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**Revitalising European railways:  
A Comparative Assessment of the Emerging Models**

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*Abstract:*

In this paper, we analyse and compare the various institutional models and regulatory arrangements that have recently emerged from the restructuring of European passenger rail industries and, more specifically, the contractual agreements giving concrete expression to these policies. To do so, we developed a systemic framework consisting of seven key dimensions: the *Decentralisation* of regulatory control, the *Disintegration* of the industry, the *Domain* of the contractual assignment, the *Discretion* of management, the *Distribution* of risks, the *Duration* of contracts, and the *Destination* of subsidies.

We use empirical material gathered on the passenger rail industries of five EU Member States, i.e. Belgium, France, Germany, Great Britain, and Sweden, as well as extrapolation to highlight the most likely costs and benefits (incentive properties) associated with alternative arrangements and contract features and to show how the above dimensions, which are connected with one another in a complex web of interactions, can be traded-off against one another in order to optimize the industry's performance.

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\* Cabinet of the Belgian Minister of Transport. The views expressed in this paper are those of the author and are not meant to represent those of the Belgian government. The author is grateful to the rail sector representatives who participated in this study as well as to Estelle Cantillon, Olivier Debande, Yves Mathieu, and Hubert A. Nizet for their comments and support throughout this project.

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## 1. Introduction

European passenger railways have just entered a new era of reforms and restructuring that are gradually leading to the emergence throughout the EU of a variety of institutional regimes, organisational structures, and regulatory arrangements. In some countries, the planned changes have only just started to be translated into practical regulatory instruments. Partial assessments of the first national experiences have started to appear in the literature. The British model, in particular, has already given rise to a number of articles (see, for example, Else, 1996; Preston, 1996; Nash, 1993 and 1997; White, 1998). So have the Swedish (Larsson and Ekström, 1993, Hansson and Nilsson, 1991), the German (Bowers, 1996; Wolf, 1996) and the French (Crozet and Heroin, 1998) experiences. However, apart from an international study of the separation of infrastructure provision and use by Brooks and Button (1995), systematic cross-country comparisons of alternative organisational and regulatory schemes have yet to be undertaken.

The reforms carried out in a few countries' bus and coach industries provided researchers and decision-makers with valuable insights for understanding passenger rail reforms. The study of the British experience with bus deregulation in and outside London, in particular, helped authors to highlight some of the most pressing issues arising from this process. (White, 1995, 1997a, and 1997b; White and tough, 1995; Mackie, Preston and Nash, 1995; Savage, 1993). However, in this case also, cross-country comparisons remain a rarity (White, 1997b; Banister, Berechman and de Rus, 1992; Meyer and Gomez-Ibanez, 1991). Finally, even when they have not focused on one particular country or case study, most authors have essentially limited their analysis to one out of a number of issues arising from deregulation in land passenger transport (Beesley, 1990). One notable exception in both respects is provided by Van de Velde and Sleuwaegen (1997).

In effect, it is still too early to venture in any detailed *ex post* cross-country evaluation of passenger rail reforms. This paper provides a comprehensive framework for analysing and comparing alternative institutional and organisational schemes and to pinpoint, *ex-ante*, the most striking potentialities and weaknesses of the various models now emerging in the EU. Our study draws from an analysis of the reforms carried out in five countries: Belgium, France, Germany, Great Britain, and Sweden. It is based on a variety of authoritative opinions and documents obtained from a variety of sources. Part of our research material consists of interviews with the representatives in Brussels of the networks and railway companies constituting the core of our sample. In order to extend the scope of our research beyond the national railway companies with representative offices in Brussels, we also carried

out an international mail and e-mail inquiry. Finally, in the British case, the relevant material was gathered from the Office of Passenger Rail Franchising (OPRAF) and the Office of the Rail Regulator (ORR), the two specialised bodies in charge of rail transport regulation nation-wide.

Our inquiry mainly targeted railways operators, transport ministries, regulatory agencies and public transport authorities. It substantially complemented the documents and interviews gathered in Brussels and allowed us to come out with a rather diverse collection of documents, industry overviews, calls for tender, model offers, franchise agreements, performance contracts, etc. In our opinion, the number of answers we received reflects the interest of the parties involved in the topic covered in this study.

This paper unfolds as follows. Drawing from the case studies carried out in the framework of this research, section 2 identifies seven decisive dimensions or variables along which the main distinctive models can be consistently analysed and compared. This allows us to highlight in a most concise way, the key characteristics of each of the models examined. In section 3, we discuss in turn the seven major variables pointed out in section 2, focusing on their multiple and complex interactions, and we use them to carry out a comparison of European regulatory practices. Section 4 rounds off this paper with a few concluding comments and thoughts on promising directions for further research.

## **2. In search of a comprehensive analytical framework: the "7 Ds" of passenger rail contracting**

Until fairly recently, nearly all railway companies in Europe were State-owned, fully integrated, and administered in pretty much the same way as a State department. In some cases, there existed no clear separation of accounts between infrastructure development and maintenance, and the various categories of transport services. Besides, national railway monopolies sometimes enjoyed limited managerial autonomy vis-à-vis their respective governments.

These particular status and hierarchical governance mechanisms, combined with the usually considerable size of railway companies, led to the European railways not always responding with the necessary acumen and customer-mindedness to the business challenges they were facing. The steady decline in their market shares over the last decades, and the worrying development of car ridership, made it clear that important reforms were needed if one wanted to avoid disastrous environmental and economic consequences in the future.

The European legislation on passenger rail transport, which is partially responsible for some of the current reforms, allows some diversity in their design and

implementation, in accordance with the subsidiarity principle. And indeed, diversity is certainly one noticeable characteristic of the sector. Another one is the instability of its organisation and governance structures. It seems that most countries are still looking for the most appropriate "track" towards railway restructuring. For these reasons, it has become very difficult to offer a synoptic perspective on the various organisational structures characterising passenger rail industries across Europe.

In the figure below, we provide an essentially static EU-wide overview of the sector's organisation, focusing on two fundamental dimensions. The vertical axis refers to the vertical separation of the sector. In accordance with the possibilities outlined in Directive 91/440, it specifies the type of separation implemented. It goes from full vertical integration (that is, no separation, a possibility now precluded by the European legislation) to institutional separation. The horizontal axis represents the form of access to the different national networks opened to third parties. The larger arrows indicate the impact of the European legislation on the sector's organisation with the double lines delimiting the possibilities left open to national regulators and operators.

Fig. 1: A synoptic presentation of the deregulation of passenger rail in the EU.

Note: This is a revised version of a diagram featured in Debande and Monami, 1996.

Not only do we now have to do with a variety of national approaches to rail transport reform, in a number of countries, two or more institutional arrangements may perfectly coexist. While Belgium is still relying nation-wide on a single service provider supervised by means of a unified and centralised regulatory regime, in other cases, namely France, Germany and Sweden, it has become necessary to distinguish the regulatory regime applicable to international and main line services from the arrangements adopted by lower levels of government in their provision or subcontracting of local public transportation. Finally, the British model, though it involves the widest and most diversified array of participants and interorganisational relationships, remains relatively homogeneous in the sense that it consists of a continuum of more or less constraining arrangements.

One of the main differences between the various models now existing lies in their respective exposure to competitive forces and in the way competition is actually brought into the picture. In some cases, the rules of the game, that is, the standards of service and/or the corresponding financial conditions are agreed upon after completion of sophisticated tender procedures and are consequently shaped by

competitive forces. In other instances, they are the result of direct negotiations between a persistently unique railway operator and the regulator.

However, the methods and instruments used across the EU to regulate passenger rail operations have at least something in common. With the notable and probably temporary exception of a fraction of German and Swedish local traffic operations and of SJ's profitable services, contractual agreements now govern the relationship between operators and European public authorities, be they national, regional, or local. Contracts indeed appear to be relevant to a wide array of regulatory options, ranging from the tendering of local franchises in Great Britain to the formalisation of an essentially bilateral agreement between the State and a vertically integrated State-owned operator in Belgium.

This commonality allows us to propose a common framework for analysing and comparing particularly diverse European regulatory practices and institutional arrangements. Our ultimate focus in this endeavour is on the costs and benefits (incentive properties) associated with alternative arrangements and contract features and how they are likely to influence the regulated firms' performance. A detailed examination of the contractual and quasi-contractual service agreements reviewed in the framework of this research suggests that it is possible to encompass all the important issues using seven fundamental dimensions or variables. These dimensions, which could be referred to as the "7 Ds" of passenger rail contracting, are the following: decentralisation of regulatory control, disintegration of the industry, domain of the contractual assignment, discretion of management, distribution of risks, destination of subsidies, and duration of contract. Before we use the 7 Ds to provide a synthetic description of the different models, let us briefly specify what each of the singled out dimensions represents.

#### *i) Decentralisation of regulatory control*

In several European countries, the responsibility for passenger rail regulation and financing is increasingly being shifted from their central governments towards lower levels of administration. Interestingly, the decentralisation of regulatory control allowed the emergence in some countries of fairly distinctive regulatory approaches and arrangements. Some of these distinctions will be examined in the next section. We shall also discuss the consequences that the decentralisation of regulatory responsibilities could have on service performance, on the one hand, and on the cost of control, on the other hand.

#### *ii) Disintegration of the industry*

The institutional unbundling of formerly integrated railway companies, vertically and, in three of the countries studied, horizontally, represents a real revolution for

the passenger rail industry. However, there is anything but a consensus on the issue of separation. Despite its advantages - i.e. the replacement of a big and allegedly bureaucratic company by a set of smaller and hopefully more dynamic organisations, the introduction of more transparent arrangements for the financing of non profitable public service operations, the more effective opening of the sector to new entrants, etc. - it raises serious difficulties.

### *iii) Domain of the contractual assignment*

Whatever their legal and institutional status (franchise agreements, performance contracts, etc.), the primary role of contracts is to define the mutual obligations of the parties. Contracts somehow specify the assignments of the operator, in particular its public service requirements, and, where considered appropriate, stipulate the public funding awarded in compensation for completing these assignments.

The domain of intervention left to the management of the regulated operator is the scope of the company's responsibilities, that is, the theoretical extent of its intervention in service design and delivery. As a contractual dimension, the operator's domain of action is both a critical feature and a source of particularly heterogeneous applications on the field. This is especially true for what concerns the geographical scope of the contracted services - i.e. the complexity of the track network on which the company operates - and the functional scope of the assignment - e.g. the role it plays in services planning, design, and delivery. Note the distinction we make between this issue and another important dimension (discussed below), the "discretion of management", which refers to the judgement effectively left to the company's management in fulfilling their mission, whatever its extent.

### *iv) Discretion of management*

By "discretion of management", we mean the room to manoeuvre effectively left to the operator's management under the terms of the contractual agreement as well as in practice. This dimension is thus concerned with the judgement really left to the company in achieving its goals. The discretion of management should not be mistaken for the dimension examined in the preceding subsection, although they are very closely connected. A fairly confined functional assignment may still leave to the operator to decide on how to fulfil its obligations. On the other hand, a fairly extended and functionally broad mission may be accompanied by such an abundance of recommendations and interference by the regulatory body supervising operations that the contractor is eventually left with very few decisions to take. These dimensions are therefore complementary because forcing managers to simply operate a pre-set process, whose components are determined by outsiders, or interfering in all their decisions both come down to negating their responsibility for running the firm.

*v) Distribution of risks*

Insofar as contracts consist of commitments, they go hand in hand with certain risks. These risks mainly result from the impossibility to foresee all future contingencies. These uncertainties would not cause any regulatory difficulty if the efforts made by the regulated operator were not also unverifiable to a certain extent. These informational problems involve moral hazard, that is, the operator is in a position to blame its possible failure to meet the agreed requirements on exogenous contingencies. The risks involved in passenger rail contracting can be classified into two broad categories. Industrial or production risks pertain to the costs involved in producing a given output. Commercial or revenue risks are associated with the turnover obtained from the sale of this output.

*vi) Duration of contracts*

Another interesting dimension of recent passenger rail reforms is that of contract duration. The recurrence of contract negotiations and/or tendering procedures to which it is directly related has vital consequences on the structure of the concerned industries as well as on the way the contracts themselves should be drafted.

*vii) Destination of subsidies*

This dimension deals with the issue of public money allocation in fragmented passenger rail industries. As we are about to illustrate, different options exist which bring about completely different challenges and promises.

To conclude the present section on the various dimensions along which the regulation and organisation of passenger rail throughout the European Union can be analysed, the table below uses these dimensions to summarise the different models.

Fig. 2: An institutional and organisational comparison of five European passenger rail industries.

### **3. Discussion**

In this section, we analyse the impacts that the options chosen by policy-makers with respect to each of the highlighted dimensions are likely to have on the performance of the system in general, and on service quality, in particular. In this process, we insist on the multiple and complex connections that exist between the different variables and show how one decision regarding one of them in particular may influence or need to be balanced by another one. Because their respective impacts on the industry's performance are intricately intertwined, the following presentation is a

compromise between the benefits of our repeatedly pinpointing the various links between them and a consideration for brevity. In any case, we round off this discussion with a diagram outlining the main issues raised throughout this analysis.

*i) Decentralisation of regulatory control*

The decentralisation of passenger transport provision is likely to deliver a number of positive contributions to the sector's performance. As was suggested by the examination of the French, German and Swedish experiences, the decentralisation of regulation at regional and local levels allows for more flexibility in the design of operations and for a better adaptation to local needs in the planning of transport services. Moreover, with the regulatory and financing responsibilities now taken closer to the actual service delivery, new opportunities exist for local policy-makers and regulators to try out different ways to promote higher service performance.

First, in a number of cases in Germany and Sweden, local public transport operations are still carried out by a PTA or in close collaboration with one, without recourse to any formal contractual agreement. In such cases, consensual or hierarchical forms of control largely prevail. These informal arrangements are either relatively insignificant or mostly temporary. So, we won't cover them in more details.

Second, in those German and Swedish cases where formal contracts were adopted (with or without invitation to tender), very simple and concise contractual agreements usually emerged. (One notable exception is the tender that was organised by the Greater Stockholm PTA for its "Roslagsbanan" line.) A relatively minimalist specification of service standards is facilitated by the relative simplicity of the network and service-mix involved as well as by the proximity of the competent regulators and their awareness of the service benchmarks informally set by the previous regulatory regime. No doubt this proximity helps service inspection and allows an easier detection of any major service flaw. Naturally, for corrective actions to be enforceable in case of dissatisfaction, other circumstances or contract characteristics may be necessary, which we examine in more details in subsequent subsections. Limited contract durations are an important factor. But the way the risks involved are distributed between the parties also matters.

Finally, in the French experience as well as in the Swedish "Roslagsbanan" case, the decentralisation of the regulatory process may be considered to have facilitated the development of particularly innovative and audacious contractual provisions. More specifically, the result-based service standards and the incentive mechanisms incorporated in the corresponding agreements could so far never be enforced at the national level (despite attempts reported in France as well as in Belgium) because the risks and the tensions involved for the operator, and indirectly for the social planners themselves, would be commensurate to the bigger scale of operations. The

fragmentation of SNCF's engagement into a collection of regional contracts allows its negotiators and managers to spread over these different contracts the risks involved in the commitments they are making in the name of the company.

The prevalence of one or the other of these three models is very much related to the scope of the contractual assignment, if any, and to the discretion left to the operator in the delivery of its services. So, we shall definitely come back on these aspects of local service agreements in the relevant subsections.

Whatever its advantages, the decentralisation process also involves its share of challenges. First, the multiple separation of the sector's missions and resources raises concerns as to the appropriateness of these missions' financing. In particular, are the budgeted compensations always adequate to at least secure the current levels of service in the longer run? In this respect, the approach adopted in France and Germany, which consisted in sharing between the experimental regions and Länder part of the responsibility for passenger rail financing without altering the total budget awarded to the sector, is in sharp contrast with the British approach, where the primary objective of the national franchising authority clearly was to reduce the sector's public financing, with the possibility for local authorities to finance supplementary service agreements "out of their own pocket". Although the answer to this question is essentially a matter of political decision, it is important to underline the fact that decentralisation therefore involves the risk of a loss of homogeneity in the provision of public transport over the territory of a country.

Second, in most cases, the reforms resulted in the active implication of more distinctive actors - regulators and, sometimes, service providers (see "disintegration") - in the functioning of the sector. The new organisational structures set up in the framework of these reforms require thoughtful consideration of the best way to distribute among the different players the prerogatives and missions involved in the functioning of the sector. Moreover, the advantages of a better tailoring of transport services to local needs must be weighed up against the resulting transaction costs, that is, against the challenges and coordination costs inhering in the planning of an integrated public transport system composed of more independent participants than used to be the case. To start with, the net outcome of these reforms will thus depend heavily on how effective and costly the cooperation and coordination between the different planners involved will be.

Finally, and more specifically, the German model for regional services, with its close involvement of public authorities alongside operators in the planning and design of local public transport, raises concerns that *Verkehrsverbände* might turn out to be the ideal setting for substantial regulatory capture although, we must admit, we cannot provide any evidence suggesting that capture be prevailing. Note, however, that, all

other circumstances being equal, these fears are rather mitigated than amplified by the decentralisation of regulatory control. Indeed, the closer implication of public authorities alongside actual service providers in lower levels of government coincides with higher levels of citizen vigilance and participation which may be expected to result in more democratic pressure towards effective regulation. In any case, the risk of capture inherent in the active and permanent involvement of PTAs should be balanced with the benefits expected from this involvement in terms of cooperation and coordination between modes.

*ii) Disintegration of the industry*

To a number of Member States, the separation of infrastructure management from traffic operations appears to be a necessary condition in order to forcibly open access to their national network, not only to international groupings providing international transport services, but also, in an attempt to introduce competition at the traffic operations' level, to other operators for domestic services (which at the industry level, would come down to a horizontal separation). Clearly, where this is the objective, what matters is the impartiality of the body granting train operators access to the tracks. Observers contend that, compared to the Swedish model (which is already institutionally unbundled), the German model, despite its opening to new entrants, could fail to deliver in this respect, because the infrastructure department, where the allocation of train paths is coordinated, is not sufficiently independent yet. In our opinion, however, neither is institutional separation the seal of impartiality many believe. Indeed, whatever the organisational structure adopted in each country, political interference in the sector is likely to remain strong in the years to come. The only satisfactory solution may therefore turn out to lie in the development, the adoption and the enforcement Europe-wide of a common code of conduct. Moreover, with the intensification of international rail relations, this code might have to be supplemented by the creation of a European arbitration or track allocation body, which could be based on the model provided by Eurocontrol in air transport.

A second matter of concern, which is closely connected with the destination of subsidies inside the industry, is the financing of the different participants. The vertical unbundling of natural monopolies almost necessarily requires regulatory intervention if only to ensure that the different entities resulting from the separation are adequately financed. As illustrated by the British model, passenger rail is no exception. For obvious practical reasons, fares may only be collected at one level of activity and must then be shared across the whole industry. If competition cannot be introduced at all levels, there are strong presumptions that not all the participants will spontaneously follow marginal cost pricing principles, or the second best option in case of scale economies, when dealing with others lower down the industry's

organisational chart. Therefore, in order to prevent the former from charging excessive fees to the latter, regulatory measures need to be enforced with respect to intermediate pricing systems.

In a similar vein, more regulatory interference could be required on issues of intra-industry resources allocation if the British and Swedish governments were to proceed with their intention to enforce a system of competition *on* the track in their respective countries. As was well illustrated by the deregulation of the coach industry in Great Britain outside London, the reason for this is that free access to the market will otherwise jeopardise the financing of those services whose commercial prospects are the poorest. Indeed, under a regime of exclusive rights, the existence of internal spill-over effects may prompt even a profit-maximising operator to provide services though individually unprofitable because of their positive net contribution to the overall profitability (or attractiveness) of their service-mix. But where several operators compete for the most profitable services, part of the benefits derived from off-peak and feeder services become externalised. Therefore, unless some sort of coordination is introduced by an authority at the expense of yet higher regulatory costs (or by the operators themselves by way of collusion), these network externalities or spillovers are most likely, all other things being equal, to give rise to service-mix contractions, that is, to sacrifices in terms of availability and equality of access.

Besides service planning issues, the delivery of high quality services also rests on the capacity of service providers to guarantee high standards of quality at all production stages and to ensure compatibility between them. The vertical separation probably poses more complex problems in this respect. The reason for this is that in the case of horizontal separation, all the parties have the same incentives to co-operate and co-ordinate their operations, provided the different organisations involved never come in direct competition with one another (which is sometimes already the case in Great Britain with the possible drawbacks already pinpointed). In case of vertical separation, the different independent organisations making up the sector are more likely to come into conflict with each other. We have already quoted the possible problems raised by the distribution of the sector's revenues. Several authors also rightly question the demand-/customer-mindedness of the company (or companies, in the British case) responsible for the development, maintenance and exploitation of the railway infrastructure. With the institutional vertical disintegration of the industry, the responsiveness of infrastructure managers to customer needs is not guaranteed, they argue. In this respect too, the outcome will greatly depend on the coordination and financial arrangements implemented. In Great Britain, where the management of infrastructure accrues to a private firm, essentially financed by the contributions received from track users, the problem will consist in controlling

Railtrack's monopoly rents and in safeguarding the interests of rural public service users. In Sweden, on the other hand, the rail industry's performance will heavily depend on the efficiency and effectiveness instilled into the State-owned Banverket.

In all these cases, transaction costs arise due to the greater difficulties and costs resulting from the need (and the possible failures) to coordinate the various activities making up the service production process between independent organisations rather than within the boundaries of a single integrated company. And the significance of transaction costs is all the more critical as the vertical unbundling of the sector is sometimes complemented with a certain degree of horizontal separation. When different train operators run services on distinctive sections of the rail network, the problem is merely a matter of optimising connections for customers. But when two different train operators use the same stretch of track, it becomes a question of traffic safety and maximisation of infrastructure utilisation.

At this early stage in the various national experiments with open access procedures, it is impossible to predict which side or set of arguments will eventually dominate the other in this debate. But it is essential, at the outset, to clarify the issues at stake and to weigh them up against each other when the time comes. Moreover, when assessing the appropriateness of a fragmentation and of a liberalisation of a national rail industry, it is important to account for the size of the country considered as well as for the competitiveness of its input markets.

### *iii) Domain of the contractual assignment*

The domain of the contractual assignment is not always explicitly specified in service contracts. However, it can generally be inferred using two distinctive criteria. One is the way the service standards expected from the operator are specified; is it in terms of pre-established traffic output or in a way that leaves him more autonomy. The other one is based on what the incentives incorporated in the contract, which are closely connected with the risks supported by the operator, tell about the regulators' expectations with respect to the operator's assignment. As will be further discussed in the two following subsections, these two criteria may substitute for each other to a certain extent. This is well illustrated by the different regional regulatory regimes we examined. A comparison focusing notably on these dimensions is provided in the next subsection.

Two other important points need to be made about these aspects and their connections with the scope of the contractual assignment. First, these connections call for a consistent approach to the drafting of contracts. The way the mission of the operator is specified and the incentives incorporated in the contract should be congruent with the domain of intervention assigned to the operator. It is not always the case. In the performance contracts used in Belgium and, not so long ago, in

France at the national level, for example, contradictions exist between these criteria. These contradictions constitute one of the most significant weaknesses of these instruments. Second, the definition of the parties' respective domains of intervention should take into account, as always, among other dimensions and in a dynamic perspective, their specific competence, their access to market information, etc. Practically, the geographical and/or functional scope of service contracts may have to be limited in some countries by lack of a sufficient number of firms willing or being able to bid for greater assignments. Moreover, this type of constraint may well ease off or amplify over time.

The issue is worth trying to come up with a more comprehensive framework than the one provided by the case studies examined in this essay. To better understand where the existing models differ and to allow for a synoptic presentation of any possible alternative, it seems necessary to break up the sector's functioning into its component activities and to make it easy to associate each of these activities with one of the parties or decision-making levels involved in particular as demonstrated by Van de Velde (1997).

Finally, the domain of the contractual assignment influences the likely costs of switching from one supplier to the other in terms of service disruption and instability. In contrast, where all the planning remains in the province of the contracting authority, the replacement of the operator is barely noticeable to customers.

#### *iv) Discretion of management*

At present, a number of local railways are still directly run by local authorities in Sweden, Germany, as well as in Great Britain, if we consider urban systems. Others, again in Germany, are exploited by fairly distinctive public or private firms but their managerial autonomy with respect to their local government is not self-speaking. In the face of situations like these, one widely accepted and prominent rationale for contractual and quasi-contractual approaches is precisely to ensure that regulators do not seek involvement in how the objectives assigned to the firm are being carried out. The goal of contracts is indeed in principle to achieve exactly the opposite, that is, to clearly identify the parties' respective responsibilities so as to let them focus on what they normally do best. For the regulated operator, the main interest of contracts is therefore that they force politicians and regulators on the one hand, to reassess and possibly refocus their own objectives, and on the other hand, to commit steadily in the allocation of a given funding package to the regulated firm. This commitment reduces the firm's uncertainty with respect to the financial interventions it can expect from the State, but where all contractual provisions are systematically enforced, it can also mean the end of softer budget constraints.

These principles notably led to the introduction of performance contracts in France and Belgium. The idea is that, once their missions are clearly set, operators may be left with more discretion and autonomy in deciding on how to allocate their resources and what tactics to implement in order to achieve their assigned objectives with maximum efficiency.

In the contract *par excellence*, it is normally the end result that counts. Naturally, reality is not always that simple and clear-cut. The discretion left to the operator is constrained by the other dimensions characterising the contractual relationship because, like other dimensions, it is connected with the risks inherent to the contract. The more discretion a contract leaves to the operator, the higher the uncertainty inherent to the fulfilment of this contract. As a rule, there is therefore a trade-off between the risks and uncertainty involved in refraining from interfering in the operator's process decisions and those involved in the other contractual dimensions pinpointed in this section. As there is a trade-off between the incentives (in the most general meaning of the word) or performance drives inherent to each and every dimension. We elaborate on the issue of risks in the next subsection.

The points just made about the domain of the contractual assignment and the discretion left to the operator in fulfilling its mission constitute an important lesson to be learned from our international comparison of regulatory regimes in EU passenger rail industries. A superficial review of regulatory practices might have given the impression that Germany and Sweden, where tendering is taking ground at the local level, engaged in particularly radical deregulation measures. But a more systematic investigation into what responsibilities are contracted out (domain), and how much discretion is really left to the operator in practice, calls for a qualification of this impression.

Let us start with the Swedish model for regional traffic operations. We have seen that many PTAs still take full responsibility for the delivery of local public transport. In the absence of a distinction between regulation and production, the domain issue is non-applicable. Where such a distinction already exists, the emphasis of the tendering process is clearly on efficiency enhancement. The utilisation of gross cost contracts makes it clear that what is contracted out by public authorities is the actual production of traffic, to the exclusion of the service quality components that make public transport more attractive. Most of the responsibility for the marketing function and for the general effectiveness of local railways may therefore be considered to rest with the PTA. One possible advantage of such a simple assignment is that it implies lower barriers to entry in the industry insofar as the risks involved and the competencies required from bidders are fairly limited. Considering the low level of competition currently characterising local passenger rail operations in Sweden, this approach therefore seems to make sense. However, in service industries, it is not that

simple to separate service design and marketing from production and efficiency from effectiveness. All other things being equal, the service delivery process cannot be unbundled and its component functions handled separately without seriously altering its effectiveness.

The Roslagsbanan case, where clear benchmarks and incentive mechanisms pertaining to service quality are introduced, presents a different trade-off between the advantages and disadvantages just outlined. The emphasis on service quality in this case, is unusual. Naturally, the attention awarded to the specification of service quality and to its subsequent control considerably increases the costs of regulation. On the other hand, although the intended contract also basically consists of a gross cost contract, the risks and constraints taken by bidders are already greater than in the other Swedish cases.

The situation in Germany is less categorical. In a number of cases, the domain of the assignment covers the widest span of activities. The formal specification of service quality is minimal, but the company's compensation is based on a net cost contract. Depending on the relative share of these compensations in its total income, it therefore has an incentive to deliver attractive services. In many other cases, on the other hand, the operator's sphere of intervention is considerable but it shares most of its responsibilities with the local PTAs. The role of German PTAs is further discussed in the next subsection.

In our view, the system tested in six regions of France in the framework of the Haenel experiment is an interesting compromise between the two above models. Indeed, this system combines a much wider domain of responsibility for the operator (than in the Swedish case), a clearer independence (discretion) of this operator from the PTAs (than in many cases in Germany) and a participation of the operator to the commercial risks inherent to its operations which should stimulate its performance.

As already suggested, performance contracts offer a less consistent picture. The domain of the assignments given to SNCB and, until 1994, to SNCF under the terms of their respective performance contracts is clearly very wide. Both railways take responsibility for rail traffic production as well as for its marketing. Their contracts, however, make only limited reference to non-output related standards of service quality. It is not that service quality goals are being ignored but, for reasons inherent to the nature of services, they are often expressed in rather general terms, not in the form of precise performance targets. In other words, regulators tend to focus on the substantive service, that is, on the essential function of transport operators, at the possible expense of other, more peripheral but nevertheless important aspects. Assignments and performance criteria are usually classified in broad categories: safety, financial accounts, quantitative output, etc. A number of less easily

quantifiable aspects are either broadly ignored or they tend to be covered using vague guidelines and loose objectives, in lieu of actual service level specifications. As a consequence, performance contracts for the most part take the form of codes of practice and fail to offer precise service targets. In other words, service quality obligations are not absolute, they are essentially expressed in terms of operational guidelines. To crown it all, the resources awarded to the companies are insufficiently related to the overall attractiveness of the services they deliver.

In other circumstances, the seemingly "net cost" character of performance contracts could be thought to provide a substitute performance drive. This is where other contractual dimensions interfere. The commercial responsiveness of the operator could be enhanced if the train operator's reliance on lump-sum subsidies was decreased and if its dependence on the proceeds of its sales was consequently more significant. However, given the importance of their roles in their respective economies and the scale of their operations, it is not simple for regulators in France and in Belgium to impose significant and resolute monetary penalties on these companies. The risks imposed on the operators would indeed inevitably spill over and threaten the quality if not the continuation of their services.

Swedish regulators partially circumvented this difficulty. They separated their rail industry vertically and horizontally and concentrated their subsidisation policy (see destination of subsidies) on the development and maintenance of infrastructure as well as on local traffic operations, concurrently forcing SJ to exploit main line traffic on a fully commercial basis. Every time SJ decides to apply for more State funds, it is first required to outbid competitors. The drawbacks of this approach, notably in terms of transaction costs, have already been outlined.

The British model is based on a similar fragmentation of the rail industry but it complements the inter-modal competition on which the Swedish approach is based with a forceful introduction of intra-modal competition, mainly *off* the track but also, though to a lesser extent, *on* the track. It seems to surpass all its counterparts in terms of risk-sharing/incentive character and discretion (although it relies heavily on users committees and on a strong and resolute regulator to ensure an ongoing monitoring of service quality), but these results are achieved at the expense of the most considerable transaction costs.

#### *v) Distribution of risks*

The distribution of risks between the operator and the regulator is a fundamental aspect of contracts because it largely influences their incentive character. Depending on whether the operator bears the costs/reaps the benefits associated with a particular outcome, it will be more or less prompted, all other things being equal, to seek the achievement of a higher performance. This does not mean that all the risks should

systematically be imposed on operators. We already commented on the problems this could raise in the cases where, due to the socio-economical importance of the contracted assignment, the possible negative consequences of a high power incentive on the incumbent operator would inevitably backfire on social planners and the population. For that matter, it is difficult to draw conclusions about the risks genuinely assumed by the various national railways. Officially, that is, under the terms of their performance contracts, SNCB and SNCF, for example, fully support both industrial and commercial risks. However, for the reasons just outlined, the reality is not as clear-cut as that.

In other cases, that is, where the risks are less concentrated, the operator's risk aversion imposes two restrictions on the use of high power incentives. First, the risks attached to monetary incentives reflect in the compensations claimed by operators. This result was established by White and Tough (1995) looking at UK bus deregulation. They found that net cost or "minimum subsidy" contracts tended to be more expensive for the contracting authorities than gross cost contracts. The reason is that, under gross cost contracts, the operator is compensated for its (forecasted or actual) total production costs while all the commercial revenue accrue to the authority. As a consequence, the operator does not incur commercial risks, unlike in case of net cost contract. The case of regional operations in France is particular in the sense that SNCF is the incumbent and is therefore ideally positioned to assess the commercial and industrial risks involved in each contract. Its risk premium should therefore be more limited. Second, higher risks are more likely to discourage smaller bidders, which cannot spread the risks involved on a large portfolio of contracts, and consequently reduce competition, a hypothesis also verified by White and tough (1995) in the case of bus tendering. There again, it is interesting to note that this naturally does not apply to SNCF.

The risks associated with the contractual assignment, be they industrial or commercial, do not need to be entirely supported by one party or the other. They may be shared between them, as illustrated by the following table.

Fig.3: The distribution of production and revenue risks in practice.

Despite the lack of commercial incentives resulting from gross cost contracts, there might thus be ground for the use of gross cost contracts as illustrated by Swedish local operations. In the same vein, the above observations raise doubts as to what would happen with the dominance of DB AG in the first tenders of regional operations organised in Germany, if gross cost tendering were to substitute to net cost tendering. In any case, other considerations need to be taken into account as

regards the issue of risk distribution. The PTAs' own risk aversion should not represent too much of a problem if we limit this appreciation to exogenous risk factors (the risks inherent to any regulatory flaw are a different matter). More importantly, as already outlined in previous subsections, where regulators want to mitigate the risks assumed by operators, they have two options (other than relying on the benevolence of the operator). One is to take on themselves a bigger share of the responsibility for service provision (although they are not necessarily better equipped or informed to substitute to the operator). The other option is to resort to heavier control mechanisms, with all the costs and inefficiencies involved. Finally, as already indicated, what matters most, as regards the distribution of risks among the parties, is consistency with respect to the two dimensions just discussed, the domain of contractual assignment and the discretion of management. The categories and levels of risks supported by operators must be related with their effective role in taking the decisions influencing the associated benchmarks or outcomes.

Insofar as production costs are usually easier for operators to control than their revenue, production risks should increasingly be supported by operators rather than by the contracting authorities. However, if this is what they want, authorities should beware of the impact the autonomy granted to infrastructure managers could have on the costs of this option. The more deregulated the exploitation of infrastructure, the more uncertainty traffic operators will face as to the level of network access charges, the higher the risk premium they will require from contracting authorities.

#### *vi) Duration of contracts*

In an "ideal" world, that is (in a purely economic perspective), a world without uncertainty, complete and infinite contracts would be conceivable. Reality is of course different so that there is ground for not allowing the duration of contracts to be too long. The difficulty to plan for future contingencies increases with the term of the agreement. Because bidders are risk averse, there is an upper limit to the contract duration they are ready to accept and/or there is a positive relation between this dimension and the compensations they claim, which includes a risk-premium.

Longer contracts also mean more risk for the contracting authorities. The evolution of passenger rail transport operators is one of the uncertainties regulators must take into account. The intrinsic costs of potential bidders and their managerial abilities may change over the years. Therefore, the organisation of regular invitations to tenders is a way for regulators and PTAs to contract with the best operator at each point in time.

In a similar vein, it is clear that when the contracting period is shorter, it is possible for regulators or transport services purchasers to get away with simpler and less systematic contracts. Similarly, shorter contract durations are easier to enforce when

the scale of operations is more limited. The reason for this is that the inherent switching costs tend to be more limited.

In contrast, where prospective bids are more distant, more exhaustive contracts may be expected. And uncertainty is not the only reason for this. In fact, the duration of contracts may also contribute to the alleviation of moral hazard. To a certain extent, the contemplation of upcoming bids may be expected to deter the opportunistic exploitation of possible contractual flaws and/or shortcomings. Because franchising is essentially used as a way to substitute competition *for* the market (*off* the tracks) to competition *in* the market (*on* the tracks) where the latter is deemed infeasible or undesirable (a point first made by Demsetz, 1968), contracts must expire with enough regularity to limit monopoly exploitation in the meantime. The operating company knows that its competitive position in the next tender should be conditioned by its commitment to service quality delivery in the first place. Unless it considers compensations for the service in question to be too low, it therefore has a clear incentive to do a good job so as to take on future bids with an untarnished reputation.

Uncertainty and moral hazard considerations are not the only issues, however. A variety of other arguments may have an impact on the optimal contract duration. First, in a market where requisite skills are significant and competitors may (therefore) be scarce, recurrent calls for tender are a way to keep competition alive by arousing the interest of potential bidders in the sector. In other words, shorter contract durations may help to maintain the "critical mass" of tendered out operations needed to uphold a reasonable amount of competition in the field.

Short-term contracts also present a number of disadvantages. First of all, the organisation of tenders may be particularly costly for the PTAs as well as for the industry itself, insofar as bids may notably require the organisation of customer surveys and other market studies. Second, the reluctance of operators to invest in durable assets is only partially addressed by the disintegration of the industry. When it comes to hardware, that is, rolling stocks, stations, depots and other tangibles, the solution usually consists in the operator using the equipment provided by the contracting party or any other lessor. Sell-back clauses are another possibility. However, no comparable arrangement is available when it comes to "intangibles". Little can be done to help operators fully recouping for the efforts and investments they incur, for example, to build a strong image, to market their services, to study the tastes and expectations of their prospects, to recruit and to train their personnel, etc. So, depending on the incumbent's motivation and confidence in regard of future bids, service quality might also suffer as a result of shorter contract durations.

To conclude, the duration of contracts could, in our opinion, be used more systematically in order to stimulate higher quality standards. We came across

contracts whose renewal by tacit agreement was conditioned to the operator honouring certain provisions of its contract. Provided that such a scheme is clearly specified in their invitation to tender, the contracting authorities could extend this principle by ensuring to the operator a longer contract duration if it achieves higher service standards than imposed by its contractual minimum targets, for example..

*vii) Destination of subsidies*

There is a major difference between the Swedish and the British models with respect to the destination of subsidies inside their respective passenger rail transport systems. In the Swedish case, State funds are essentially directed to the fully State-owned infrastructure company, Banverket. The idea pursued by Swedish regulators is to allow for lower access charges, to limit accordingly the compensations required by SJ, and to let the national train operating company operate main-line traffic according to market principles, pretty much like the road users with which it competes. This allows Swedish regulators on the one hand, to confine the explicit control of SJ to the strict minimum, which already turned out to enhance its industrial and commercial dynamism, and, on the other hand, to concentrate their regulatory control on Banverket, the definitely and inevitably monopolistic manager of the railway infrastructure.

The approach adopted in Great Britain is completely different. Railtrack, now a joint stock company, is supposed to cover its costs and to remunerate its shareholders essentially with the proceeds of the access charges paid by the TOCs. Its dependence on State funds is therefore strictly limited. All other circumstances being equal, this should result in higher rates of subsidisation at the traffic operation level, which is not necessarily desirable since this is where commercial acumen is the most needed. Note, however, that other circumstances are not equal, i.e. the subsidisation of passenger rail transport is lower in Great Britain.

In any case, as a result of the privatisation of Railtrack, British regulators are facing a serious challenge. As a private business, Railtrack certainly has an incentive to be cost-efficient. But since it is a private monopoly, it will require recurrent regulatory scrutiny to ensure that it does not abuse its monopoly power, that is, that the fees it charges to its clients (i.e. the TOCs) in exchange for their access to its infrastructure are appropriate (i.e. allow no more than a fair remuneration of its capital) in regard of the investments made in their development and maintenance.

Member States' practices also differ significantly in the way subsidies are allocated among categories of traffic. While in Belgium public grants for traffic operations are paid to the national railway company in a relatively undifferentiated way, other countries have taken advantage of their regionalization of regulatory control and service provision to substantially improve the transparency of their subsidisation

schemes. The result is a much clearer identification of the costs associated with the different services provided.

To conclude the present section on how the various dimensions characterising the regulation of passenger rail throughout the European Union interact with one another, let us summarise in just one flow chart the most important insights gained from the comparative analysis of the distinctive models currently existing. In the figure below, the seven regulatory dimensions just discussed appear in sharp-angle rectangles. The leftwards-leaning diamonds are used to feature the main possible costs and drawbacks of the various models examined and the rightwards-leaning one, their hopeful benefit. The smooth-angle rectangles are there to help clarify some of the links established. Finally, each of the arrows linking the elements of the chart is associated with a sign reflecting the direction of the illustrated relationship.

Fig. 4: A comprehensive framework for analysing passenger rail reforms -  
The 7 Ds of passenger rail contracting

#### **4. Concluding comments**

In order to better understand the main constraints facing regulators in the design of optimal organisational structures and regulatory arrangements for passenger transport industries, we compared the different regimes examined in this study, in order to build a comprehensive framework for the analysis of alternative models. Our framework identifies seven relevant dimensions, which are all connected to one another in a complex web of interactions. Interestingly, this framework, which was built on investigations conducted in the passenger rail sector, is perfectly applicable to other public transport modes, as they tend to be based on simpler models.

Depending on the circumstances, each of the identified dimensions entails a variety of costs and drawbacks as well as different advantages and opportunities, which need to be weighed against one another in order to determine the most appropriate regulatory regime for a given situation in time and space. Time indeed is of the utmost importance in the current context of change and policies that seem wise in today's circumstances may be less so in a few years time, as the industry restructures and learns to put up with more complex assignments and higher revenue risks. Where the idea is to rely on the introduction of market forces to improve the performance of public transport systems, a phased approach to these reforms is essential. If one wishes to allow the emergence of a sufficient number of competent and financially sound entrepreneurs on the market, it is necessary to proceed progressively while at the same time keeping company concentrations under check.

The risks and informational costs involved in resorting more systematically to incentive mechanisms in controlling the performance of passenger transport firms, appear to be the main reasons for their limited utilisation. One topical direction for further research in the field should therefore consist in analysing more thoroughly the relationship(s) that exist between the incentives imposed on operators and the nature and levels of risks they may be expected to take on against a reasonable premium.

As outlined in the framework of this research, there exists a variety of ways to mitigate the significance of the risks imposed on a given operator while at the same time ensuring that she faces sufficient performance incentives. The disintegration of passenger rail industries and the use of fairly limited contract durations should have the desired effect if they allow transport operators to spread the risks they incur on a few contracts instead of one. However, these prospects entail difficulties elsewhere in the system, in the form of increased transaction costs, for example. In any case, minimising the overall level of risk to be distributed among the parties, requires that the sharing out of the various tasks making up passenger transport provision, among regulators, planners, and operators be fine-tuned in relation with these parties' respective access to the relevant information.

One of the most challenging and ground-breaking aspects of future assessments are bound to lie in the assessment of the sometimes considerable transaction and coordination costs inherent in each regulatory scheme. Where these costs somehow translated into monetary expenses, as the recruitment of additional staff or an increase in the fees paid to consultants would, their evaluation will essentially be a matter of patient and diligent inquiry. But where they have mostly been supported by customers in the form of extra hassles, delays, missed connections, etc., their assessment will obviously require more creativity.

For the relative liberalisation of the sector to be a success in the longer run, more attention also needs to be devoted to issues of market structure: concentration, collusion, barriers to entry and exit, etc. The natural monopoly properties of public transport and other market failures that characterise their functioning call for specific concepts and tools for dealing with them. Regulators ought to be able not only to monitor and react effectively to all the possible abuses that might take place in the industries considered but also to anticipate and, to a certain extent, influence their evolution in the most appropriate way.

Some important issues here are the following: How to structure the industry and organise its functioning so as to maximise its competitiveness? How to define a market-share cap in relation to a given territory? How to encourage operators to consider call for tenders in foreign countries and to place a bid? (Signals issued by the authority, compensation of bidders for their participation, etc.) How could authorities co-operate with one another in these fields (sharing of relevant

information, creation of networks of authorities engaging in benchmarking together, etc.)?)

As passenger rail restructuring proceeds, data series long enough to reflect its impact on the industry's performance should become available in those countries where it has led to significant institutional reshuffles. This should allow researchers to carry out ex-post cross-country evaluations of the emerging models. Given the remarkable diversity of the national approaches to be compared with one another, such endeavours should be sufficiently broad in scope to encompass all the relevant costs and benefits. We hope this ex-ante analysis will provide fertile and thought-provoking ground for future evaluations by highlighting and structuring the main issues at stake.

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Figure 2-A: An institutional and organisational comparison of five European passenger rail industries (Part A)

	<b>Decentralisation of regulatory control</b>	<b>Disintegration of the industry</b>	<b>Domain of the contractual assignment</b>	<b>Duration of contracts</b>
<b>Belgium</b>	The regulation and supervision of rail transport is a federal competence.	Accounting separation of infrastructure management and traffic operations. Access to the network for the int'l operations of international groupings.	Theoretically the widest conceivable: SNCB's role in defining the country's rail transport policy is considerable.	SNCB's performance contracts are valid for periods of 5 years.
<b>France</b>	In 1997, six "experimental" regions took over from the State the supervision and financing of passenger rail services on their territory and contracted them out to SNCF.	Organisational separation of infrastructure (Réseau Ferré de France). Access to the network for the international operations of international groupings.	<u>National level</u> : same as in Belgium. <u>Experimental regions</u> : the regions determine, in consultation with SNCF, the planning of passenger rail services and their coordination with the other modes.	<u>National level</u> : No formal contract at present; duration of last performance contracts: 5 years. <u>Experimental regions</u> : 3 years.
<b>Germany</b>	The financing and supervision of regional traffic operations has been the responsibility of the Länder since 1996.	Organisational separation (soon to be institutional) of DB AG. Access to the network for the international operations of international groupings and for regional operations on a reciprocity basis.	<u>National level</u> : same as in Belgium and France. <u>Länder's level</u> : same as in France.	<u>National level</u> : no formal contract. <u>Länder's level</u> : in the current transition period, from 1 year (temporary regime) to 15 years where justified by the investments planned by the operator.
<b>Sweden</b>	Regional traffic operations have been the responsibility of the counties ever since the end of the 80's.	Institutional separation of infrastructure (BV) and traffic operations (SJ and competitors). Access to the network for the international operations of international groupings and for subsidised regional operations.	<u>National level (main line services)</u> : Considerable insofar as SJ basically operates on commercial principles. However, SJ does not control infrastructure planning. <u>Regional level</u> : as a rule, very limited.	<u>National level (main line services)</u> : No formal contract in most cases; durations of 1 to 5 years for those services that are subsidised. <u>Regional level</u> : From half a year (with possibility of tacit renewal) to 5 years.
<b>Great Britain</b>	Despite the fragmentation of the British rail industry, its regulatory supervision remains fairly centralised.	Far-reaching vertical and horizontal institutional separation of the industry with open tendering procedures for the resulting traffic concessions.	Considerable in theory; more limited with respect to the planning of those services whose commercial prospects are poor.	As a rule, 7 years. Up to 15 years in a few cases, on the ground of the investments involved.

Figure 2-B: An institutional and organisational comparison of five European passenger rail industries (Part B)

	<b>Discretion of management</b>	<b>Distribution of risks</b>	<b>Destination of subsidies</b>
<b>Belgium</b>	Substantial: performance contracts set a few output targets; other provisions consist of fairly subjective guidelines. However, SNCB is fully State-owned and unforeseen political interference already occurred.	Theoretically, SNCB bears both production and revenue risks ("net cost contract"). However, it is a State-owned company. Besides, its performance contract does not include any penalties.	State financing of infrastructure development and maintenance. Supplementary subsidisation of domestic passenger services with very little differentiation between them.
<b>France</b>	<u>National level</u> : same as in Belgium "on average" (more outcome-based objectives and process-related targets in the first performance contract but no contract at present). <u>Experimental regions</u> : too soon to judge; but likely to differ across regions.	<u>National level</u> : same as in Belgium. <u>Experimental regions</u> : SNCF bears the production risks and shares the revenue risks with the regions. Besides, a number of service quality standards are associated with specific incentives.	At present, same kind of scheme as in Belgium. However, a shift of emphasis towards traffic operations in the allocation of State funds is under study. The subsidisation of regional services is clearly distinct.
<b>Germany</b>	<u>National level (main line services)</u> : DB AG basically operates on commercial principles. <u>Länder's level</u> : the ongoing involvement of local public authorities in operations planning, inter-modal coordination and service design is more or less institutionalised. Moreover, the use of contracts is not generalised yet.	<u>National level (main line services)</u> : DB AG basically operates on commercial principles. <u>Länder's level</u> : in more complex networks, regional traffic operators bear both the production and the revenue risks, but a number of local small scale railways also operate under cost-plus types of regimes.	As a rule, access charges are set to cover total infrastructure costs, which involves higher compensations for traffic operations. However, the Federal State and the Länder also contribute to the financing of new infrastructure developments. The subsidisation of regional services is clearly distinct.
<b>Sweden</b>	<u>National level (main line services)</u> : SJ basically operates on commercial principles. <u>Regional level</u> : The use of contracts is not generalised yet, which leaves local services open to ongoing political interference; where contracts exist, discretion is barely an issue given the limited scope of the assignment.	<u>National level (main line services)</u> : SJ basically operates on commercial principles; subsidised services are based on "net cost" contracts. <u>Regional level</u> : all existing regional contracts are "gross cost" but may be supplemented with quality incentives; in the absence of delegation, cost-plus subsidisation is self-evident.	State financing of infrastructure development and maintenance. Supplementary subsidisation of non-profitable (mostly regional) passenger services.
<b>Great Britain</b>	In theory, passenger rail franchises are basically run on commercial principles. However, the privatisation and the fragmentation of the rail industry finally led to a rather extensive specification of service. And more regulatory adjustments might be needed.	Operators usually bear all the risks inhering in their activity. Besides, a number of contracts include additional penalty schemes. However, possibilities of attempts to renegotiate financial conditions before the end of their contract remain a matter of great concern.	Limited public financing of infrastructure development and renewal. Selective financing of traffic operations based on the amount claimed/offered by the winning bidder. Marked downward trend.

Fig. 3: The distribution of production and revenue risks in practice

		Revenue risks		
		Authority	Share-out	Operator
Production risks	Authority	German and Swedish cases of rail services provision by local public agencies		
	Share-out	SJ's regional contracts; Stockholm's Rogslagbanan		
	Operator	Swedish regional gross-cost contracts	SNCF's experimental regional contracts	DB AG's contracts with the Länder; Most British franchises