 1989 divided the federal post office into three public enterprises (postal services, post-bank and telecoms) and introduced competition into parts of the telecom market, the market for equipment, teletext, satellite communication and mobile telephony. In 1995, Postreform II transformed the three public enterprises (*Telekom*, *Post* and *Postbank*) into joint stock companies. Until 1996, when a first batch of shares were floated, all shares were owned by the *Bundesanstalt für Post und Telekommunikation* (OECD RRR 1997, Vol. 2: 48). At present the government still holds a majority of the shares. Although there are about fifty licensed competitors to *Deutsche Telekom*, there is only a limited degree of competition in the area of local voice telephony (OECD RRR 1997, Vol. 2: 120).

The regulatory structure underwent change as well. In 1998 the Ministry for Postal Services and Telecoms was dissolved, and a new federal regulatory agency was established, which operates under the supervision of the Federal Ministry of Economics. The declared goal of the new authority responsible for granting licenses is to serve as a competition watchdog, a function it shares with the federal antitrust authority. It also serves to protect consumers' interests.

Accessibility as reflected in the number of standard telecommunications access lines, decreased by 3.1 percent from 39,200,000 lines in 1995 to 34,500,000 in 1999 (OECD Communications Outlook 2001: 82, Table 4.3). By contrast, the number of ISDN channels rose by 48 percent, from 2,744,000 channels in 1995 to 13,320,000 in 1999 (OECD Communications Outlook, 2001: 83, Table 4.4). The number of cellular mobile subscribers increased from 3,733,000 in 1995 to 23,470,000 in 1999. Between 1990 and 1999 the increase amounts to 58 percent. (OECD Communications Outlook 2001: 85, Table 4.5). The number of public phone booths decreased from 2.0 per 1000 people in 1995 to 1.7 in 1999 (ibid. P.219, table 8.3). As regards quality of service,

77.9 percent of applications were connected in under 10 days in 1995, 90.1 percent in 1997 (ibid. p. 217, table 8.1).

With respect to affordability, as compared to the OECD average (=100 percent), the basket of total charges for telecommunication services and equipment in January 1997 was 94.4 for residential users (OECD RRR 1997, Vol. 2: 47). In 2000 the composite basket of residential telephone charges for Germany was U.S.\$467.85 (OECD Communication Outlook 2001: 196 table 7.9). International collection charges in terms of the average rate per minute at peak rates to all other OECD countries went down from U.S.\$0.93 in 1995 to U.S.\$0.38 (ibid. 2001:201, table 7.15). From January 2000 to January 2001 cellular phone prices dropped by 14.7 percent and fixed network prices decreased by 4.2 percent (Stat. BA, Jan. 2001).

2.4.3 France

In France increased competition in the telecoms market has been slow to arrive. *France Télécom* was, and still is, the dominant provider of telecom services. Until 1998 it held the legal monopoly on fixed-network telephony in all but the closed private networks. The principle of third party access was not generally applied until 1998. Cable companies are allowed to provide telephony services. *France Télécom* only started to float shares on the stock market in spring 1997, and even then the government intended to keep a 51 percent stake in the company (OECD RRR 1997, Vol. 2: 130).

However, a few liberalising steps were taken earlier as regards the provision of telecommunication material, data transmission and a few other 'value added' services. Furthermore, the mobile telecom market was opened to competition. An independent regulatory authority, the *Autorité de Réglementation des Télécommunications* (ART), was created in 1997 to supervise the activities in the liberalising market (OECD RRR 1997, Vol. 2: 130).

The overall performance under the reformed regime is measured by telecommunication channels per 100 inhabitants. This was at 56.1 per 100 inhabitants in 1995 and 57.8 in 1999 (OECD Communications Outlook 2001: 81, Table 4.2). Standard telecommunication lines in France decreased from 32,600,000 in 1995 to 30,581,000 in 1999. They fell by 1.6 percent from 1985 to 1999 (OECD Communications Outlook 2001: 82, Table 4.3). By contrast, the number of ISDN subscribers rose from 1,600,000 in 1996 to 3,600,000 in 1999 (ibid.:83, Table 4.4). The number of cellular mobile subscribers increased from 1,439,900 in 1995 to 20,619,000 in 1999. This constitutes a 95 percent increase from 1990 to 1999 (OECD Communications Outlook 2001:85, Table 4.5).

Accessibility, as measured by waiting time for new connections, was 6 days in 1996 and 1997, the last figures available (OECD Communications Outlook 2001: 217; Table 8.1). Available payphones per 1000 people increased from 3.5 in 1995 to 4.1 in 1999 (ibid., p.219, Table 8.3).

As regards affordability, the composite basket of residential telephone charges (including international calls and calls to mobile networks) in 2000 was \$458.98 US (ibid., p. 196, Table 7.9). International collection rates per minute at peak rates went down from U.S.\$ 0.81 in 1995 to U.S.\$ 0.28 in 2000 (ibid., p. 201, table 7.15). As a targeted political measure low rental prices are introduced for low-income households which are modest network users (as compared to business)⁵.

Table 4: Performance under the new regime

	lines/100 people	Innovative services	time until connection	public tel	prices
UK	mod. increase	strong increase	reduced	mod. increase	decrease
D	mod. decrease	strong increase	decrease	mod. decrease	decrease
F	mod. increase	strong increase	decrease	mod. increase	decrease

In summary, the empirical overview reveals that the public service performance was satisfactory in telecommunications in all three countries. The same holds for the time before the reform. By contrast, the opposite is true for the rail sector. Comparatively, performance was clearly less satisfactory before **and** after the reform, to a greater or lesser extent in the different countries. What are the underlying reasons for these developments?

3 Accounting for performance: general explanations

How can it be accounted for that, after liberalization, in the two sectors under study, public services were easily provided in the telecommunications, but only with some difficulty in the rail sector? Three explanations spring to mind: 1) the degree and type of technological innovation achieved in the sectors, 2) the exposure to (international) competition and liberalization (privatization and deregulation), and 3) assuming that there is a political decision in favour of market-correction, the establishment and operation of the regulatory institutions charged with guaranteeing the provision of public services.

The first argument is that in the course of a pronounced sectoral technological innovation that allows for mass production at a high technological level and thereby clearly reduces the costs of producing the network infrastructure and the products necessary for service provision, there is an accompanying improvement in services (see also Serot in this volume). The services become more diversified, more sophisticated and cheaper for costumers. Therefore, it is claimed that

- the higher the level of technological efficiency increasing innovation in a network utility, the higher the level of public service provision (*‘technology hypothesis’*).

5 (I owe this information to A. Serot)

The second argument points to the extent of the (international) competition of a network utility. The stronger the (international) competition, the higher the performance of service provision, because inefficient companies will be eliminated from the market. The competition argument is, of course, very closely linked with the liberalization argument, which claims that with the privatisation of network and service provision and the deregulation of these areas – that is, with the opening of market access – the level of service provision will improve. In sectors formerly considered to be natural monopolies, liberalization brought the abolition of restrictions on market access, and the creation of competition and privatization; that is, it brought the transfer of public utilities into private ownership (Majone 1996). By increasing the allocative and investment efficiency of utility providers, more customer-friendliness in utility services, easier accessibility, more innovation and lower prices (Littlechild 1984) are to be ensured. Hence, it is claimed that

- the more exposed a privatized and deregulated network utility is to (international) competition, the higher its service performance (*'liberalization hypothesis'*).

In opposition to the market-creation logic, there is a logic of political intervention. It argues that the creation of markets may go some way towards meeting public service goals, but that in some instances, from a provider's point-of-view, it would be inefficient to provide public services if such services have to be provided below costs. Given this conflict of interest, a political interventionist view holds that providers have to be obliged to provide some services, even if they are not profitable, because these services fulfill important social goals (Levy and Spiller 1996: 3). In our case, a political consensus exists in most western democracies that utilities should measure up to the public-interest goals of accessibility, continuity, affordability and safety, and governments decide that certain user interests, which the market does not cater to, such as the provision of services below costs in remote areas or for low-income groups, be guaranteed. Hence, liberalization needs political reregulation, which subjects providers to public service goals.

Even if such statutory obligations and corresponding regulatory institutions exist, public service provision still cannot be taken for granted. Rather, the extent to which public services are in fact offered – or not – is up to the implementation process. Therefore, there is a need to control the service provision of private providers. An institutional regulatory regime needs to be set up, making it possible to control the private infrastructure and service providers.

In implementation the interaction between the regulator and regulatee can be conceived of in terms of a contract between a principal and an agent. The principal enters into a formal or informal contractual agreement with the agent in the expectation that the agent will subsequently choose actions that produce outcomes desired by the principal (Miller and Moe 1986:175). The principal expects loyalty from the agent, even when it runs counter the agent's self-interests. Therefore, problems of enforcement arise (Shepsle and Bonchek 1996). As a consequence, enforcement mechanisms are created, or incentive structures are designed, that constrain the agent. Because these mechanisms are never perfect, 'shirking' will always exist. This is because of the information asymmetry between the agent and the principal – i.e. because the agent has more information than the principal (Eggertsson 1990). Thus, it requires a great deal of information to

set a price level that still leaves incentives for technological improvements and increasing productivity, in particular when it extends across compacted price structures and quality levels (Nicolaidis 1997: 50). However, agents do not necessarily engage in shirking; they may alternatively comply, shirk or sabotage (Brehm and Gates 1997). It is therefore hypothesized that

- Agents only engage in shirking when their policy preferences diverge from the policy preferences of the principal, which is the case when operators have to provide public services below cost (*'goal conflict hypothesis'*).

If there is danger of shirking, the principal has to monitor the performance of the agents. Because of the costs of monitoring, the principal must decide which aspects of the agents' behaviour he or she will supervise and how the performance is to be measured (Eggertsson 1990). The high costs of monitoring give rise to the possibility of moral hazards and adverse selection. If there is moral hazard, the principal measures compliance by some single indicator, allowing for shirking in other areas. If the selection is adverse, agents are hired solely on the basis of one or few criteria for contracting, and other criteria important for service provision are neglected. In order to avoid both fallacies agents can be more suitably screened, contracts can be drawn up more carefully, monitoring and reporting can be carried out. Monitoring can occur by police patrol, in which case an extensive apparatus of public supervision is set up or by setting more appropriate incentives for agents to comply to. (Shepsle and Bonchek 1996; Stevens 1993). From these considerations of principal-agent theory a number of *'implementation'* hypotheses are able to be drawn:

- The more careful the screening and selection of agents, the higher the likeliness of high public service performance (*'adverse selection hypothesis'*).
- The more carefully the contract is designed, the higher the likeliness of high service performance (*'contract design hypothesis'*).
- The more *'command and control'*, the higher the likeliness of high service performance (*'command and control hypothesis'*).
- The more incentivization, the higher the likeliness of public service performance (*'incentivization hypothesis'*).

However, in accounting for service performance, given that we are dealing with highly complex, technical and discretionary activities, it would be wrong to focus exclusively on the relationship between the sectoral regulator and the regulatee; rather, besides these actors, there are other actors in the regulatory space who open up *'peripheral routes to compliance'* (Brehm and Gates 1997:48). This has also been called *'fire alarm'* supervision. Here, the principal relies on third parties to draw her attention to the agent's non-compliance. These are third parties in the regulatory field, such as the courts, the ministry, consumer groups, the media: these all observe the behaviour of the regulatee. They all contribute to the fact that "no one controls the agency, but the agency is under control" (Moe 1990). Or put differently: we are dealing with an *'interpolable*

balance' of self-policing mechanisms, with complementary and overlapping checking mechanisms (Hood 1991). Therefore, it is claimed that

- the more third parties are engaged in the regulatory space, the higher the likeliness of public service performance (*'fire alarm mechanism'*).

These different explanations of the level of public service performance are not mutually contradictory, but complementary. Without making a claim to systematical testing, I will seek to gauge the explanatory power of the individual hypotheses by drawing sectoral and cross-country comparisons using the empirical data presented in section one.

4 Theoretical claims in view of the empirical data

How do the different claims fare in the light of the empirical data on service public performance presented above? According to the *'technology hypothesis'*, one would expect the sector with the higher technological development to offer a better basis for the provision of public services. The development of telecommunications technology has been revolutionary in the past decades. The use of microwave technology in transmission led to a dramatic decrease of costs. The same development occurred in computer technology. (Schneider 2001:177) By comparison, technological innovation in the rail sector is much less large scale, efficiency enhancing and thereby cost reducing.

Our empirical data across the two sectors clearly substantiate this hypothesis. Technological innovation and economic growth rates in the telecommunications sector are very pronounced and very favourably influence the quantity and quality of service provision in terms of accessibility, continuity and affordability. This becomes most clear in the case of France, where the increase in quality sets in before the relatively late and modest liberalization. Comparing the performance of France prior to reform with the performance of the UK and Germany after the reform, the provision of public services in France is at the same level as in the UK and Germany.

Conversely, the rail sector has not been characterized by a large degree of technological progress, generating self-sustained growth, which then facilitates the provision of better quality public services. Technological progress in the rail sector requires large scale investment in long-term infrastructure. For this purpose, the rail sectors which suffered from under-investment previous to reform in all three countries, and depend(ed) on public subsidies, could not embark on a route towards self-generated growth, but have once again had to rely on state support. In two countries, France and Germany, a modern railway technology (*Trains à grande vitesse* in France and the ICE and *Transrapid* in Germany) is heavily subsidized by the governments. Their services – being very expensive – do not comply with requirements of 'affordability'. In short, a low level of technological innovation in the railway industry before and after the regulatory reform is linked with rather poor public service performance.

According to the '*liberalization hypothesis*', one would expect that the countries and sectors with a high degree of liberalization – in terms of market-creation/(international) competition and privatisation – would show a higher degree of public service performance. If the level of technology is held constant, does the degree of liberalization offer an additional explanation for more or less public service provision? An answer has to be looked for by comparing countries with varying degrees of liberalization within one sector. By comparing the UK and France in the rail sector, the most and least liberalized rail industries are compared. If the liberalization hypothesis holds up, public service provision in the UK should be clearly higher than in France. The evidence lends some support to this claim. Yet, while the UK shows a larger increase in passenger kilometres and the numbers of passengers than France does, the growth in France – after a previous decline – is quite substantial, too. This is reinforced by the public means being spent for the two industries: state aid constitutes 0.45 percent of the GDP in France, compared to 0.19 percent in the UK (Eurostat 2001). This means that, indeed, to some extent the liberalization hypothesis is borne out in the UK, that liberalization creates more accessibility to the railways. However, the empirical data on the UK also indicate the limits of liberalization in public service provision. While the number of passengers increased, the quality of services tended to decline, as indicated for example by the extent of overcrowding. In other words, when faced with the conflict between profit and investment, the private providers tended not to invest more; for example, they tended not to add more carriages, but to expect passengers to accept more over-crowding.

In the case of telecommunications, comparing the impact of the degree of liberalization, the UK and France once again constitute the two extreme cases, being the most and the least liberalized system, respectively. Accordingly, one would expect that public services in France would be inferior to these in the UK. However, as mentioned above, the empirical data do not bear out this claim. What is rather striking is that, by contrast, performance levels across countries even confirm the '*technology hypothesis*'. In short, gauging the liberalization and the technology hypotheses against the empirical data shows that the technology hypothesis trumps the liberalization hypothesis.

A caveat, however, has to be made concerning the type of competition prevailing in rail and telecommunications. The rail industry, as opposed to telecommunications, is subject to two levels of competition, the intermodal competition between different kinds of transport – that is air transport and individual automobile transport – as well as intra-modal competition between different rail service operators. The first level of competition is fierce, and rail transport has persistently been losing out in this competition for various reasons, one being that, unlike the other two modes of transport, the rail industry has had to provide for its own infrastructure, the track network. This differs from individual transport and air transport. Hence one might conclude that competition under such unequal preconditions, or in the absence of a level playing field, turns to the disadvantage of the rail industry, and indeed has repercussions on the second level, i.e. that of intramodal competition, and its possible impact on service provision.

As the empirical evidence in the rail sector shows, there is an increase of services offered due to liberalization. However, the conflict between profitability and public service sets limits to the

public service character. Once this limit is reached, the public service can only be provided if it is imposed politically.

This brings us to the question of the extent to which public services are politically prescribed in the two sectors and the three countries. As has been shown, the ‘technology hypothesis’ goes the furthest in explaining the level of service performance. If there is such technology-driven growth in a sector, political intervention to guarantee public service performance is not as necessary. By contrast, in a problem-ridden sector with little cost-reducing technological innovation, such as the rail sector – subject to a strong intermodal competition without a level playing field – , political intervention is needed all the more in order to correct profitability motives, and make redistributive objectives possible. In fact, the statutory provisions in all of the countries under investigation, and both sectors, explicitly provide for public service goals in telecommunications and in the rail sector. Liberalization has not been introduced in a ‘pure’ form in any of these countries; instead, it has been tamed by regulatory restrictions that impose requirements upon network and service providers and set public service requirements, thus by price regulation in telecommunication. In the sector where technological innovation drastically increased the level of public services, telecommunications, we also witness a *redefinition* of the notion of public service. This concept is being widened and now includes new services rendered possible through technological development; for example, access to the Internet and an ISDN telephone link. What is quite striking is that the public service provisions – comparing rail services in the UK and Germany – are particularly detailed in the country with the more far-reaching liberalization, the UK. In all franchise contracts with rail service providers, the required performance levels are set out in very clearly specified form.

Opting politically to correct markets in order to provide public services also requires an entire administrative apparatus to control whether, in fact, these services are provided. So to what extent do the ‘*implementation hypotheses*’ hold up in view of the empirical insights about implementation? First, it can be seen quite clearly that, indeed, liberalization does not fully conflict with public services provision, unless there is a clear conflict between the principal’s and the agent’s interest (‘*goal conflict hypothesis*’). Does the empirical evidence show that there are such conflicts? And if it does, do private providers indeed discard public service objectives? Or do they, on the contrary – and against their economic interests – still offer public services? We are most likely to find such goal conflicts when the conflicts are not neutralized by economic growth and technological innovation, but when there is little growth and there is scarcity of resources, while at the same time private ownership and competition are most developed. This has been the typical state of things for the British railways. Here the evidence is mixed. The data demonstrate several instances in which, if a conflict indeed exists, the economic interests prevail. This is the case, for example, when, in spite of a heavy passenger load, service operators do not add carriages; or when, in the face of poor travelling conditions, high manager bonuses are paid, instead of investing in new rolling stock; or when Railtrack, after major accidents, restricts the driving speed and pays high shareholder dividends, instead of investing in new tracks. The opposite evidence, i.e. that there is compliance with public service goals in spite of conflicting interests in

economic profitability, could be said to exist if all complaints and poor conditions were dealt with speedily and satisfactorily. There is evidence to that effect, too – for example, when costly measures are taken to improve the quality of services and infrastructure, as some service lines have done.

Given that there will, to some extent, always be a conflict between the goals of the regulator and the regulatee, institutional structures have to be established and regulatory instruments have to be introduced in order to secure the provision of public services. The most interesting empirical case is again the British rail sector, in which liberalization and the prescription of public service obligations are most developed and clearly expressed. In Germany and France the public service obligations are not nearly as detailed, nor are they as actively subject to monitoring practices. Given these facts, the typical mistakes in drawing up regulatory contracts and choosing agents are most evident in the British case. The ‘*adverse selection*’ and the ‘*contract design hypotheses*’ are borne out here. Evidence to that effect is that the operating franchises were dissolved and renegotiated much earlier than originally planned. When this was done, different agents, e.g. license operators, were chosen, and the contracts were redefined to include commitments both to investment and to compliance with public service goals. Railtrack was deprived of its company status under private law and taken into the administration – most drastic evidence that it was considered to have been the ‘wrong agent’.

With respect to the effectiveness of the regulatory instruments used, it is again the British case, with its highly elaborated system of instruments and incentives and disincentives, which is the most telling. There are two contradicting claims: first, that ‘command and control’ instruments are more effective; second, that incentive-setting is more effective. To what extent do the empirical data support one or the other hypothesis? First of all, it is notable that the instruments do not play much of a role in telecommunications because – as pointed out – the technological development of the sector and its drastic economic growth resulted in profits for all the stakeholders in the sector. In the rail sector the picture is mixed. In France these instruments are hardly used at all, because liberalization is very limited. Germany relies on market incentivization. Its policy mainly aims at enhancing competition in order to improve service provision, in particular opening access to the network for new railway undertakings. By contrast, in the most liberalized system, i.e. the UK, they paradoxically do play the most important role. Here a myriad of incentivization instruments are used in connection with command-and-control instruments. These instruments include a very intensive monitoring procedure; and if it is found that there has been failure to comply with service performance, as defined in the contracts, then fines are imposed. And, indeed, many fines have been levied in the past years. If, however, there is overachievement, then bonuses are paid by the regulatory authorities. This was less frequently the case. Hence, in the British case we find a partial empirical confirmation of the ‘*instrument-hypotheses*’, in that the instruments are widely used, at least when measured in terms of the fines levied. However, it is not possible to empirically assess their impact on service performance since there is no comparable situation in which they were not applied. It has been argued that

imposing fines on service operators has not been effective, and, indeed, that the franchisees preferred paying the fines to investing in costlier service enhancement measures.

Going beyond a dyadic relationship between the principal and the agent, it has finally been claimed that multiple third party actors who have a stake in the regulatory field are engaged in monitoring the regulatee. Accordingly, it is expected that an agent's performance in such fields will be superior to the agent's performance when there is a dyadic relationship, because the other actors provide the regulator with additional information about the regulatee's performance, which he or she would otherwise not have access to. The available data do not allow for performance to be compared under otherwise equal conditions when there is a dyadic relationship, as opposed to performance in a regulatory field with multiple third party fire-bell functions. However, it can be noted that the British railway industry is subject to monitoring by multiple actors: the rail regulator, the Strategic Rail Authority, the ministry, the shareholders (and the City) and the Health and Safety Executive. Together, they produce an enormous amount of data on the performance of the network and service providers. Additionally, improved institutional modes of customer representation mean that companies are under pressure to comply with public interest goals. "The process has become more public; there are no more negotiations behind closed doors" (Spiller and Vogelsang 1996: 116). There are open discussions on the extent to which shareholders' interests, as opposed to consumers' interests, should be honoured, as was done in the Railtrack consultation process (*Financial Times*, 11 December 1997). This discussion is less pronounced in the German and French rail industries, where privatization is not as pronounced and is still unfolding. However, in all cases, the regulation of the liberalized utilities has been subject to continuous substantive and institutional scrutiny.

5 Conclusion

The liberalized utilities in the rail and telecommunications sectors fare very differently with respect to the level of public service performance. It has been shown that technological innovation largely accounts for this result. Liberalization and the pressure of competition also go some way in explaining this difference, when technological innovation is held constant. Yet they only partially explain the differences. If economic utility considerations and public service goals are at counter-purposes, political intervention has to secure the provision of public services. If there is a political prescription to meet public service goals, then the institutional arrangements to supervise service performance in the 'goal-conflict zone' is crucial. Here it has been possible to show with some plausibility that some institutional arrangements and instruments are more likely to promote service public provision than others. However, the empirical evidence is not conclusive since a systematic comparison of regulatory institutions and instruments was not able to be made on the basis of the given cases in the rail industry, where the 'goal-conflict zone' prevails.

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