MARKET STRUCTURE AND STATE INVOLVEMENT: PASSENGER RAILWAYS IN EUROPE

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Market structure and state involvement: passenger railways in Europe

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Abstract

Over the past 25 years railways in Europe have experienced substantial changes in terms of legislative measures to strengthen the competitiveness of the sector. This chapter will provide an overview of the different reform measures and the outcomes to date with particular emphasis on the issues linked to passenger transportation. In particular, the chapter will be structured as follows. Firstly, the background to the reform initiatives will be outlined. Secondly, the specific reform elements will be described. Thirdly, the implementation of the reform measures at country level will be examined in order to identify variation between EU Member States. Subsequently, the outcomes will be examined in terms of market structure, competition and state involvement as well as how the reforms have impacted the overall performance of the railway sector. Finally, the chapter will put forward future perspectives in terms of how the railways in Europe will develop over the coming years.

Keywords: European passenger railways, reforms, market opening, open access, competitive tendering, competition

JEL Codes: H40, L38, L92, R40, R48

1 The final version of this paper will appear in Florio M. (ed.) ‘Network Industries Reform: evaluating the EU paradigm’, Edward Elgar Publishing, forthcoming.

2 The views expressed in this paper are those of the author and do not necessarily reflect the European Union Agency for Railways’ or the European Commission’s view on the subject.
1. Introduction and background to railway reform initiatives

Over the past 25 years substantial legislative initiatives at European level (starting in 1991) have been put forward. This has notably been through a series of EU directives and regulations, in particular Directive 91/440 and the four so-called Railway Packages (from 2001, 2004, 2007 and 2016) as well as various follow-on measures. Key aspects addressed in these legislative measures included:

- Commercialization and managerial independence of railway companies
- Unbundling (notably provisions for some degree of separation between railway operations and infrastructure)
- Market opening (with independent regulation) with particular focus on freight though limited focus so far on passenger transport
- Technical harmonisation

Some EU Member States have already gone much further in terms of market opening for passenger rail transport (e.g. Sweden, United Kingdom, Germany, Italy) but from a European perspective only international passenger services have so far been opened for the possibility for competitive entry (although this is changing with the adoption of the 4th Railway Package by end of December 2016).

These reforms involving a greater role for market forces is aimed to result in improved cost performance and enhanced customer focus (EC, 1996), thereby providing the basis for improvement in rail services such that the competitiveness of rail vis-à-vis other modes is enhanced contributing to sustainable transport as set out in the 2001 EC Transport White Paper (European Commission, 2001).

In particular, the impetus for this type of railway reform in Europe in the 1990s was linked to significant reduced modal share for rail in both the passenger and freight markets over the last decades. For example, for the EU15 countries as a whole the modal share for rail passenger transport was 10% in 1970 and had reduced to 6% in 2000, in the case of freight the decline (in the EU15 countries) is even more significant with rail having a 20% modal share in 1970 but less than 8% by 2000. These trends have created significant economic, social and environmental problems (Di Pietrantonio et al, 2004). The reduced market shares for rail resulted in financial difficulties for the public monopolies that throughout Europe had in the main been responsible for railways since the end of the Second World War (see Table 1 for an indication of the level of debt relating to the railway sector by country in 1994). These monopolies were in general organised as vertical integrated companies with responsibility for infrastructure management and operations, as well as often other non-rail transport services such as long-distance coach services and ferry services.
Table 1. Railway debts in 1994 for selected countries

<table>
<thead>
<tr>
<th>Country</th>
<th>1994 Railway debts (million ECU)</th>
<th>1994 Rail debt in % GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>2892</td>
<td>1.7</td>
</tr>
<tr>
<td>Belgium</td>
<td>3539</td>
<td>1.8</td>
</tr>
<tr>
<td>Denmark</td>
<td>2782</td>
<td>2.3</td>
</tr>
<tr>
<td>Finland</td>
<td>166</td>
<td>0.2</td>
</tr>
<tr>
<td>France</td>
<td>28731</td>
<td>2.6</td>
</tr>
<tr>
<td>Germany*</td>
<td>5795</td>
<td>0.3</td>
</tr>
<tr>
<td>Greece</td>
<td>937</td>
<td>1.1</td>
</tr>
<tr>
<td>Ireland</td>
<td>323</td>
<td>0.7</td>
</tr>
<tr>
<td>Italy</td>
<td>42087</td>
<td>4.9</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>168</td>
<td>1.4</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2807</td>
<td>1.0</td>
</tr>
<tr>
<td>Portugal</td>
<td>1529</td>
<td>2.1</td>
</tr>
<tr>
<td>Spain</td>
<td>8140</td>
<td>2.0</td>
</tr>
<tr>
<td>Sweden</td>
<td>1958</td>
<td>1.2</td>
</tr>
<tr>
<td>UK</td>
<td>10709</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>112543</strong></td>
<td><strong>150 billion</strong></td>
</tr>
</tbody>
</table>

Notes: * After recapitalisation; Debt in 1993 was 33 789 MECU.
Source: Mercer Management Consulting reported in ECMT 1996.

At the same time there has been increased recognition of the need for more sustainable transport with the rail mode being seen as critical in order to achieve this. The importance of rail to support sustainability was confirmed in the Commission’s mid-term review of the 2001 White Paper (European Commission, 2006) emphasising the need to complete the market opening process, take forward the rail priority projects, remove technical barriers and improve infrastructure charging approaches. The role of rail was reiterated in the 2011 Transport White Paper where goals included (European Commission, 2011, p. 9):

- 30% of road freight over 300 km should shift to other modes such as rail or waterborne transport by 2030, and more than 50% by 2050, facilitated by efficient and green freight corridors
- By 2050, complete a European high-speed rail network. Triple the length of the existing high-speed rail network by 2030 and maintain a dense railway network in all Member States. By 2050 the majority of medium-distance passenger transport should go by rail.

This paper will focus on the EU railway reforms with respect to passenger market. The remainder of the paper is structured as follows. Section 2 provides an overview of the legislative reform elements. Subsequently, Section 3 will consider the extent to which the different EU legislative measures have been implemented at national level. In Section 4 the possible outcomes of the railway reforms are discussed. Section 5 concludes with final remarks.

2. Overview of reform elements

In this section, the main elements in the legislative measures will be set out. Table 2 provides an overview of the different EU directives and regulations which are then discussed in terms of overarching features. More detailed information on the core legislative measures is provided in this volume, Chapter 9 (Esposito et al., 2016).
<table>
<thead>
<tr>
<th>Date</th>
<th>Directive / Regulation</th>
<th>Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial reform attempts</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29/07/1991</td>
<td>91/440/EEC</td>
<td>Development of the Community’s railways incl. limited rights of network access</td>
</tr>
<tr>
<td>19/06/1995</td>
<td>95/18/EC</td>
<td>Licensing of railway undertakings</td>
</tr>
<tr>
<td>19/06/1995</td>
<td>95/19/EC</td>
<td>Allocation of railway infrastructure capacity and the charging of infrastructure fees</td>
</tr>
<tr>
<td>23/07/1996</td>
<td>96/48/EC</td>
<td>Interoperability for the trans-European high-speed rail</td>
</tr>
<tr>
<td>The “First Railway Package”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26/02/2001</td>
<td>2001/12/EC</td>
<td>Amending Directive 91/440 – providing for the opening-up to competition of the Trans-European Rail Freight Network from 2008</td>
</tr>
<tr>
<td>26/02/2001</td>
<td>2001/13/EC</td>
<td>Amending Directive 95/18 – extending the licensing principle to all railway undertakings</td>
</tr>
<tr>
<td>26/02/2001</td>
<td>2001/14/EC</td>
<td>Repealing Directive 95/19 – Allocation of railway infrastructure capacity, the levying of charges for the use of railway infrastructure and safety certification</td>
</tr>
<tr>
<td>19/06/2001</td>
<td>2001/16/EC</td>
<td>Interoperability for the trans-European conventional rail</td>
</tr>
<tr>
<td>The “Second Railway Package”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29/04/2004</td>
<td>2004/50/EC</td>
<td>Amending Directives 96/48 and 2001/16 – Interoperability of the conventional and high-speed trans-European railway network</td>
</tr>
<tr>
<td>The “Third Railway Package”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23/10/2007</td>
<td>2007/58/EC</td>
<td>Amending 91/440 and 2001/14 – opens up the market in international passenger rail services by 1 January 2010</td>
</tr>
<tr>
<td>23/10/2007</td>
<td>2007/59/EC</td>
<td>Certification of train crews operating locomotives and trains on the Community’s rail network</td>
</tr>
<tr>
<td>23/10/2007</td>
<td>1371/2007/EC</td>
<td>Rights and obligations of international rail passengers</td>
</tr>
<tr>
<td>Intermediate steps</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23/10/2007</td>
<td>1370/2007/EC</td>
<td>Public passenger transport services by rail and by road - repealing Regulations 1191/69 and 1107/70</td>
</tr>
<tr>
<td>16/12/2008</td>
<td>2008/110/EC</td>
<td>Amended Railway Safety Directive</td>
</tr>
</tbody>
</table>
21/11/2012  2012/34/EU  Recast of the First Railway Package (Directives "Fourth Railway Package")


Source: Author’s own elaboration of information from EUR-Lex

An illustration of how the directives / regulations listed above (Table 2) are linked is given in Figure 1.

Figure 1. Overview of EU Railway Legislation and its linkages

Source: Based on Godward et al. (2013)

Below, the following features of the bundle of legislative initiatives will be considered further:

- Commercialisation and managerial independence of railway companies
- Unbundling
Market opening (with independent regulation)

Technical harmonisation

Commercialisation and managerial independence of railway companies

Directive 91/440/EEC provided for the first European legal steps towards increased commercialisation and managerial independence of railway companies. In particular, Article 4 stated that ‘Member States shall take the measures necessary to ensure that as regards management, administration and internal control over administrative, economic and accounting matters railway undertakings have independent status in accordance with which they will hold, in particular, assets, budgets and accounts which are separate from those of the State’. This provision is intended to place railway companies on a more independent footing from government / political control. Moreover, the following article (5) establishes that railway companies shall adjust their activities to the market and manage those activities in order to provide efficient and appropriate services at the lowest possible costs and at the quality required. This latter provision introduces a clear commercial orientation of railway companies. The successive four Railway Packages (2001, 2004, 2007 and 2016) are gradually commercializing the sector, e.g. in terms of providing for clearly specified contracts between state and the railway service provider, defined track access agreements between infrastructure manager and railway operator and increased market orientation. However, these legislative measures are also containing certain restraints on railway companies of particular relevance to the incumbents (Olsen et al., 2015). These restraints include elements such as: 1) reduced possibilities for cross-subsidisation; 2) track charges to be paid by the railway operators to use the infrastructure and related services; 3) gradual opening up of the rail service market to competition (see below); 4) certifications and passenger rights.

Unbundling

Directive 91/440 provided the starting point for the introduction of vertical separation between infrastructure management and rail service operations in order to support transparency of cross-financing within integrated railway companies and ultimately to facilitate non-discriminatory access for non-incumbent operators and new entrants to the rail network. It should be noticed that only accounts separation3 was in fact required to be implemented rather than organisational4 or institutional separation5 (which both were optional). The next step towards vertical separation

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3 Accounts separation requires that in case rail service operations and infrastructure management is organized within the same entity (as was typically the situation for the incumbent railway companies across Europe) there should be distinct accounts for the rail service operations and infrastructure management.

4 Organisational separation requires that rail service operations and infrastructure management should be placed in distinct / separate organisations within one (holding) company with independent decision-making procedures in addition to separate accounts.

5 Institutional separation requires that rail service operations and infrastructure management should be organized in distinct companies. If institutional separation is required then for the typical incumbent railway company the infrastructure management part would have to be transferred to a distinct company (though both entities could still have the same owner, normally the State).
between infrastructure management and rail service operations was taken in the 1st Railway Package (Dir. 2001/12/EC). In particular, Directive 2001/12/EC required that independent organisational entities must be specified for transport operations and infrastructure management. In this case vertical separation should involve at least organisational separation (holding company model) and could optionally be extended to institutional separation. Furthermore, essential functions, such as rail capacity allocation, infrastructure charging and licensing were required to be separated from transport operations to enable new rail operators fair access to the rail market. The latter requirement implies that in case of infrastructure management being organised within a holding company these essential functions would need to be entrusted to separate bodies. In addition to the provisions regarding separation between infrastructure and operations Directive 2001/12/EC also contained requirements regarding accounting separation for railway operators. In particular, railway operators were required to set up separate accounts for passenger and freight operations as well as separate accounting for public-service and other passenger operations. In the latter case it was specified that funds received under public service contracts may not be transferred to activities relating to the provision of other transport services. The 1st Railway Package through Directive 2001/14/EC also initiated unbundling in the domain of regulation by providing for national regulatory bodies to oversee the railway market. These regulatory bodies should be independent from any infrastructure manager, charging body, allocation body or railway operator, thereby moving away from the traditional model of self-regulation by the integrated incumbent railway company.

A major next step in the area of unbundling and securing the independence of the infrastructure manager was introduced in the so-called recast of the 1st Railway Package through Directive 2012/34/EU which permitted to simplify the legal text such that all provisions were in one directive rather than in three. The recast also addressed a number of key problems, including: 1) enhanced transparency of the rail market access conditions (e.g. in the case of rail related services); 2) strengthening the independence and competences of national regulatory bodies; 3) clarification of the rules for the funding and management of infrastructure (e.g. requiring multi-annual contractual agreements between the state and the infrastructure manager and more precise access charging principles). Further steps regarding unbundling are put forward in the so-called Governance Pillar of the 4th Railway Package, where the independence regarding path allocation and infrastructure charging as well as provisions for transparency re. transferring funding between infrastructure manager and railway operator. However, the 4th Railway Package will still permit the so-called holding company model such that railway operations and infrastructure management can still be organised within one (holding) company albeit as distinct organisational entities.

*Market opening (with independent regulation)*

The EU legislative initiatives have provided for market opening by extending access rights to the railway infrastructure to non-incumbent entities as well as to essential service facilities (e.g. terminals and maintenance depots). Starting in 1991 (Dir. 91/440) with defining access rights to rail infrastructure in one Member State in the cases of operators\(^6\) in other Member States wishing

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\(^6\) In this paper we refer to railway operators as the entities responsible for producing rail services (passenger and freight) which is more frequently used in practice rather than railway undertakings which is used in EU legislation.
to provide international combined services and associations of railway operators wishing to offer international services between the countries in which they are established. It should be noted that the former concerns intermodal freight transportation while the latter includes passenger services. The next major steps towards market opening only occurred in 2001 focussing exclusively on rail freight in the context of the 1st Railway Package whereby access rights would be gradually extended such that by 2003 any railway operator licensed within the European Community would have the right to obtain access on an equal and non-discriminatory basis to the national sections of the so-called Trans European Rail Freight Network (TERFN) while from 2008 the entire European Rail Network would be opened-up to competition for international freight services (though no provision for cabotage). Following the 2nd Railway Package adopted in 2004 the entire European rail network would be open from January 2007 including cabotage. The same is not the case for the passenger rail market where extensions to the 1991 access right provisions (Directive 91/440/EEC) only were introduced in the 3rd Railway Package from 2007, where Directive 2007/58/EC provided for opening of the market in international passenger rail services by 1 January 2010 including cabotage. However, a number of exemptions were introduced in the Directive; in particular it is possible to limit access rights if routes concerned are covered by public service contracts. The 4th Railway Package will address the domestic passenger rail market for which no European legislative initiative regarding access rights for non-incumbent operators has so far been provided for. In particular, it is foreseen that public service rail contracts should from December 2023 the latest be provided mainly through competitive tenders open to all EU railway operators, except in specific cases where direct award is permitted. Moreover, enhanced possibility for open access operation across Europe is also put forward from December 2020. However, restrictions on open access may be allowed to ensure the continuation of subsidized services provided these are determined according to objective assessment by regulators.

Technical harmonisation

As part of the rail reform initiatives at European level enhancing interoperability of the railway system has been given priority since the mid-90s in order to contribute towards its competitiveness (European Commission, 1996). An initial measure towards ensuring interoperability of the European rail networks was taken by the Council of the European Union in 1996 when it adopted Council Directive 96/48/EC from July 1996 on the interoperability of the trans-European high-speed rail system. The aim of this Directive was to achieve the interoperability of the European high-speed rail network at the various stages of its design, construction, gradual introduction into service and operation. Similar arrangements were put in place for the conventional trans-European rail network, initially through Directive 2001/16/EC (see below) and now according to Directive 2016/798/EU (part of the Technical Pillar of the Fourth Railway Package). Furthermore, this Directive requires that the scope is progressively extended to the entire railway system in Europe. Particular objectives for the Interoperability Directive(s) include: a) facilitate, improve and develop international rail transport services within the European Union and with third countries; b) contribute to the progressive creation of the internal market in equipment and services for the construction, renewal, upgrading and operation

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7 Cabotage is the transport of goods or passengers between two points in the same country. Cabotage is commonly used as part of the term "cabotage rights," the right of a company from one country to trade in another country.
of the rail system within the Community; c) contribute to the interoperability of the rail system within the Community. The core instrument used for achieving interoperability within the European legislative framework is preparation and adoption of Technical Specifications for Interoperability (TSIs). The Technical Specifications for Interoperability (TSIs) provide the minimum set of rules to achieve the essential requirements. In parallel, legislation has been introduced (2004) in order to promote harmonisation in the railway safety regulatory framework between EU Member States (see the Railway Safety Directive). The European Railway Agency (ERA) was established in the 2nd Railway Package (see the Agency Regulation) to lead and manage the technical development of the interoperability and safety work set out in the Safety and Interoperability Directives. It has the mission of contributing to the creation of an integrated and competitive European railway sector. Following the adoption of the Technical Pillar of the 4th Railway Package in 2016 the European Railway Agency was replaced and succeeded by the European Union Agency for Railways. Of particular importance is that the new Agency Regulation (Reg. 2016/796/EU) introduces a stronger role for the Agency regarding applications for vehicle authorisation and safety certification. These applications have so far been assessed and granted by National Safety Authorities (NSAs) but from 2019 these tasks will be shared between ERA and the relevant NSA. In case an application concerns an area of use / operation in more than one Member State (MS), ERA will exclusively be involved, whereas for applications linked area of use / operation in one Member State only the applicant has the choice to address the file to either the NSA or ERA. Of particular importance is that the provisions will introduce a single safety certificate and vehicle authorisation valid across Europe.

Following the 4th Railway Package it is expected that new legal initiatives for railways will be relative limited in scope such that the regulatory framework would be stable over the medium term.

3. Implementation of reform measures

The implementation of the EU rail legislation by Member States concerns two aspects. Firstly, the Member States need to transpose the Directives into national law. Secondly, correct arrangements (in accordance with the EU legislation) are required. Common problems regarding the EU Railway legislation have been delayed introduction of required national legislation of the various Directives or not even started the national implementation process of EU Directives, thereby creating obstacles towards achieving the objectives behind the EU railway reform initiatives as well as increasing the possibility for diverging arrangements in place between EU Members States. In this section different aspects of the implementation of the railway reform measures will be examined, including: (1) extent of railway legislation transposition and implementation; (2) national governance structure for main infrastructure manager, (3) composite assessment of the law in the books and law in action (Rail Liberalisation Index), and (4) degree of market opening for domestic passenger services.
Extent of railway legislation transposition and implementation

An overall indication of the extent to which EU railway legislation is transposed is provided by the transposition deficit measure used as part of the Commission’s Single Market Scoreboard by DG Markt. It measures the percentage of (rail-related) EU Directives not transposed by a Member State that should have been transposed by a given cut-off date (either 10th November or 10th April according to the biannual calculation of the Scoreboard indicators). In Figure 2 the rail-specific transposition deficit indicator is shown together with the transposition deficit indicator for all internal market related Directives for the period from 2003 to 2013. The comparison of the two indicators shows clearly that transposition concerning the rail directives is slower than for the entire set of internal market related directives. On the other hand the figure suggests also that the extent of transposition for rail directives is converging such that the percentage of EU rail directives not transposed by a member state on time was at the same level as for the all the internal market directives. However, it should also be remarked that the gap in transposition deficit is expected to increase again with new directives being adopted (notably the 4th Railway Package as well as the recast Directive 2012/34) drawing on the experience from the previous Railway Packages (where Figure 2 shows that peaks in the transposition deficit difference seem to be at the highest level shortly after rail directives are due to be transposed).

Figure 2. Extent of railway legislation transposition, 2003-2013

Source: European Commission (2014)

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8 Information about the Single Market Scoreboard available from: http://ec.europa.eu/internal_market/scoreboard/
In case EU legislation has not been transposed timely and correctly by a Member State the Commission can start formal infringement proceedings which have been used in relation to the various railway legislative measures. A particular case was the 1st Railway Package for which the Commission in 2008 sent letters of formal notice (first step in infringement proceedings) to 24 EU Member States regarding their failure to implement the 1st Railway Package. The only EU country that did not receive a letter was the Netherlands (excl. Romania and Bulgaria that only became EU members in 2007). This occurred five years after the Directives should have been introduced in national law. More recently, for the Recast Directive (2012/34) transposition was due in 2015, though by December 2016 not all Member States have yet transposed the new provisions in national legislation (European Commission, 2016).

National governance structure for main infrastructure manager

One of the core elements in the European legislative programme of railway reform has been to introduce a degree of separation between infrastructure management and rail service operations in order to ensure non-discriminatory access conditions for new entrants and non-incumbents to the rail infrastructure. In particular, the organisation of the so-called essential functions (capacity allocation and charging) was given attention such that these would have to be provided by separate bodies in case the infrastructure manager belonged to a (holding) company also providing rail transport services. Figure 3 provides an overview of how the EU Member States have established the institutional setting for their main Infrastructure Manager. Two dimensions are considered (thereby indicating the different combinations in a matrix format): (1) overall organisational set-up and (2) scope of the functions of the infrastructure manager. The overall organisational set-up distinguishes between: (a) integrated company (incl. railway operations and infrastructure management); (b) integrated, separate body for essential functions; (c) a holding structure with limited independence guarantees; (d) a holding structure with strong independence guarantees, and (e) separated. Scope of IM functions is distinguished as follows: A) IM in charge of all functions (incl. capacity allocation and charging), B) IM in charge of functions except the essential functions (capacity allocation and charging) which are under the responsibility of a separate body, C) IM in charge of the essential functions with some parts delegated to the railway operator part of the ECM as a whole.
The Figure highlights several aspects regarding how the EU Member States have implemented the relevant provisions. Firstly, a number of combinations are in use among the set of countries, although less than half of the possible combinations are in fact in use. It appears that a majority of EU Member States (15) have chosen the institutional setting of a separated infrastructure manager with this infrastructure manager also in charge of all functions (incl. capacity allocation and charging) given that the IM is separated from the rail transport service provision. Other combinations are less used with between 1 and 5 countries choosing these. Moreover, there seems to be a move towards combinations that provides a higher level of independence and separation of the infrastructure management function (e.g. the recent cases of Belgium\(^9\), Poland and Slovenia) albeit complete institutional separation is still far from being achieved in all EU Member States.

**Composite assessment of the law in the books and law in action**

An overview of the extent to which law in books\(^{10}\) as and law in action\(^{11}\) in the different EU Member States are in line with the goal of market opening is provided by the so-called Rail Liberalisation Index (IBM, 2011). The analysis has been undertaken in 2002, 2004, 2007 and 2011 and covers all EU countries as well as Norway and Switzerland. This index is comprised of

\(^9\) In Belgium the IM (Infrabel) is since January 2014 no longer part of the SNCB Holding company but a separate autonomous public company.

\(^{10}\) Legal rules found in texts

\(^{11}\) The application of legal rules in practice
two sub-indices: the LEX index and the ACCESS index. In particular, the sub-index LEX considers the extent to which law in the books provides a legal basis for rail liberalisation, market entry and the extent of the powers of the national regulatory authority. Law in action is covered by the ACCESS index that measures information, administrative and operational barriers as well as the share of the domestic market accessible and accessibility to sales service. In Figure 4 the latest values for the LIB index (2011) are shown for rail passenger transport only. It should be remarked that the LIB based assessment of the legal framework takes into account both the EU legislation as well as any national provisions that go beyond the European requirements. As noted above the latter provisions are of particular importance with respect to market opening for domestic passenger services (where EU requirements have only been introduced in the 4th Railway Package adopted end of December 2016).

**Figure 4. Rail Liberalisation Index for passenger transport (2011)**

Source: IBM (2011)

The Figure highlights substantial differences in the legal basis and its application among the Member States concerning rail passenger market opening. Three country groups are defined: advanced (LIB Index over 800), on schedule (LIB Index between 600 and 799) and delayed (LIB Index below 600). The four countries (in the ‘advanced’ group) which have reached the furthest regarding passenger market opening are Sweden, Great Britain, Germany and Denmark, while the legal frameworks in place and applied conditions in Hungary, Slovenia, Greece, Lithuania, France, Luxembourg, Latvia, Spain and Ireland provide the lowest support for access from
external passenger RUs\textsuperscript{12}. However, it should be noted that progress regarding the legal framework conditions for market opening has improved since the earlier Rail Liberalisation Index studies from 2002, 2004 and 2007. This is illustrated by comparing the index values given in Figure 4 (2011 values) with those shown in Figure 5 (2007 values)\textsuperscript{13}. Overall, a country by country comparison suggests that in the main the 2011 values are higher than the ones recorded for 2007. In particular, it can be seen that in 2011 only 9 countries have index values lower than 600 whereas in 2007 some 12 countries had index values less than 700. Indeed, the lowest value (Ireland) was 206 in 2007 compared to 399 (also Ireland) in 2011. Moreover, 4 countries had values larger than 800 in 2011 compared to only 1 in 2007.

\textbf{Figure 5. Rail Liberalisation Index for passenger transport (2007)}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure5.png}
\caption{Rail Liberalisation Index for passenger transport (2007)}
\end{figure}

Source: IBM (2007)

\textit{Degree of market opening for domestic passenger services}

As noted earlier there are no requirements in EU legislation (until the 4\textsuperscript{th} Railway Package) concerning access rights in the case of the domestic rail passenger services (in contrast to

\textsuperscript{12} Railway operator which has entered the rail market in the course of liberalisation and offers rail transport services (usually in addition to the incumbent).

\textsuperscript{13} Comparisons between Liberalisation Index studies should be undertaken with care given that the method for calculating the indices may be subject to limited adjustment.
international passenger services which have been opened since January 2010 and freight since January 2007). Obviously, market entry would still be supported by other elements of the European reform programme such as unbundling of infrastructure management and technical harmonisation. As a result the degree of market opening for domestic passenger services is the result of any national requirements for market opening in the form of access rights and/or use of tendering for awarding public service contracts. Figure 6 provides an overview of the domestic rail passenger market structure as the situation was in 2012 (European Commission, 2014). The available information indicates that this would still be a reasonable correct reflection of the situation in 2016. Overall, about 40% of the domestic rail market is open for new entrants measured in terms of passenger kilometres (European Commission, 2014). However, the Figure also reveals significant country differences with only the UK and Sweden14 having opened their passenger markets fully (commercial and PSO services), while 9 countries not having introduced any opening of the domestic passenger market (Belgium, Greece, Spain, Finland, France, Hungary, Ireland, Luxembourg and Slovenia). It should be mentioned that in the case of Estonia, Latvia, Lithuania and Slovakia where complete open access provisions exist, PSO services should according to the national law be tendered. However, in the end only the incumbent operator participated in the tender (European Commission, 2014).

Figure 6. Rail Market Structure (2012)

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14 In three other countries more than 50% of the domestic passenger market is open: Italy, Poland and Germany.
4. Outcomes of reforms

The previous sections have set out the European legislative initiatives for reforming the railways as well as how these measures have been implemented in the EU Member States with particular focus on passenger transport. In this section the focus will be on considering what the implications or outcomes have been of the adopted reforms (taking into account both the already. As such it should be remarked that an assessment of reform outcomes is complex at this point for several reasons including: (1) legal framework is still evolving (notably the recently adopted 4th Railway Package); (2) implementation of legal framework not complete at Member State level; (3) separation of the influence on outcomes linked to the legislative initiatives from other possible factors. The section will cover the following aspects:

- Structure of passenger rail companies
- Passenger rail market competition
- Cost and efficiency implications
- Modal share

The first two outcome measures can be considered necessary factors for possible influences on cost, efficiency and modal share.

Structure of passenger rail companies

Prior to the onset of the reform process in the early 90s the railway sector in Europe was predominantly organized in monolithic public-owned integrated companies (such as NS, OBB, SNCB and FS) responsible for almost all passenger transport in the country along with freight transport services, other ancillary services as well as management, development and maintenance of the railway infrastructure. Third party access (TPA) possibilities were largely not available in practice. Often the national railway company was subject to substantial political influence and independent regulation was non-existent, instead the railway system was mainly managed through self-regulation.

Following more than 25 years of railway reform at European and national levels this structure is no longer the typical structure for the incumbent passenger railway company. Although, these companies are still in almost all cases in public ownership (Great Britain being the exception with privatised operators) other changes have taken place that have changed their characteristics. Firstly, the incumbent (passenger) railway companies have a more independent status from the state where public service obligations are specified in public service contracts setting level of transport services to be provided, quality requirements and payments between government and transport provider. Secondly, a minimum level of (organisational) separation between infrastructure management and rail transport operations (with the majority of countries having established full separation). Thirdly, the incumbent passenger companies are in a number of countries facing the possibility for competing operators in the market (or for the market). Fourthly, in a number of cases separate companies for passenger and freight have been created from the old integrated company (see the
case of Sweden where separate incumbent passenger and freight operators exist, SJ and Green Cargo respectively). Finally, new authorities and organisations have been introduced to the railway system, incl.:

- Independent (national) regulatory bodies regarding access to the rail network
- National Safety Authorities with responsibilities for safety certification, authorization for placing vehicles in service
- National Investigation Bodies concerning accident investigations
- Notified Bodies (companies notified by Member States with responsibility for checking conformity of railway related equipment in terms of interoperability

**Passenger rail market competition**

Two main forms of competition can be identified in the case of passenger railway transport:

- competition in the market (or on-track competition), where several railway operators are in competition by providing services on the same network during the same time period. This form of competition is based on open access arrangements for third-party railway operators
- competition for the market (or access competition) whereby two or more railway operators are competing (through a bidding process) to get access to the market and the winner of the bidding process can operate services for a time-limited period (usually under exclusive rights)

An overview of the market share of competitors in the passenger market for 2014 (and the evolution between 2011 and 2014) is provided in Figure 7.

**Figure 7. Market share of competitors in the passenger market (2014, % of p-km) and evolution 2011-2014 (in percentage points)**

![Market share of competitors in the passenger market](image)
In general, the market shares for competitors remain for most EU countries relatively low with only UK, Poland and Italy having shares over 15% (Sweden should also be added taking into account earlier 2012 figures of +40% reported in European Commission, 2014 – unfortunately the 2014 figures are confidential according to European Commission, 2016). For a number of countries (10) the market share for the incumbent passenger operator is 100%. The average market share for competitors in the passenger market was reported to be around 20% in 2012 according to European Commission (2014). A similar figure would be expected to be the case in 2014.

Overall, the type of competition emerging seems to be linked to the market segment involved. For regional and suburban passenger rail services these are typically organised through public service contracts between authorities and the rail operator where the use of competitive tendering as the mechanism for contract award has been introduced in a number countries. On the other hand long distance and high speed rail services would tend to be more frequently operated under open access providing the possibility for competition in the market. As for the newcomers appearing as competitors to the incumbents Bergantino (2015) notes that these are very heterogeneous mainly covering the following: (1) subsidiaries of existing national champions (that enter the market in other countries, incl. international services); (2) companies partially owned by other incumbents; (3) companies established by other (private) operators active in the rail sector or other type of transportation (coach transport, airline travel etc.). On the other hand it is seldom that new entrants are completely external to the transport industry.

In the following, a brief overview of the progress to date regarding competitive tendering and open access competition will be provided. As for competitive tendering only Great Britain has introduced competitive tendering (franchising) for all passenger services (since 1996-97), whereas Sweden has introduced competitive tendering for regional passenger transport (since 1989-90) and non-profitable interregional passenger transport (since 1992). Germany has provided the possibility for competitive tendering for regional and local transport (since 1996), indeed over 50% of PSO train kilometres have been in tendered (European Commission, 2014). Other countries are using competitive tendering although on a much smaller scale compared to Great Britain, Sweden and Germany: Poland, Italy, Denmark, Portugal, Netherlands, Czech Republic and Slovakia (e.g. in Denmark there has to date been 2 tenders of regional / suburban passenger services\(^\text{15}\) representing some 20% of the passenger services, as expressed in terms of passenger kilometres, though presently less than 10% are provided under contract by external railway operators). In addition there are countries where the possibility for using competitive tendering is available but has not been used to date (e.g. in Austria). Other countries continue to award public service transport contracts without a competitive tendering procedure to the national (monopolistic) rail operator on the basis of reimbursement for public service obligations (e.g. the situation in Finland, France, Greece, Hungary, Ireland, Slovenia and Spain).

\(^{15}\) The two tenders concerned: 1) contract for services on regional rail network in Mid and West Jutland; 2) contract services on line between Elsinore (Denmark) and Malmö (Sweden).
Available evidence suggests an increased use of competitive tendering in recent years as illustrated by Figure 8.

**Figure 8. Public Service Contract Notices in OJEU**

![Graph showing Public Service Contract Notices in OJEU](image)

Source: European Commission (2014)

The Figure shows the number of (rail) Public Service Contract notices published in the Official Journal of the European Union (OJEU)\(^\text{16}\). As such contract notices can be taken as a call for submitting bids and not only used in order to ensure transparency for contract awards. In 2006 the number of PSC contract notices was 18 and by 2012 the number had increased to 41.

Following the adoption of the 4\(^\text{th}\) Railway Package it is expected that further use of competitive tendering across the EU Member States will take place. Below, considerations regarding the possible effects of competitive tendering will be given with particular focus on cost aspects.

Until recently, limited open access competition had emerged in Europe with the exception of a few operations in the UK (Hull Trains and Grand Central), Germany (Interconnex) and Italy (Arenaways). However, during the last five years more instances of competitive entry has occurred across a number of European countries (mostly within the long distance passenger market). Table 3 provides an overview.

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\(^{16}\) Government procurement contracts over a certain amount (100,000 EUR) has to be published in OJEU.
Table 3. Market entry by domestic open access operators

<table>
<thead>
<tr>
<th>Country</th>
<th>Open access operator</th>
<th>Service</th>
<th>Begun</th>
<th>Ended</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT</td>
<td>Westbahn</td>
<td>Long distance</td>
<td>Dec-11</td>
<td></td>
</tr>
<tr>
<td>CZ</td>
<td>RegioJet</td>
<td>Long distance</td>
<td>Sep-11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leo Express</td>
<td>Long distance</td>
<td>Dec-12</td>
<td></td>
</tr>
<tr>
<td>DE</td>
<td>HKX</td>
<td>Long distance</td>
<td>Jul-12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>InterConnex</td>
<td>Long distance</td>
<td>Dec-01</td>
<td>Dec-14</td>
</tr>
<tr>
<td>IT</td>
<td>NTV</td>
<td>High speed</td>
<td>Apr-12</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Arenaways</td>
<td>Long distance</td>
<td>Nov-10</td>
<td>Feb-12</td>
</tr>
<tr>
<td>SE</td>
<td>BläTäget</td>
<td>Long distance</td>
<td>Nov-11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Öresundstå(Veolia)</td>
<td>Long distance</td>
<td>Dec-11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MTR express</td>
<td>Long distance</td>
<td>Mar-15</td>
<td></td>
</tr>
<tr>
<td>SK</td>
<td>RegioJet</td>
<td>Long distance</td>
<td>Dec-14</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>Grand Central</td>
<td>Long distance</td>
<td>Dec-07</td>
<td></td>
</tr>
<tr>
<td></td>
<td>First Hull Trains</td>
<td>Long distance</td>
<td>Sep-00</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wrexham Shropshire &amp; Marylebone</td>
<td>Long distance</td>
<td>Jan-08</td>
<td>Jan-11</td>
</tr>
</tbody>
</table>

Source: European Commission (2016)

For example, in Czech Republic there are now two external passenger operators (RegioJet and Leo Express) are in direct competition with the incumbent CD on the same corridor (between Prague and Ostrava). Similarly, in Austria WESTbahn\(^{17}\) is operating long distance services between Vienna and Salzburg in competition with the incumbent ÖBB. The first example of open access competition in the high speed market segment occurred in Italy with the entry of NTV\(^{18}\) (Nuovo Trasporto Viaggiatori) providing services on routes connecting major Italian cities (e.g. Turin-Salerno and Venice-Salerno both serving Bologna, Florence, Rome and Naples).

The possible effects of open access competition will be discussed in the following section with particular consideration to impacts on costs and fares.

\(^{17}\) SNCF has a 26% ownership stake in WESTbahn.

\(^{18}\) SNCF has a 20% ownership stake in NTV.
Cost and efficiency implications

Below, the possible effects on costs and efficiency of the passenger railway reforms in Europe to date will be examined. In particular, consideration to the effects linked to examples of competitive tendering and open access competition as well as more aggregated analysis of the reform implications.

Available evidence from countries that have already introduced competitive tendering for awarding public service contracts of passenger services suggest typically (though not uniform) the possibility for cost savings. A number of studies has been undertaken at country level regarding the possible (cost) effects and these will be briefly reviewed below focusing on the following: Sweden, Denmark, Germany and Great Britain.

Overall, the experience in Sweden suggests significant scope for cost savings of some 20% due to the use of competitive tendering rather than direct award (Alexandersson, 2009). These savings were achieved in the first round of tendering in the early 90s without the contract going to a non-incumbent operator. Once non-incumbent operators started winning the contract further savings were achieved.

Denmark has more limited experience with competitive tendering compared to Sweden. Two tenders have taken place to date. In the case of the first tender in Mid and West Jutland won by Arriva cost savings of some 15% compared to the case with continuing with DSB (the incumbent as the provider) have been achieved (Thelle, 2013). Moreover the prolongation in 2009 is reported to have resulted in additional savings for the Danish Government of 10%. Available information also indicates that customer satisfaction is high and increasing as well as being higher than before the tender. As for the second tender (concerning services between Elsinore and Malmö in Sweden) the experiences are less positive. The contract was won by DSB First (a company affiliated to the incumbent, DSB), but DSB First ceased to exist and the services are now operated by DSB. However, despite the latter outcome it is still estimated that further tendering could result in additional cost savings and service quality improvements.

Similar to Sweden the experience with competitive tendering in Germany is extensive although the scope is limited to public service contracts for suburban and regional services. Link (2016) reports indications that for first round tendering significant cost savings have been achieved (measured in terms of unit costs) in the order of magnitude of 26%. Moreover, as for public subsidies these have also decreased as measured by operation subsidies per output unit over the period 1996-2010. Apart from reduced costs and subsidies it is also noted that the use of tendering in Germany have in general resulted in better targeted services.

Great Britain adopted the most drastic approach to competitive tendering with including essentially all passenger services as part of the restructuring and privatisation of British Rail in the mid-90s. In contrast to the experience elsewhere in Europe (see above) costs savings have to date not materialised, instead there have been cost increases: unit costs increased by 14% between 1997 and 2006 (Smith, 2016). As for the possible reasons for this unusual result several can be put forward incl. problems of incentives for the company being awarded the franchise
linked to the relative short duration of the contract as well as the size of the franchise (significantly bigger than the ones elsewhere in Europe) which increases complexity as well as not facilitating significant organisational changes in the existing company responsible for the operations. Smith (2016) also highlights that besides the negative effects on costs, there have been successful aspects linked to demand, fares and quality.

So far there are only limited studies into the effects of open access competition given that most of the examples have occurred in the last five years (see e.g. Bergantino, 2015 for a recent overview of the experiences to date in Czech Republic, Slovakia, Austria, Germany and Italy). Another recent analysis of the possible effects is included in SDG (2016) with reference to five open access competition examples. Table 4 summarises the main findings for these five examples: Hull Trains (UK), Grand Central (UK), NTV (IT), RegioJet (CZ) and Leo Express (CZ).

Table 4. Market entry and effects in the UK, Italy and the Czech Republic

<table>
<thead>
<tr>
<th>Member State</th>
<th>Operator</th>
<th>Year of entry</th>
<th>Share of train services</th>
<th>Initial stock</th>
<th>Entry unrestricted?</th>
<th>Target markets</th>
<th>Incumbent adds services</th>
<th>Incumbent cuts elsewhere in the market?</th>
<th>Capacity now contained?</th>
<th>Connections difficult?</th>
<th>Share of rail passengers</th>
<th>New entrant fares</th>
<th>Incumbent fares</th>
<th>Share taken from air</th>
<th>Market profitable</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>Hull Trains</td>
<td>2000</td>
<td>10%</td>
<td>New</td>
<td>No</td>
<td>New direct services</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>10%</td>
<td>Lower than incumbent*</td>
<td>?</td>
<td>N/A</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Grand Central</td>
<td>2007</td>
<td>10%</td>
<td>Old</td>
<td>N/A</td>
<td>New direct services</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>30%</td>
<td>Lower by around 25%</td>
<td>?</td>
<td>Yes</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>IT</td>
<td>NTV</td>
<td>2012</td>
<td>25%</td>
<td>New</td>
<td>Yes</td>
<td>Major cities</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>30%</td>
<td>Lower by around 25%</td>
<td>?</td>
<td>Yes</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>CZ</td>
<td>RegioJet</td>
<td>2011</td>
<td>10%</td>
<td>New</td>
<td>Yes</td>
<td>Major cities</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Price war, some fares down 75%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leo Express</td>
<td>2012</td>
<td>10%</td>
<td>New</td>
<td>Yes</td>
<td>Major cities</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Price war, some fares down 75%</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Source: SDG (2016)

The Table suggests a mixed picture of the possible effects for this relative small sample. For example, as to whether the incumbent adds services in response to the entry in Italy and the two Czech examples the incumbent did add services, whereas this did not happen for the two UK examples. As for fares the examples does indicate that the entrant lowers fares compared to the incumbent. There is uncertainty concerning the response from the incumbent: in the case of the Czech Republic the entry resulted in a price war with some fares down 75%. Information about the incumbent’s response regarding fares was not available for Italy and the UK.
A recent econometric study examined the extent to which open access competition is influencing efficiency measured in terms of operating expenses per train-km (Casullo, 2016). The preliminary results suggest that at this point it was not possible to detect an improvement in efficiency. On the contrary there seem to be incurred additional costs linked possibly to problems of coordination as well as duplication of investment costs. In part these findings may be linked to a too short time horizon since the open access competition started and it is possible that a longer time period will allow capturing the dynamic effects of competition. Therefore, a recommendation put forward in the paper is to revisit the analysis when longer time series are available as well as considering improvements in the econometric modelling and the data availability.

A comprehensive framework for assessing the implications on efficiency is represented by the so-called efficiency measurement techniques where a best-practice frontier is determined using methods such as Data Envelopment Analysis (DEA) and Stochastic Frontier Analysis (SFA), (see e.g. Fried, et al., 2008, for an overview). Although a number of such studies have been undertaken for the European railway sector there are only few that explicitly examine the links between regulatory reform and efficiency. Below, we will briefly consider the findings in two of these studies: Freibel et al. (2010) and Asmild et al. (2009). Freibel et al. (2010) assess the changes in (technical) efficiency as a result of railway reform measures with particular focus on passenger transport within a stochastic production frontier approach. The study covers the period from 1980 to 2003 and includes 12 of the EU Member States though the UK had to be excluded as the data required were not complete. The best practice frontier was determined on the basis of the following inputs and outputs:

- Inputs: staff and route kilometres
- Outputs: passenger kilometres and tonne kilometres (though the estimation is structured such that tonne kilometres only is included in order to take into account its effect on passenger traffic efficiency)

Moreover, the regulatory reform elements focussed on three aspects included as dummy variables in the econometric modelling: (1) separation of infrastructure and operations, (2) third party access (TPA), (3) independent regulatory entity. Overall, the analysis provides two main results: (a) reforms appeared to have positive impact on passenger rail traffic efficiency; (b) however, the positive effect seems to be dependent on the sequencing of reforms. In fact, if the reform elements are introduced at the same time (packaging) rather than gradual over time the positive effect on efficiency disappears.

Asmild et al. (2009) examines the railway operations in 23 European countries during 1995–2001 (covering both passenger and freight) in order to determine whether the reform initiatives underway improved the efficiency of the railway systems. In particular, a non-parametric frontier method was used for the analysis, the so-called Multi-Directional Efficiency Analysis (MEA), which is similar to the more widely used Data Envelopment Analysis (DEA). MEA allows the identification of efficiency improvement potential per production factor rather than an aggregated indication of efficiency gains. The following inputs and outputs were used:
Discretionary inputs: staff costs and material purchases / external charges (both in mln. Euros)
Non-discretionary inputs: network length (measured in line kilometres)
Outputs: passenger train-kilometres and freight train-kilometres (in thousands)

The following reform aspects were considered in the analysis:

- Accounting separation: Indicating whether or not infrastructure and services are separated on an accounting basis.
- Complete separation: Indicating whether or not infrastructure and services are institutionally separated.
- Independent management: Indicating whether or not legislation is transposed that assures independent management from the government of railway companies.
- Competitive tendering for passenger services: Indicating whether or not competitive tendering is used to procure (some or all) passenger railway services.
- Market opening freight transport: Indicating whether or not legislation is transposed that allows entry of competitors.

The main findings are that these reform initiatives generally improve technical efficiency but potentially differently for different cost drivers. Specifically, the study suggests that accounting separation is important for improving the efficiency in the use of both material and staff costs, whereas other reforms only influenced one of these factors. For example, in the case of competitive tendering of passenger services the results shows that there is a significant positive impact on efficiency with respect to material costs (whereas for labour costs the efficiency improvement effect recorded is not significant). Given that this study is based on data from 1995 to 2001 an updated analysis with more recent data would be of interest to examine the effect of the reforms undertaken in subsequent years.

**Modal share of passenger rail transport**

Overall, it is difficult to demonstrate a direct linkage between rail regulatory reform initiatives and the rail modal share in the passenger transport market. As such, the competitiveness of rail vis-a-vis other modes as reflected in its modal share would be determined by a range of influencing factors some of which are within the domain of public policy, while others are linked to railway industry practices as well as preferences and constraints faced by individuals. This implies also that there would be limits to how much can be expected to be delivered from railway regulatory reform measures only as other connected measures would need to be place as well. Moreover, the influence of regulatory reform on the modal share for passenger rail would be rather indirect by through changes in cost performance (e.g. leading to lower fares) and customer orientation (e.g. resulting in higher quality of service) which in turn may encourage higher rail passenger patronage. These changes may either come as the result of competitive entry with new transport providers or as a reaction by the incumbent to the threat of market entry. As a further challenge to identify any linkages is also that European level initiatives towards market opening in the passenger market has until the 4th Railway Package was adopted in December 2016 been rather limited (although some Member States have gone further than EU legislation requirements as discussed above). Figure 9 shows the trend in passenger rail modal share for the EU Member States (EU28) as a whole covering the period 1995 to 2011. The
passenger rail modal share has stayed throughout the period in the range between 6 and 7%. However, the trend suggests that in the first part of the period (from 1995 to 2003) there was a small reduction in modal share which was reversed in the second part of the period (from 2004 to 2011). Moreover, recent data for (2012 to 2014) indicates that the improvement in rail passenger modal share has continued in those years. A pragmatic interpretation of the linkage could be that the regulatory reforms of passenger rail in Europe have contributed to stabilise the modal share and possibly even stimulated modest improvements. On the other hand a more appropriate approach for determining the linkage between regulatory reform and passenger rail competitiveness may be to use a case study approach and examine the impact on passenger demand with specific examples of tendering and / or open access competition.

Figure 9. Passenger rail modal share 1995-2011 (% of pkm of all modes)

![Graph 6 - Passenger rail modal share 1995-2011 (% of pkm of all modes)](image)

Source: European Commission (2014)

5. Conclusions and future perspectives

This paper has offered an overview of how the passenger railway sector has been changing across Europe following the legislative reform initiatives introduced gradually over the past two-three decades. It outlines the narrative behind the railway reforms by setting out the background to the reform initiatives and then follows the successive steps in the reform process: (1) European legislative measures; (2) implementation of legislative measures in the EU Member States; (3) outcomes of passenger railway reform. As such it is apparent that substantial changes are already occurring in this sector and that these can be linked to legislative measures. Indeed, a comparison of the European passenger railway sector from 1980 with the passenger railway sector of 2016 would demonstrate the magnitude of the changes that have taken place. However, the review also suggests that there are country differences regarding how the organisation of the railway sector is being shaped during this period. At the very least differences regarding the
timing and speed of implementing the European reforms would create variation between countries. In contrast to rail freight where European driven market opening was achieved by 2007 for rail passenger transport progress has been significantly slower in particular with respect to the domestic passenger market. This difference in focus between freight and passenger market liberalisation is probably linked to the political sensitivity regarding the provision of (national) passenger services with specific focus on the justification of services in general interest that may not be financially profitable but socially desirable (Di Pietrantonio et al., 2004). Indeed, it is only the recently (December 2016) adopted 4th Railway Package that provided for market opening for this market segment. The implication of this is that most progress regarding market opening for passenger rail was mainly linked to national initiatives going further than the European requirements. In general, the incumbent still retain in most cases a dominant position as provider of passenger services, although there are country exceptions. As for the outcomes linked to the regulatory reforms (covering both European and national measures) the available evidence suggest the possibility for positive effects on costs and efficiency, although this result is not necessarily guaranteed. In particular, there appear to be scope for competitive tendering to generate significant cost savings without leading to negative effects on quality and customer satisfaction provided safeguards regarding contract specification, operator incentives and allocation of risks are properly addressed. Limited empirical evidence is available concerning open access competition in order to draw robust conclusions. However, this form of competition may be of importance in the long distance / high speed market segment where profitable corridors may encourage entry in certain cases.

Over the coming years it is likely that there will be increased competition in the European passenger rail market linked particularly to the 4th Railway Package provisions. This would cover both competition for the market (competitive tendering) and competition in the market (entry as open access operations). Moreover, it is likely that external railway operators will capture a higher market share compared to the present situation. By 2025 it may be pertinent to undertake an in-depth review of the experiences with extensive rail passenger liberalisation in order to determine the extent to which these reforms were in fact welfare generating.

References


Steer Davies Gleave (2016) Study on the prices and quality of rail passenger services; Final report prepared for DG MOVE