

# Ex ante vs. ex post Regulation in the German Railway Sector

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## Abstract

Possibilities for competition in the German railway industry depend considerably on the regulatory regime for this sector. If it is not possible to establish a solution with vertical separation of infrastructure and operations one has to choose between ex-ante regulation (regulated third party access) or ex-post regulation (negotiated third party access).

In this paper it is argued that there is a need for ex-ante regulation, but there are strong arguments against the introduction of (new) regulatory agencies. These arguments especially concern the “captiveness” of regulators and the persistence of regulation agencies once established. A solution has to be developed in the context of the regulation of network industries as a whole. Ex ante regulation should be the task of an extended German Federal Cartel Office. A regulation department within this office will support open network provision and “competition in the field” in the network sectors like energy, telecommunications and railways.

## 1. Introduction

Increasing the efficiency of the railway sector is one of the most important objectives of European and National transportation policy. To cope with today’s and future challenges of the transport markets, especially the dramatically rising demand in land transport, we need a higher competitiveness of the railway system as a whole. Intramodal competition seems to be the key for increasing competitiveness and efficiency of the railway industry. For that reason, the main question is how to set the regulatory framework for the railway industry to promote intramodal competition (competition in the field).

In general, there are three alternatives for setting regulatory conditions. First of all, one has to mention the institutional separation of infrastructure and operations. This solution shows strong advantages regarding the incentives for competition but might not be realised due to political or other economic reasons. Keeping the integration of network and services ongoing one has to provide solutions for third party access. Third party access may rely upon negotiations between the infrastructure owner and the train operating companies which ask for routes; we call this solution “negotiated third party access”. If the provision of the routes is driven by detailed directives from a regulatory agency we may call it “regulated third party access”.

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The aim of this paper is to show how the choice of the regulatory regime influences the needs for ex post regulation and ex ante regulation respectively. It is argued that there is a first best solution – the separation of infrastructure and operations – with a minimum of regulatory needs. If it is not possible to realise institutional separation, a trade off between ex ante and ex post regulation arises. The question is, whether we can minimise the need for ex post regulation without introducing new regulatory agency with their specific problems.

## **2. Vertical Separation and Regulation**

### **2.1 Vertical Separation: Advantages and Disadvantages**

Against the traditional treatment of the problem with railway undertakings owning both the railway network and the service units nowadays there is no doubt about the technical possibility of a separation of network and operations (Knieps 1996, pp. 16sq.). The question is, how competitiveness and costs are influenced by separation. Concerning this problem one has to bear in mind that railway infrastructure is characterised by economies of scale and sunk costs and therefore forms a monopolistic bottleneck. Railway operators on the other hand face no peculiar cost structures or irreversible costs compared with other competitive branches (Hedderich 1996, pp. 21sq.)

Because railway undertakings were historically run as state owned, integrated companies they did obviously not reach a maximum of efficiency. Compared with the intermodal competitors we notice a lack of innovations, especially in the freight transport market. As a consequence, there has been a continuous deterioration in the market position and financial performance of the state railways. Because of the lack of *intramodal* competition the weakness of the railway sector was frequently excused due to *intermodal* distortions of competition or inadequate support of the state owner, especially regarding infrastructure investment.

With the separation of infrastructure and operations we see a chance for a maximum of intramodal competition without distortions. An infrastructure provider without legal or organisational links to train operating companies does not have any incentive to discriminate between customers, especially between his former own operation units and new competitors.

In the literature one finds sometimes the statement that an vertically integrated railway firm does not have incentives to hinder competitors at the operations level at all. The argument behind this relies on the theory of vertical integration. Under specific conditions (fixed proportions) an upstream monopolist has no incentive to monopolise the downstream market. The monopolist remains indifferent between vertical integration and vertical separation and therefore is not interested in the discrimination of downstream competitors (Brunekreeft 2000, p. 27, Berndt 2001, p. 202).

From this consideration one must not draw the conclusion that vertical separation should not be realised. One critical assumption of the model is not met: You cannot assume fixed proportions between the use of infrastructure and other inputs like rolling stock etc. Rail transport is characterised by at least partly substitutional input relations instead. This causes an incentive for vertical integration and discrimination because it is possible to eliminate the substitution effect of upstream monopolistic pricing (Perry 1989, p.191). In addition, there may be some sunk costs at the service level as well which lead to discrimination of competitors because it is more profitable to run the business in-house.

One the other had it is necessary to discuss the economic disadvantages of vertical integration. They mainly refer to a loss of economies of scope and higher transaction costs. Scope Economies stem from:

- savings in the cost of administration, for example the joint use of headquarter services and information systems;
- a reduction of purchasing budgets;
- the joint planning and design of technical features of infrastructure and train control systems.

Scope Economies of vertically integrated railway companies may be important in singular cases, but in general they do not help as a defence for vertical integration (Hedderich 1996, pp. 78-79). Instead, one has to compare the economic costs of alternative institutional arrangements. There are remarkable costs of coordination within a vertically integrated railway company as well (Laaser 1994, pp. 11-12). Scope Economies can also be exploited by symbiotic arrangements and hybrid coordination schemes. Furthermore, some of the individual economic advantages of vertical integration turn out to be disadvantages for railway operation companies without network ownership. They frequently work as barriers to entry for intramodal competitors at the service level.

## **2.2 Requirements for Regulation**

Because vertical separation of infrastructure and operation minimises the incentives for discrimination and obstruction of independent competitors there are only a few tasks left for (ex post) regulation. Without vertical separation the regulation office is concerned with monitoring the exchange relationships between the infrastructure and operations level in detail. In the case of separation, only the level of access charges has to be regulated. The railway system as a hole, however, is exposed to strong intermodal competition. Therefore it is obviously difficult to set excessive or entry preventing prices. On the contrary, the independent infrastructure owner will be confronted with strong incentives for attracting new customers in order to rise capacity utilisation and improve economic performance. This will not fit with systematic discrimination of potential entrants.

In any case, a cost-based regulatory regime forms an inferior solution, because it minimises the incentives to increase productive efficiency. The regulatory agency should only use a price cap regulation scheme instead. Further possible restraints of competition by the infrastructure owner have to be pursued by the Federal Cartel Office (Bundeskartellamt) with reference to the general competition law (Act against Restraints of Competition - ARC)

## **3. Vertical Integration: Possibilities and Limits of ex post Regulation**

Without institutional separation of infrastructure and services competition can only be realised by third party access rules. In Germany, the German Railway Act (Allgemeines Eisenbahngesetz AEG) and Section 19 (4) sentence 4 of the ARC grant access to the network for potential competitors. The regulation of the ARC refers to undertakings refusing to allow

others access to its own networks and other essential facilities whose use is indispensable for operating as a competitor. It makes clear that networks which in practice cannot be duplicated must be made available for non-discriminatory use by other market participants. This regulation is the legal form of the so called essential facility doctrine (Knieps 1996, pp. 128-129).

In the railway sector there are obviously strong incentives for discrimination of actual and potential competitors by the integrated railway firm, when these firms demand access to the incumbent firm's network. Our experience with regulations of the antitrust law concerning the abuse of market power in similar cases is very disappointing. Especially abuse practices like charging excessive prices and/or setting unreasonable terms could not be prevented successfully by the Federal Cartel Office in the past (Schmidt 2001, p. 301).

To start an investigation the Federal Cartel Office needs a formal report by a firm affected by the abuse of market power or must get notice in a different way. Actually, only a small fraction of the considerable discriminations and hindrances are reported to the Office. This seems to be realistic for the problem of third party access to railway infrastructure as well. On the one hand, there are a lot of possibilities for subtle discrimination and hindrance, staying below the level of Antitrust intervention. The effects of this informal impediments and influences are sometimes stronger than those of actions which are definitely recognised as restraints of competition. On the other hand, actual or potential competitors at the service level are often in business with the dominant integrated railway. Under these circumstances the affected firm will carefully consider the chances of an Antitrust proceeding against its business partner.

Additionally, we have to point at the general theoretical and practical difficulties of Antitrust authorities to distinguish between competitive and non-competitive behaviour. As we know from lots of Antitrust cases, this is especially true with regard to price discrimination. Furthermore we have to bear in mind that antitrust lawsuits may last for years going through all the courts with a final judgement imponderable. If an abuse is prohibited by the Federal Cartel Office, this decision is applicable first after all means of legal address have been exhausted. In most cases this means the loss of the business in question.

Altogether, one should not trust in the activities of the Federal Cartel Office as far as third party access to railway infrastructure is concerned. At the moment, the Federal Cartel Office can only use the essential facility doctrine and additional rules against discrimination and market power abuse. This may be an effective ex post protection for existing competitive activities but this is not enough to break up the market or stimulate competition in a market with a dominant firm and some small and sometimes dependent competitors. Therefore, there is a need for ex ante regulation, if we cannot ensure the separation of infrastructure and operation.

#### **4. Ex ante Regulation of Network Access**

In this chapter we discuss ex ante regulation as an alternative to vertical separation of network and services. On the one hand, we have to consider the contents of regulation; on the other hand the terms of regulation have to be examined, especially the implementation of a specific regulatory office for the railway industry.

## 4.1 Topics of Regulation

The route management forms the central element of a regulated network access. Route management includes a system of access charges and the variety of rules for route allocation. To prevent discrimination by the vertically integrated railway undertaking one has to develop a system of rules for route allocation and pricing which is non-discriminatory, verifiable and transparent. It is conceivable to give the route allocation to an independent governmental authority, but we think this is a second best solution, especially with respect to privatisation efforts in the infrastructure sector.

Besides the problem of pricing itself, which is discussed later, the integrated railway faces a lot of possibilities to discriminate competitors by other than pricing measures (Schnell 2001). To deal with these non-pricing alternatives is quite difficult because any regulator or Antitrust office needs a good knowledge of practical matters and the technical and organisational problems of railway operation. Therefore, the question arises, whether we need a specialised regulatory agency for these matters.

Special problems of technology-related regulation are the quality and the technical development of the network. A vertically integrated, dominant railway undertaking will not commit to the (technical) needs of competing firms at the service level. Therefore it is not guaranteed, that the quantitative and qualitative development of the network and the train control systems meet the demands of the users all together. It will in particular serve the specific interests of the dominant firm. A regulatory agency for the railway sector may be a better solution for this problem, especially with respect to the planning authority of the state regarding nationwide infrastructure projects.

A central problem of ex ante regulation of third party access is related to access fees. Strong intermodal competition obviously limits the level of access charges, but despite this general boundary a vertically integrated infrastructure firm is able to discriminate actual or future competitors by distortions in access prices (Hedderich 1996, p.113). Difficulties arise, because regulation has to distinguish between bad, anti-competitive price discrimination and differences in prices which are necessary to reach the break even and do not come into conflict with the rules of competition. Therefore, price regulation should only examine the principles and the structure of the access fee system in general. Ex ante regulation should not include a compulsory permission of charges in special cases. This would mean excess regulation of the railway industry.

Regulation of access charges cannot rely on marginal cost pricing. Due to the structure of infrastructure costs marginal cost pricing causes a deficit. Possible departures from marginal cost pricing are Ramsey prices or non linear pricing, e.g. two part tariffs (Berg/Tschirhart 1988). Both with Ramsey prices and two part tariffs a lot of problems arise in practice. For example, the relation of fixed and variable price components has to be carefully considered when introducing two part tariffs. On the one hand you want to make use of the degression by the lump sum you have to pay in order to attract additional traffic; on the other hand this fixed amount must not be too high. Otherwise it is systematically in favour of the incumbents and keeps away new entrants from using the track.

All in all the problems of price regulation prove to be very complex. The question is, whether a regulatory agency is able to cope with the various trade offs in this field.

### 3.1 Institutional Aspects of ex ante Regulation

To make sure that third party access works sufficiently we need some institutional safeguard. As we pointed out, competition policy against the abuse of market power does only work ex post and is not sufficient to open the market for new competitors. Therefore, we see some need for an independent regulatory agency that supervises the route allocation and the system of access charges.

Specific regulatory agencies show both advantages and disadvantages. They are well suited to break up a monopoly and to create the structural conditions for third party access and competition. On the other hand we are afraid of the fragmentation of competition policy which comes along with sector related regulatory agencies (Böge 2001, p. 655). The “pattern prediction” is that the regulators will turn to be captive in the long run. They will become susceptible to the requests of the regulated industry and treat the regulated firm’s interest as their own. Another fear is, that they will be seeking new objects for regulation and therefore a possible phasing out of regulation will be recognised to late or be suppressed systematically (Koenig/Kühling 2001, p. 818).

## X. Conclusions

This paper has shown that the first best solution for intramodal competition on the railway markets is vertical separation of infrastructure and operations. Because this first best solution can not be realized in Germany and other European Countries we have to find a second best approach. Ex post regulation by the Federal Cartel Office may not be as effective as necessary. Therefore we need some ex ante regulation regarding the route allocation and the system of access charges, but we do not want to establish a special regulatorx agency for the railway sector due to the captive character and persistence of such institutions.

A possible way out of the dilemma is to build up a regulatory office for the network industries altogether settled at the Federal Cartel Office. At the moment, the Federal Cartel Office is not able to deal with regulatory affairs due to its legal competence and its resources. The job of the “Network Regulation Department” to be founded would be the ex ante regulation of third party access in network industries like railways, telecommunications and energy. Competences of this regulatory agency should be defined strictly and given only temporarily. A regular external review e.g. by the German Monopoly Commission would be favourable. These settlements might prevent the regulators from getting industry- or “Deutsche Bahn”-minded.

Another organisational problem is the collaboration with the regular Antitrust sections of the Federal Cartel Office. There will be conflicts between general competition policy and special regulatory affairs. We think that these problems could be solved by adequate organisational structures and rules. In any case the regulatory department will gain form the reputation of the Federal Cartel Office.

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