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Part 1

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the documents

Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1370/2007 concerning the opening of the market for domestic passenger transport services by rail

Proposal for a Directive of the European Parliament and of the Council amending Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area, as regards the opening of the market for domestic passenger transport services by rail and the governance of the railway infrastructure

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Disclaimer: This impact assessment commits only the Commission's services involved in its preparation and does not prejudge the final form of any decision to be taken by the Commission

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1. INTRODUCTION

In its White Paper on transport policy adopted on 28 March 2011 (hereinafter the 2011 White Paper), the Commission announced its vision to establish a Single European Railway Area and clarified that this objective implies creating an internal railway market where European railway undertakings can provide services without unnecessary technical and administrative barriers. [1]

Additionally, the European Council conclusions of January 2012 highlighted the importance of unleashing the growth-creating potential of a fully integrated Single Market, including measures with regard to network industries.[2] Furthermore, the Commission Communication on Action for Stability, Growth and Jobs adopted on 30 May 2012 stresses the importance of further reducing the regulatory burden and barriers to entry in the rail sector, making country-specific recommendations to that aim.[3] In the same manner, on 6th June 2012 the Commission adopted the Communication on strengthening the governance of the Single Market, which also stressed the importance of the transport sector.[4] Finally, the Single Market Act II adopted by the Commission on 3 October 2012 called for the development of fully integrated networks in the Single Market and indicated in this context the importance of the opening of domestic rail passenger services to operators from another Member State.

The EU railway market has seen important regulatory changes in the recent decade. They were gradually introduced by three legislative "railway packages" (with some accompanying acts) intended to open up national markets and make railways more competitive and interoperable at the EU level, while maintaining a high level of safety. The most recent development is the adoption of the Directive 2012/34 ("recast of the 1st Railway Package"[5]), which, in addition to legislative simplification and consolidation, reinforces existing provisions on competition issues, regulatory oversight and financial architecture of the railway sector[6].

Despite the considerable development of the 'EU acquis' establishing an internal market for rail transport services, the modal share of rail in intra-EU transport has remained modest. Therefore the Commission proposes a 4th Railway Package (cf. Annex I for further details) in order to realise the Single European railway Area by removing the remaining obstacles of technical, regulatory and economic nature and fostering thereby the performance and competitiveness of the railway sector. As announced by the 2011 White Paper, these issues will be addressed by different initiatives:

– **Removing remaining administrative and technical barriers**, in particular by establishing a common approach to safety and interoperability rules to increase economies of scale for railway undertakings active across the EU, decreasing administrative costs and accelerating administrative procedures, as well as to avoiding disguised discrimination;

– **Opening the domestic rail passenger market**, granting open access rights where appropriate while also addressing the public service contracts (PSCs)[7] award process, in

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1 White Paper Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system (COM/2011/0144 final)

2 http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/127599.pdf

3 COM (2012) 299 final

4 COM(2012) 259 final

5 OJ L 2012 343 pp.32-77;

6 Available at: http://europa.eu/rapid/pressReleasesAction.do?reference=MEMO/12/520&format=HTML&aged=0&language=EN&guiLanguage=en

7 List of acronymes with explanations is provided at the end of the main report.

order to complete the process of rail passenger market opening; accompanying measures will facilitate Member States' retaining integrated timetabling and ticketing systems where this benefits the passenger;

– **Optimising the governance of infrastructure management**, in particular by ensuring that the infrastructure manager performs a consistent set of functions that optimises the use of infrastructure**.**

This impact assessment focuses on the second point.

2. PROCEDURAL ISSUES AND CONSULTATION OF INTERESTED PARTIES

2.1. Organisation and Planning

This IA is prepared by DG MOVE to support the initiative on the domestic rail passenger market opening and further contribute to the completion of the Single European Railway Area (Agenda Planning 2012/MOVE/017 and 2012/MOVE/032). The Commission proposal in this regard will include amendments to the following legislative acts:

– Directive of the European Parliament and of the Council establishing a Single European railway area (the recast of the 1st Railway Package);

– Regulation 1370/2007/EC (Public Service Obligations)[8];

An Impact Assessment Steering Group was created in December 2011 and has been actively consulted during preparation of the Impact Assessment. This Steering Group has counted on the membership of DG CLIMA, COMP, ECFIN, EMPL, ENER, ENV, ENTR, LS, MARKT, REGIO, SANCO and SG. In May 2012, it was further broadened to include EEAS, TRADE and ELARG. The group met on 12 October (2011), 19 December (2011), 20 April, 10 May, 8 June, 29 June, 14 September and 4 October.

2.2. Consultation and Expertise

Expertise

In order to support the Commission in the impact assessment process, an external consultant was tasked to prepare an impact assessment support study[9]. The study started in December 2011 and the final report is to be delivered in September. A preparatory study[10] also took place in 2010.

Process of consultation

To ensure that the views of the full range of stakeholders impacted by the eventual measures was gathered, a broad mix of targeted consultation methods was used. Tailored questionnaires prepared by the consultant in cooperation with the Commission were sent to each group of main stakeholders - railway undertakings, infrastructure managers, public transport ministries, safety authorities, ministries, representative bodies, workers' organisations etc. The views of passengers were collected through a Eurobarometer[11] survey. Local (passenger transport) authorities were consulted with the help of the Committee of the Regions from 14 May till 18 June. 11 regions, mostly in

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8 OJ L 315, 03.12.2007, p. 1 – 13.

9 Steer Davies Gleave (2012): "Study on further action at European level regarding market opening for domestic passenger transport and ensuring non-discriminatory access to rail infrastructure and services"(further referenced as "IA support study")

10 EVERIS (2010)"Study on Regulatory Options on Further Market Opening in Rail Passenger Transport", http://ec.europa.eu/transport/modes/rail/studies/doc/2010_09_09_study_on_regulatory_options_on_further_market_opening_in_rail_passenger_transport.pdf;

11 Available at http://ec.europa.eu/public_opinion/archives/ebs/ebs_388_en.pdf -cf. Annex 2 for more details

France and Spain (but also in Austria, Poland, and Netherlands) responded to the consultation. The full consultation of social partners has also been conducted in line with the Impact Assessment Guidelines.

A strategy of targeted consultations complemented by a Eurobarometer survey was preferred to an open consultation for two main reasons:

1) A targeted consultation assured that an adequate coverage of the wide range of different interest of the sector will be achieved.
2) The questions needed to be customised depending on stakeholder group consulted, furthermore not all stakeholders (in particular passengers) could have been expected to have knowledge of the subject-matter, given the technical nature of certain questions.
3) Representativeness of responses of passengers would have not been ensured without a structured sampling of responses, and in particular the Eurobarometer offered the possibility to interview a carefully structured sample of 25.000 respondents in their own language.

Moreover, a stakeholder hearing took place on the 29th May (with some 85 participants) and a conference (with some 420 participants representing the full range of stakeholders in the rail domain) was held on the 24th September. Commission services have also met with sector representatives on an on-going basis throughout 2012 to listen to the views, in particular with CER (railway undertakings and holdings), EPTO (passenger transport operators), ETF (transport workers), EPF (passenger federations), EIM (infrastructure managers) and UITP (urban transport). Dedicated meetings with stakeholders were also organised in France, Germany, Netherlands, Poland, Sweden and UK. The external consultant also conducted face-to-face interviews with stakeholders in Germany, United Kingdom, Italy, Hungary and Sweden.

In conclusion, all relevant parties have been given the possibility to participate in the consultation and the minimal standards of consultation of stakeholders have been met.

Principal findings of consultation

The majority of stakeholders of the targeted consultation agreed that the quality of rail services and the competitiveness of the rail sector in the EU were affected by the lack of competitive incentives, inadequate regulatory oversight, discriminatory framework conditions and market access barriers for railway undertakings. Stakeholders highlighted the main factors driving those problems as being in particular infrastructure capacity, access to rail-related facilities, rolling stock availability, inadequate resources, divergent interpretation of legislation, lack of financial transparency and lack of competitive tendering.

In terms of market opening, an equal majority of respondents (60%) agreed that market integration can be stimulated by additional new open access rights, compulsory competitive tendering, or a mix of thereof. Workers representatives expect that any market opening will result in worse working conditions and more strikes.

A policy of compulsory competitive tendering rather than direct award was considered more likely than full liberalisation with open access to reduce funding for PSCs. Also, a vast majority of EU citizens (71%) support opening the national and regional rail system to competition provided that all operators meet the same safety level (Eurobarometer). Open access subject to the viability of PSCs is seen more positively than all the other options (55% of agreeing respondents) – the current arrangements supported only by 20% of respondents.

Stakeholders did not support further EU harmonisation of the procedure for awarding public sector contracts, but agreed that relevant stakeholders should be consulted on the criteria applied on public service contracts. All groups were in favour of a transition period, except Workers' Representatives, who were against any form of competitive tendering on principle.

The Sectoral Social Dialogue Committee on railways was consulted on 26 March and 19 June, in particular on the options and the assessment of their social impact. The representatives of workers organisations were very sceptical that the opening of domestic rail passenger markets would contribute to the growth of rail traffic, the improvement of efficiency and quality of rail services. They highlighted that greater State funding of the rail sector and its infrastructure would be a more effective way to reach those same objectives. They also advocated the inclusion of social criteria in the award of contracts.

Views of the local (passenger transport) authorities (consulted via the network of the Committee of the Regions) were polarised regarding the compliance of EU criteria for PSOs with the subsidiarity principle, whereas competitive tendering was generally welcomed. Local authorities also stressed the importance of coordination and cohesion between national administrations within Member States for the delivery of public services.

More detailed overview of the consultation process, representativeness and content of responses is provided in Annexes 2[12] and 10.

2.3. Impact assessment Board

This impact assessment was reviewed by the Commission's Impact Assessment Board (IAB) that provided its opinions on 9 November 2012, 30 November 2012 and 10 January 2013. Based on the Board's recommendations, the impact assessment has been revised according to the following lines:

- The presentation of the report has been thoroughly reviewed. To ensure that there is a clear distinction between factual evidence and stakeholder opinions, references to the sources of information have been added systematically, including where relevant the references to the IA support study. To better underpin the analysis, references to all the studies used to support the IA were compiled in a dedicated annex. Conclusions and views of stakeholders have been presented in a clearer manner..
- The problem definition has been revised to strengthen the link between the existing deficiencies and the lack of competitive pressures. The report now provides more evidence on an improved performance (in terms of efficiency and satisfaction) on markets where competition has been introduced. In this context, the dynamics of a series of indicators of efficiency (productivity, use of subsidies), price, safety and quality (including availability) has been analysed in clusters of Member States reflecting their current degree of liberalisation. The presentation of the underlying methodology has been strengthened (cf. box 4a and 4b). The report emphasises limitations of comparing national railway systems because of the influence of factors such as population density, and geographic concentration and draws necessary conclusions.
- The central goal of completing the internal market was made more visible in the problem definition and objectives.
- The analysis of subsidiarity was strengthened, in particular in the area of public service obligations. Compliance with the subsidiary principle was also discussed in comparison to other fields like air transport, urban transport and public procurement.

[12] The consultation of stakeholders took place in parallel to the legislative procedure of the Recast of the 1st Railway Package. As a result, some of the questions, in particular on rail-related services, have been solved already in the Recast and are therefore not relevant for this IA.

- The presentation of policy options has been further improved by incorporating into the text the main reason for discarding certain options. As far as options on competition for PSCs and the supervision of their scope are concerned, the report emphasises EU limited competences in the domain of definition and organisation of public services.
- The assessment of impacts has been improved by reinforcing the analysis of social impacts on consumers (fares) and workers (employment, working conditions, recruitment, productivity, cf. 6.2.3.1) as well as the impacts on investment, revenues and costs. An analysis of rolling stock options has been strengthened and discussion of congestion issues was included.
- The assessment of impacts and comparison of options has been improved to underline that the main factor distinguishing each of the options is the degree of market opening, which has been quantified for each option. Furthermore, for each of the options, impacts on Member States are differentiated according to their current degree of liberalisation. For each of the impacts analysed, the report also identifies potential associated risks. In cases where the evidence base has been limited or inconclusive, the text clearly indicates that the conclusions should be drawn with caution.
- The final assessment of the preferred policy scenario has been complemented with the estimates of the combined impacts of the different 4th Railway Package initiatives, both in terms of costs, and benefits.

3. PROBLEM DEFINITION

3.1. Overall context

3.1.1. Regulatory framework at EU level for domestic passenger rail services

As indicated in section 1, the EU has launched over the past decade an active policy for the revitalisation of rail transport based on progressively opening up of transport services to competition and on developing the interoperability of national rail systems. As a consequence, the European rail market has witnessed a range of regulatory changes to its structure and technical standards, with the aim of creation of a competitive internal market with more efficient services.

Markets for rail freight services have been fully opened to competition since January 2007[13]. Markets for international rail passenger transport services and cabotage services have also been opened to competition as of 1 January 2010.[14] On the contrary, domestic rail passenger transport in Europe (representing 94% of all passenger-kilometres in the EU) remains largely closed to foreign and national competition, independently of its typology (urban, suburban and regional services, conventional or high speed intercity services) and whether the services are provided in on a commercial basis or under PSCs. The latter cover about 2/3 of domestic rail services (cf. table 1 and Annex 9). PSCs in principle are regulated by Regulation 1370/2007EC on public passenger transport services by rail and by road, however the heavy rail sector has been excluded from the obligation to award PSCs through an open tendering procedure. Consequently, most local and regional rail services operated under PSO – that is almost all of them - are attributed to operators through direct award (cf. infra graph 4). In addition, even without PSO, rail service

[13] As provided for in Directive 2004/51/EC, amending Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways. In practice, however, many barriers still exist including those stemming from the incomplete and incorrect implementation of Community law by Member States.

[14] Council Directive 91/440/EEC of 29 July 1991 on the development of the Community's railways, as amended *inter alia* by Directive 2007/58/EC.

contracts in several countries are granted with an exclusive right – e.g. some incumbents operate as "legal monopolies" on commercial lines.

BOX 1 – PUBLIC SERVICE CONTRACTS (PSCs), PUBLIC SERVICE OBLIGATIONS (PSOs) AND LEGAL MONOPOLIES

A public service obligation (PSO) is a requirement determined by a competent authority in order to ensure public passenger transport service in the general interest.

Public service contracts (PSC) are requirements by competent authorities to perform PSOs.

"**Legal monopolies**" are, for the purposes of this impact assessment, rail service contracts granted with an exclusive right without PSOs (including directly awarded service concessions).

There is "**open access**" when no legal barriers restrict the access to the rail network.

In order to revitalise their rail sector in times of severe public budget constraints, more and more Member States have opened (or are in the process of opening) their domestic rail passenger services to competition, either through the introduction of open access rights for commercial services or through the competitive tendering of PSCs, or both. Given that there are no applicable common EU rules, a wide range of different national models is emerging in Europe, where some Member States have introduced full competition for domestic lines and others have kept their markets completely closed.

3.1.2. Market developments

Railways and their operations are an important economic sector with the total turnover and the number of persons employed estimated at 73 billion EUR[15] and 800.000 persons[16] (in many Member States railway undertakings are among the major national employers) and also absorbing substantial public funding (some 46 billion EUR of public subsidies, out of which some 20 billion EUR in 2009 were government payments for services and 26 billion EUR covered infrastructure[17]).

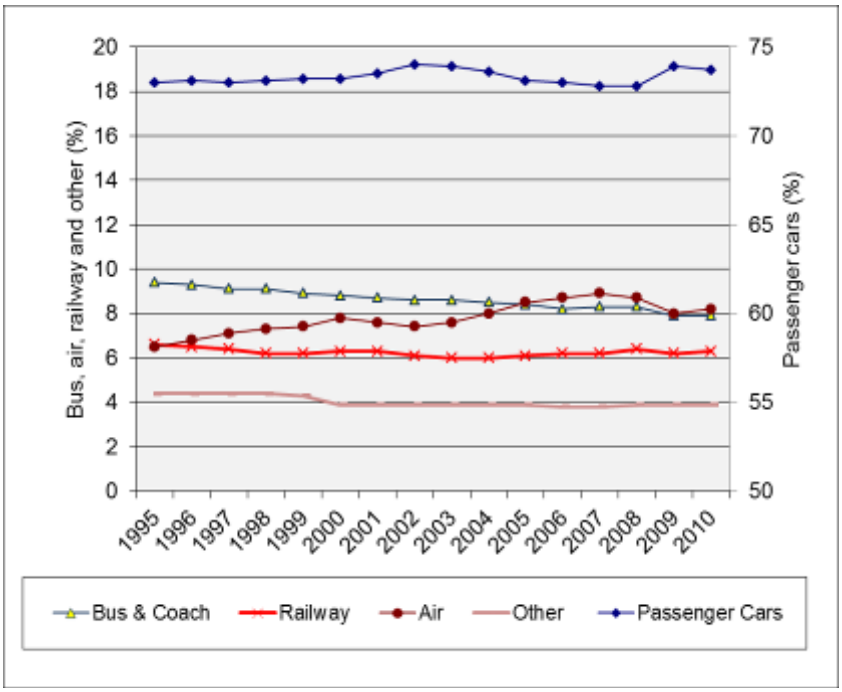
In the context of the goals of the 2011 White Paper, the performance of the rail sector compared to other transport modes is not yet satisfactory. The growth of passenger traffic by rail since the early 2000's has been insufficient to increase its modal share in comparison to cars and aviation. The 6% modal share for rail in the EU has remained fairly stable since the mid-nineties.

15 Includes infrastructure managers that are integrated with railway undertakings (i.e. holdings)

16 An estimated 463.000 persons are working in passenger railways.

17 According to the State Aid Scoreboard 2011, non-crisis state aid in transport (excluding railways) remained at around some 2 billion EUR per year (with the notable exception of 2006) and the total non-crisis aid to other sectors amounted in average to some 75 billion EUR in 2008-2010; the EU railway sector also absorbed some 25 billion EUR of subsidies for infrastructure

Graph 1 – Evolution of the rail modal share in passenger transport
(based on number of passenger-km (p-km))



Source: Rail Market Monitoring Scheme (RMMS) 2010.

These overall trends mask however significant differences between different market segments (high-speed, long-distance/intercity, regional and commuter/suburban services) and Member States, in particular between the EU-15 and the EU-10 Member States.

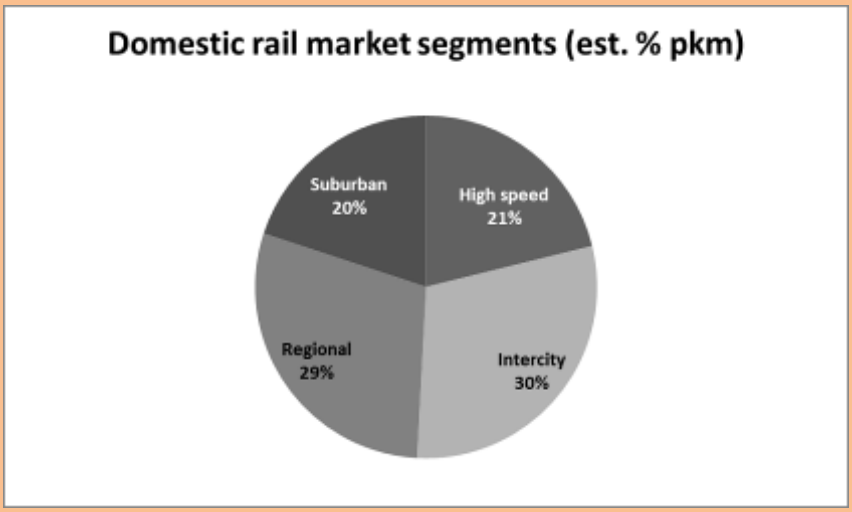
The modal share of rail has remained stable because even if high-speed rail traffic (thanks to important infrastructure investment) has managed to gain market share at the expense of air transport, this increase has been offset by decrease in other segments like regional and conventional long-distance services.

BOX 2 – RAIL MARKET SEGMENTS

High-speed train services (e.g. TGV, ICE…) and **long-distance** conventional train services (e.g. Intercity), which often (but not always) require seat reservation, compete mostly against air transport and, to some extent, cars. High-speed trains operate (almost always) in dedicated infrastructure – since 1990, high-speed railtracks have increased 6-fold (from 1024 km to 6178km in 2009) – and generally only stop in sizeable urban agglomerations.

Medium-distance/regional train services (e.g. Inter-Regio) and **suburban/commuter** train services (e.g. RER, S-Bahn, Cercanias…) compete mostly with cars and have free seating. **Suburban/commuter** train services are often interconnected with metro networks. These services operate almost exclusively with subsidies and public service contracts and call at a high number of stations. Suburban services require very often intensive railway operations.

Market structure of EU domestic rail passenger markets

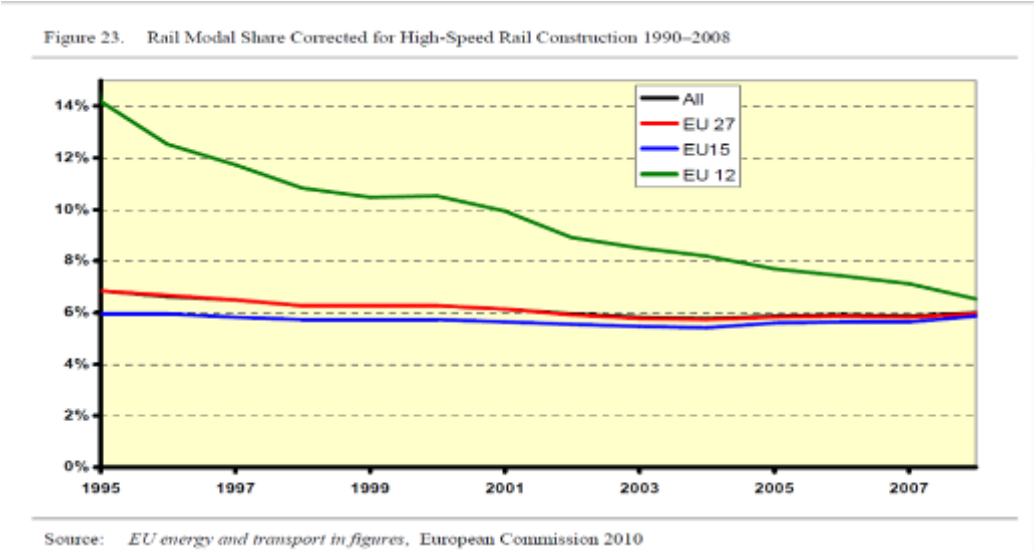


Source: UIC, Steer Davies Gleave, DG MOVE (White Paper on Transport), own calculations,

Rail passenger traffic in the EU-15 has increased by 16% between 2000 and 2009, with countries such as the UK, Sweden and Belgium experiencing growth in excess of 30%. Other Member States with growing modal share include Denmark, Germany, France, Hungary, Netherlands, Austria and Sweden. However, the increase of modal share in Spain, France and Belgium[18] is achieved only via significant investments into high-speed train infrastructure. At the same time traffic in EU-10 has fallen 25%, with falls of more than 35% in Romania, Lithuania and Bulgaria.

[18] Includes international traffic.

Graph 2 – Rail Modal Share Corrected for High-Speed Rail Construction

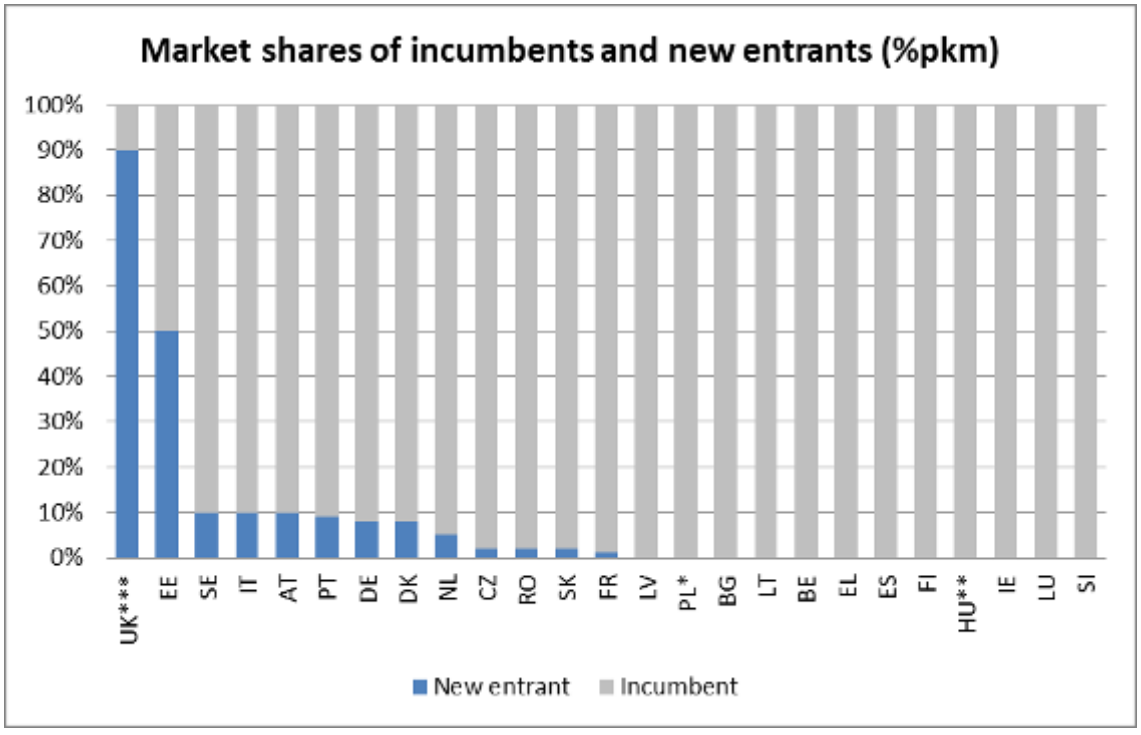


A wide range of external factors have in various ways contributed to these diverging trends, including economic developments, oil and petrol prices, congestion levels of roads, demographic trends, increased car ownership in EU-10 countries and on-going difficulties in securing public funding for rail services.

3.1.3. Existing market structures for passenger rail in Member States

In many Member States national incumbents are in either a monopolistic or dominant position (except in the UK, where the incumbent, British Rail, was dismantled in the nineties) and the market features many operators. In all but 2 Member States, there is an incumbent with a market share above 90%.

Graph 3 – Market share of incumbent railway operators (% p-km)



Source: Rail Market Monitoring System (2010) – includes international traffic

*-historical successors of incumbent, ** 2 incumbents, ***incumbent: largest operator in terms of p-km

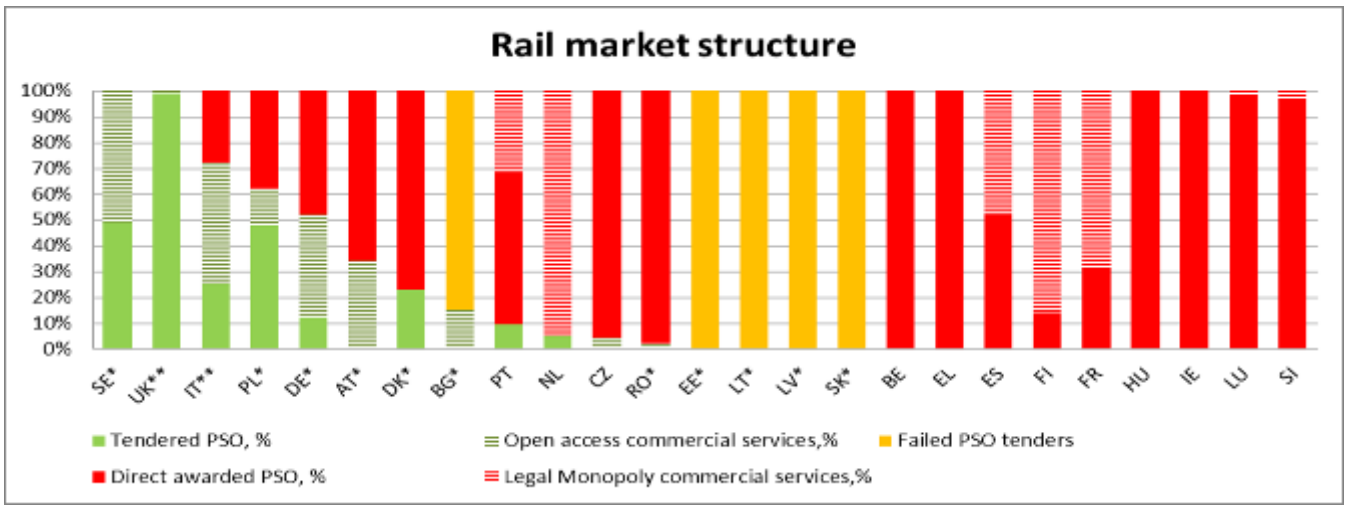
BOX 3 - PRINCIPLES OF COMPETITION IN RAILWAYS

Competition in railways takes either the form of **competition *for* the market** (several operators competing for the exclusive right of a specific route or bundles of routes – either a PSC (cf. box 1) or a service concession); or **competition *in* the market** (several operators running in the same route - i.e. the so-called "open access").

Experience in liberalised markets shows that regional and suburban trains are mostly run through PSCs, whereas high-speed trains and long distance inter-city trains are often operated on a commercial basis (with or without open access rights). There are however examples of PSCs for intercity trains, especially where they serve dual purposes of providing network efficient commuter capacity within the intercity operation. The United Kingdom has opted for generalised system of competitively-tendered PSCs for bundles of lines (which are called "franchises").

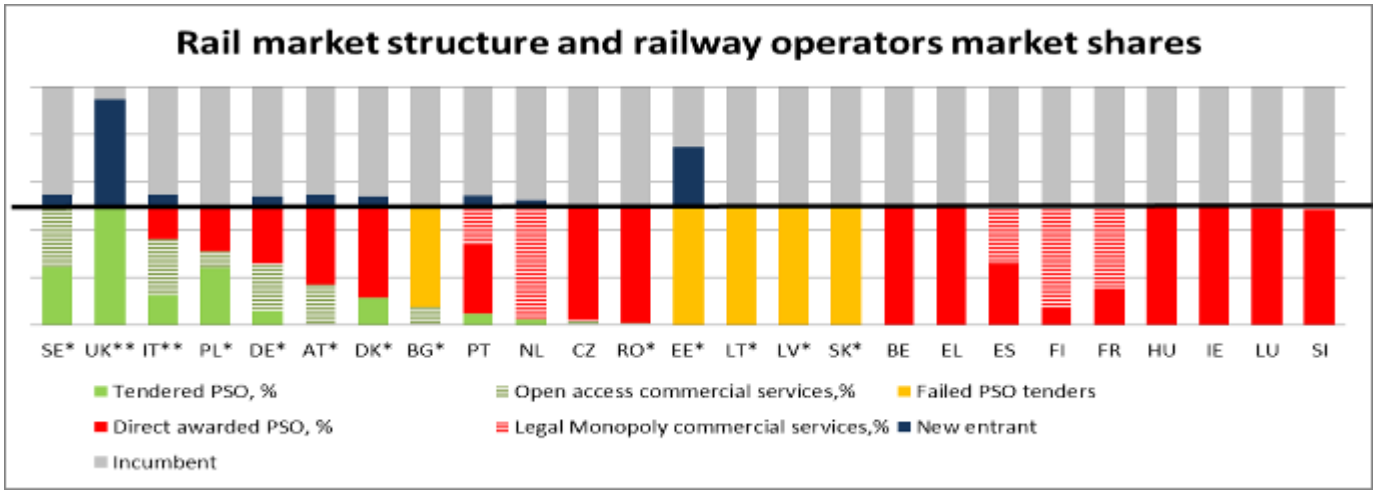
Graph 4 provides an overview of market access conditions in different Member States (more details are found in Annex 4).

Graph 4 – Rail market structure of EU Member States (% p-km)



*= open access can co-exist with PSC services
**= open access can co-exist with PSC services provided it does not compromise their economic equilibrium
Source: Rail Market Monitoring System (2010), CER (2011) – cf. Annex 4

Graph 5 – Railway market structure and railway undertakings market shares



About 40% of all passenger-kilometres in the EU are so far accessible to new entrants. Only two Member States (UK and Sweden) apply a fully open market based on open access and competitive tendering. Germany will now move towards full liberalisation, further to the decision of the *Bundesgerichtshof* that all future PSCs will have to be competitively tendered. However, currently half of passenger-km are still based on past direct awards of PSCs to Deutsche Bahn. Nine other Member States (Italy, Poland, Austria, Denmark, Bulgaria, Portugal, Netherlands, Czech Republic and Romania) have to some extent opened their market, however new entrant operators *de facto* operate only in seven of these countries (Austria, Czech Republic, Germany, Italy, Netherlands, Sweden and the United Kingdom), either in PSCs or open access.

10 Member States (with asterisk), representing 20% of all passenger-kilometres, have opened markets in a way that allows commercial services in open access to co-exist with directly-awarded PSCs. Further to the *Bundesgerichtshof* decision (as mentioned above), Germany will not be part of this group anymore. In Estonia, Latvia, Lithuania and Slovakia, full open access co-exists with a directly-awarded PSC covering all rail services. PSCs in these countries should be de jure competitively tendered, however de facto only the incumbent participated.

As a result, some 40% of all passenger-kilometres are not open for competition, as it fall either under exclusive rights or directly awarded PSCs (that do not co-exist with open access). Exclusive rights are mostly found in large-sized[19] Member States (France, Spain, Portugal, and Finland), whereas most small-sized Member States (Belgium, Hungary, Greece, Ireland, Luxembourg and Slovenia) have covered all their rail services by a directly awarded PSC with no right to provide open access services. In Austria, Czech Republic and Portugal a sizeable part of passenger-km results from PSC directly awarded to the incumbent. Finally, the Netherlands finds itself in a hybrid situation between a "legal monopoly" and a "directly awarded PSC", as NS pays a 20 million EUR concession fee to the Dutch government for operations on the largest part of the Dutch network and the exclusive right associated to this concession remains valid till 2015.

PSO services represent some 66% of all passenger-kilometres[20], whereas commercial services either under open access or legal monopolies represent some 33% of all passenger-kilometres in the EU. In 13 Member States – mostly all small-sized in area - almost all services are covered by a PSCs. In 12 Member States there is no competitive tendering for PSCs and in a further 5 Member States attempts to tender have failed (Bulgaria, Estonia, Lithuania, Latvia and Slovakia).

Following the characteristics above, the Member States can be accordingly grouped in 5 clusters (cf. Map 1):

fully liberalised markets like UK and Sweden, where all passenger-kilometres are in open access or where all public service contracts are competitively tendered.

– **largely liberalised markets** like Austria, Italy and Germany where more than 33% of the passenger-kilometres are in open access or correspond to competitively tendered PSCs; new entrants have been able to successfully compete *in* and *for* the market.

– **partially liberalised markets** like the Czech Republic, the Netherlands and Portugal, where less than 33% of the passenger-kilometres are in open access or correspond to competitively tendered PSCs, but where new entrants have taken an important share of the liberalised traffic.

[19] Large-sized Member States are not "large" Member States in terms of population. For instance, Sweden has an aarea of 450.000 km2, twice larger than Germany. Yet, the former has only 9 million inhabitants compared to Germany who ten times as big a population and is considered a "large" Member State. Cf. glossary

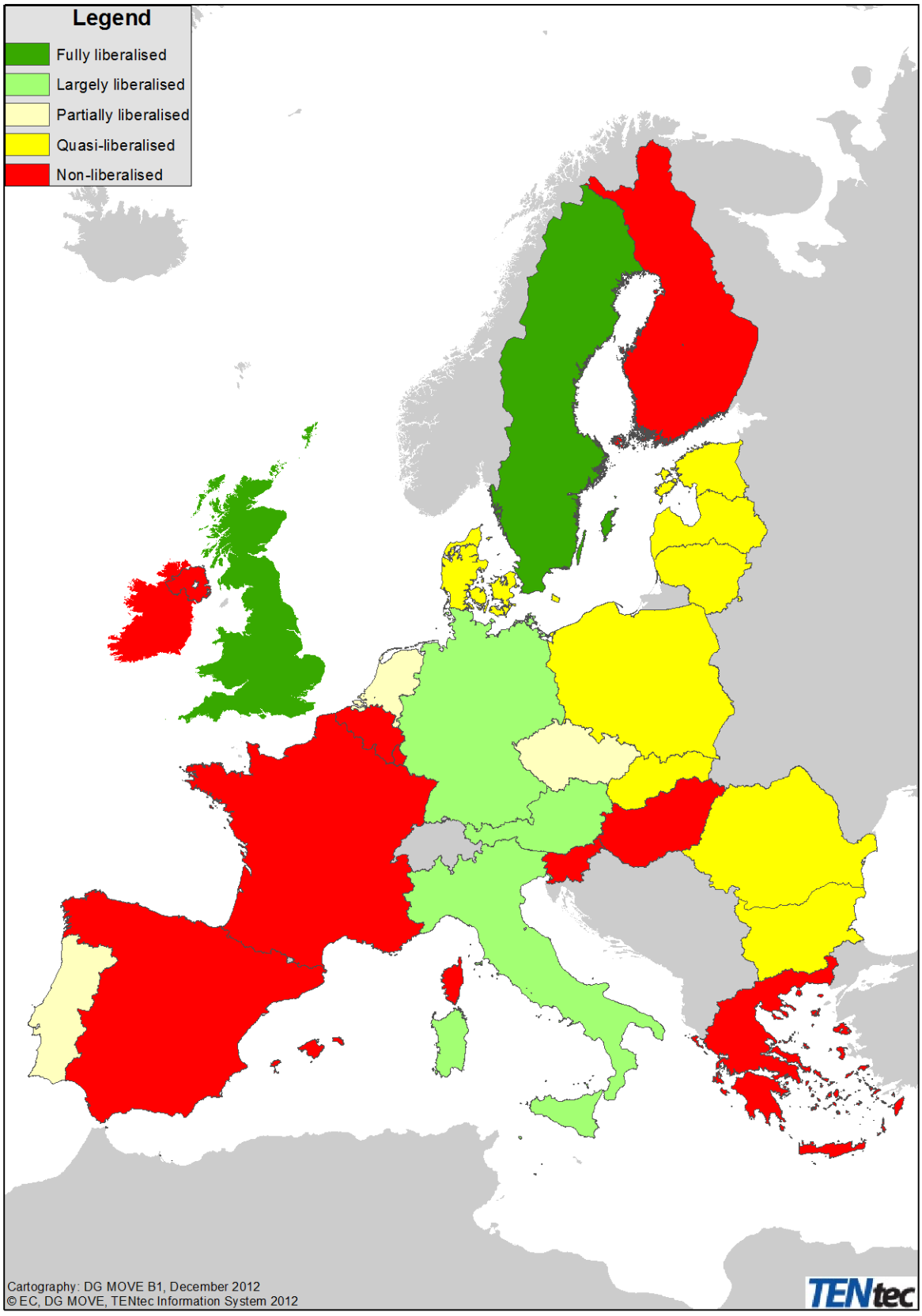
[20] The Netherlands has been included in this group to simplify the presentation as NS does not have a legal monopoly but the concession (PSC) for the mainline network has been directly awarded to NS.

– **quasi-liberalised markets** like Bulgaria, Denmark, Estonia, Latvia, Lithuania, Poland, Romania and Slovakia, where the whole market is open through "open access" - but there is no effective competition *in* the market - and PSCs are directly awarded. New entrants, if any (Denmark, Slovakia, Estonia), are operating the directly awarded PSCs.

– **Non-liberalised markets** like Belgium, Finland, France, Greece, Hungary, Ireland, Luxembourg, Slovenia and Spain, where the incumbent operates all commercial services and PSOs

Some Member States can be difficult to classify and it is necessary to distinguish between prospective analysis (future) and retrospective analysis (past). As Sweden only has abolished exclusive rights in long distance in 2011 and as Germany will introduce competitive tendering as from 2012, it makes sense to use a cluster "fully and largely liberalised" for retrospective analysis. Also, successful tendering of international PSCs suggests that Denmark could easily join the group of "partially liberalised" countries for prospective analysis. Moreover, lack of *de facto* competition for years in quasi-liberalised markets, make them in reality quite similar to non-liberalised markets. Finally, it is important to underline that Austria, Czech Republic, Finland, Greece and Spain have signalled that they intend to take measures to open their railway markets. In the case of Finland, it appears the contract for the suburban services of Helsinki would be competitively tendered

Graph 6 – Clusters of Member States



3.2. Description of the problem

The modal share of rail has not increased over the years. Overall growth of rail sector has not been able to keep with the pace of 25% growth in air passenger traffic further to the liberalisation in the

90's[21]. In fact, since the mid-nineties, in some Member States local and regional passenger train services have fallen in a downward spiral of continuous operational losses and subsequent diminishing of services. This decline has been exacerbated in many of the EU-10[22] Member States by the decay of old infrastructure, the wealth driven high-growth of car ownership and the success of bus transport[23]. Also, although commuter transport appears to be one of the strongest rail transport segments, cars still secure a substantial share of urban transport. 59% of Europeans never use suburban trains, a situation that contrasts with the 75% urbanisation rate of the EU27 and thereby indicates a significant development potential for suburban and regional passenger rail transport. Even if high-speed trains have managed to gain market share at the expense of air transport services, competition remains tough in lines running in parallel with aggressively pricing low-cost airlines[24].

To some extent, the inability of the rail sector to gain market share vis-à-vis other modes of transport can be explained by exogenous factors and trends such as policies and investments that have favoured road transport. In this respect, policies pursued at EU level such as the internalisation of transport externalities, the elimination of tax distortions and unjustified subsidies are part of the effort to align market choices with sustainability needs (and to reflect the economic costs of 'non-sustainability') and, hence, to establish a level playing field between modes which are in direct competition.

Nevertheless, there seem to be also internal shortcomings in the passenger rail sector, as reflected by customer perceptions and certain performance gaps as discussed below. Stakeholders reported during the consultation process that the passenger rail in Europe is, despite some success stories, in general not attractive and competitive enough vis-à-vis other modes of transport. More than half (54%) of respondents of the 2012 Eurobarometer survey were not satisfied with their national and regional rail system[25]. Within the Consumer Scoreboard 2011[26] the overall satisfaction of train passengers was 6.7/10, well below of the most consumer goods and services. Among consumers rail services score worse than all other transport modes (urban transport and airlines in particular scored better) and are ranked 27th out of 30 services markets, with particularly poor scores on comparability, problems in general and satisfaction[27].

Methodological constraints

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21 At the same time, air transport has managed to maintain important flows of passenger traffic on routes competing with rail. 27 out of the 40 largest intra-EU air routes in the EU were within the reach of competing long-distance (high-speed) railway services and yet attracted some 50 million passengers a year - i.e. as much as the 4th largest EU airport, Madrid-Barajas

22 For the purposes of this impact assessment, the Member States that acceded the EU in 2004 (EU-12, except Malta and Cyprus who have no railways).

23 During the stakeholder conference of the 24th September 2011, the CEO of the Romanian Railways CFR Calatori referred to the strong competition of bus in domestic routes. DB has also highlighted the forthcoming liberalisation of coach services in Germany. In Poland, train-kilometres appear to have diminished by some 33% since 1993.

24 In the route Madrid-Barcelona and Rome-Milan, we have found low-cost airlines undercutting high-speed train fares (cf. annex 3) – in the former a low-cost airline has been found to provide more a competitive fare than the train. In its Competition Report 2011, DB complains of the low fares of 49 EUR or 99 EUR of Lufthansa in intra-German routes.

25 The Eurobarometre of 1997 indicated a 41% satisfaction rate for railways, whereas air transport had a 53% satisfaction rate (it was the eve of the air transport liberalisation)

26 http://ec.europa.eu/consumers/consumer_research/cms_en.htm;

27 The market records the second highest number of problems but considerably fewer complaints, which could indicate that consumers do not believe that the problems can be satisfactorily solved or perceive the complaint process as too complex and burdensome.

In general performance indicators and efficiency measures of railway undertakings cannot be easily compared between the countries as the outcome is very much shaped by geography and population density, but also how the public support for rail is arranged.

BOX 4a –BENCHMARKING EFFICIENCY AND QUALITY IN RAIL

Profitability - a wrong indicator

In most sectors, efficiency can be measured through profitability and all deriving financial ratios. However, in rail, the level of public subsidies distorts any "profitability" indicators. The amount of subsidies varies from Member State to Member State and can be, in some instances, quite substantial. For example, in 2007 public funds represented 74% of the revenues of the Danish incumbent railway undertaking, DSB. Furthermore, some railway undertakings are part of integrated structures with freight and infrastructure management activities and profitability of different activities is not always distinguishable in financial reports. On the other hand, chronic losses over a long period can be used to spot a problem of systematic underperformance or underfinancing.

Efficiency ratios – often incomparable

Another method could consist in comparing and benchmarking non-monetary efficiency ratios (such as p-km per train-km) or cost ratios (e.g. operational costs per p-km) across several Member States. However, this process is complicated by the variety of geographic and demographic realities across Europe, which have a strong impact on the functioning of national railway systems. For instance, the urban concentration of Portugal explains why the cost per p-km in remote areas of that country is 400 times higher compared to suburban services around Lisbon (cf. Annex 3 for further details).

Consequently, there is no optimal efficiency applicable to all operators. The literature on stochastic frontiers and DEA that are used to measure and benchmark efficiency in utilities have not been able to bring forward clear-cut conclusions for European railways (cf. Annex 6 for further details).

Quality and satisfaction ratios – often incomparable

Measuring and comparing quality and satisfaction is also challenging as there no optimal rate of satisfaction (should it be 50%? 70%? or 90 %?) and the level of satisfaction with rail is influenced by satisfaction with other services. Moreover, exogenous events (e.g. snow storm, industrial action) can also influence judgements and complicate cross-Member State comparisons.

Methodological approach applied to the assessment of efficiency and quality

As explained in detail in Annex 3, this impact assessment proposes a 'benchmarking exercise' to consider the railway system of each Member State as a system on its own and:

– to measure if quality and efficiency indicators of each Member State have improved or worsened since the early nineties or 2000s (depending on the availability of data);

– to benchmark Member States in terms of their progression in improving the quality and efficiency indicators to identify those that have progressed systematically across all indicators;

– to observe if the values of quality and efficiency indicators between Member States have converged or diverged. If the-variance of indicators has increased, these have diverged and if the variance of the indicators has decreased, these have converged.

This information is then linked to the clusters of Member States classified according to their degree of liberalisation, to conclude whether there is evident link between the market structure and performance. The box below defines the indicators used in the analysis.

Efficiency and satisfaction indicators analysed:

BOX 4b – EFFICIENCY AND SATISFACTION INDICATORS ANALYSED

1. - Efficiency:

a) Passenger-km to train-km: compares the output (passenger-km) with the input (train-km)

b) Productivity of rolling stock - train-km to rolling stock: measures utilisation rate of rolling stock. As it can take stock of the increase of frequencies, it is also a service performance indicator.

c) Productivity of labour - train-km to staff/FTEs: measures train services produced by one employee.

d) Usage of infrastructure – measures the number of passenger-km per km of rail lines

e) Subsidy efficiency - passenger-km to PSO subsidies in EUR: measures passenger-km produced by one EUR of subsidy to public service obligations

2. -Quality:

a) Modal split: measures the progress of rail versus other modes of transport

b) Satisfaction – index based on the comparison between Eurobarometer surveys of 1997 and 2012

c) Fares - evolution of price index for rail fares as provided by Eurostat, inflation adjusted

d) Punctuality – percentage of local, regional services trains with more than 5 minutes delay and of long-distance trains with more than 15 minutes delay.

e) Safety – number of victims (killed or injured) per train-kilometre

f) Satisfaction – indexes based on the analysis of all the quality indicators of Eurobarometer 2011 (cleanliness, quality of facilities, punctuality, frequency and information on delays),

The results at the global level are presented in Table 1.

Table 1 – Growth and divergence of quality and efficiency ratios[28]

	Evolution (%)	Divergence/ Convergence (evolution of variance)	Period
Quality of services			
Modal split	1%(a)	-19%	2000-2010
Satisfaction 1997-2012	12%(b)	-40%	1997-2012
Fares (real terms)	28%	indexes	2000-2011
Punctuality	n/a	n/a	2008
Safety	9%	-39%	2004-2010
Availability (train-km)	11%	31%	1993-2008
Efficiency			
pkm/train-km	5.8%	14%	1993-2008
Productivity of RS/Frequency	25%	45%	1995-2010
Productivity of labour	97%	337%	1993-2008
Pkm/line	18%	58%	1995-2008
Subsidy efficiency	9%	(c)	2000-08/2003-08
Important economic indicators			
pkm	11%	not relevant	1993-2008
Employment	-40%	not relevant	1993-2008

(a) 9% growth in EU15
(b) EU15 Member States only and
(c) exchange rate complicate comparison across Member States

[28] The last column divergence/convergence indicates whether the variance between the performances of different Member States is increasing or decreasing. Divergence (positive values) indicates that the gap between the best-performing and worst-performing railway systems has widened, while convergence (negative values) indicates consolidation towards the optimum. Further explanations of the methodology applied are provided in Annex 3.

As shown in table 1, there has been overall improvement in efficiency and quality since the nineties. However, there is also growing divergence between the performance of railway systems in Member States – with the exception of safety, satisfaction and modal split, variance in ratios is diverging. The analysis below tries to identify how performance indicators have evolved in Member States with different market structures.

3.2.1. Gaps in quality and low satisfaction with service

Respondents to Eurobarometer survey found that the level of quality of rail passenger services has not kept pace with evolving needs in terms of frequency of service and quality (reliability and comfort)[29]. Passengers perceive a mismatch between the expectations of potential travellers and the service provided by railway undertakings for the fare requested[30]. In several Member States, rolling stock is more than 30 years old and has not been retrofitted[31]. Satisfaction with service frequency is below 80% in most EU Member States (EU average at 70%).

The benchmarking exercise demonstrates (cf. box 4a-4b, Annex 3, graph 8 and table 2) that, while satisfaction, modal split and safety have improved and converged, the gap between Member States has widened in terms of availability and frequency (cf. Table 1) and the satisfaction indicators appear to have been improving faster in fully or largely liberalised Member States. Table 2a lists the 6 Member States that have best performed in terms of evolution of modal split, satisfaction and rail fares[32].

Table 2a- Evolution of satisfaction indicators

Satisfaction/Quality perception	Ranking MS "6++"	
Growth of modal split	UK, SE, FR, BE, DE, NL	a
Growth of satisfaction 1997-2012	UK, SE, FR, ES, BE, IT	b
Fares (decrease or lowest increases)	BE, LU, AT-SE, FR-DK	e
Punctuality	LV, LT, RO, FI, SK, BE	P
Safety	UK, NL, FR, DK, ES, DE	S
Satisfaction 2012	FI, AT, NL, DK, LU, SE	S1
Satisfaction EB2011	ES, LU, PT, UK, IE, AT	S2

At the next stage, for each indicator (growth of modal split, growth of satisfaction between 1997 and 2012, evolution of fares, punctuality, safety, detailed quality satisfaction as measured in the Eurobarometer 2011 and the overall satisfaction of Eurobarometer 2012.[33]), the first ranked Member States received grades from "6" to "1". All other Member States have no grade (i.e. "0"). The average benchmarking points were then calculated for each cluster, as presented in Table2b The first ranked Member States receives a grade "6" till the sixth which received a grade "1" All

29 Eurobarometer 2a012 on competition in rail

30 Eurobarometer 2012 on competition in rail: 43% of citizens that do not travel by national or regional trains have indicated that they would do so if trains were cheaper and some 16%-20% if networks were better developed, services were more reliable and frequent, journeys were faster and trains were more comfortable.

31 The situation is particularly acute in Bulgaria (96% of all rolling stock is more than 30 years-old), Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, and Slovakia, but also in Belgium, Portugal, Italy and Finland. In Sweden, rolling stock is also above 30 years but has been retrofitted. Important investments in rolling stock are taking place in Slovenia, Czech Republic and Slovakia, Source: CER.

32 Member States have been ranked from those whose fares have decreased the most to those whose fares have the most increased. Fares have decreased in Belgium (taking into account the evolution) – cf. table 5g in Annex 3.

33 As punctuality, safety and satisfaction (2012) do not depend on geographic conditions, Member States were ranked in terms of their 2008 punctuality rate and the number of victims (killed or injured) in 2010 and not on the basis of their evolution

other Member States have no mark (i.e. "0"). The average benchmarking points are then calculated for each cluster.

Table 2b – Annex 3 benchmarking points per type of cluster (satisfaction/quality indicators)

Fully Liberalised:	17.7
Largely liberalised:	5.2
Fully or largely liberalised	*10.2*
Partially liberalised:	5
Quasi-liberalised:	3.4
Non- liberalised:	6.6

While both countries with liberalised markets (Sweden, UK) score well in terms of satisfaction evolution, some Member States with non-liberalised markets, like Belgium, France, Luxembourg and Spain also score very well. Spain and Luxembourg score high on the Eurobarometer 2011 indicators, Finland tops the overall satisfaction rate of the Eurobarometer 2012, while fares have decreased in Belgium. Interestingly, non-liberalised markets score almost twice as much as quasi-liberalised markets. The next section considers the 'price of quality'. i.e. how efficient are different rail systems.

3.2.2. Gaps in operational efficiency

Box 4 explained why the efficiency measures of railway undertakings cannot be easily compared[34]. However, there is some concurring evidence suggesting that the operational efficiency of railway undertakings leaves some room for improvement.

Firstly, the labour productivity ratio of railway transport in the EU27 was in 2007 well below the overall EU27 average (119% against 142%)[35]. The benchmarking exercise also demonstrates that the productivity of labour between railway systems has significantly diverged since the early nineties (variance has tripled). There are also overall important variations between assumingly comparable railway systems. For instance, in 2008, the ratio passenger-kilometres per staff appears to be double in the Netherlands compared to in Belgium (which has similar economic and geographic characteristics); and up to five times as large in Spain or Sweden than in Czech Republic or Romania (which have comparable population density). The latter example demonstrates that the problem of productivity of labour is particularly acute in EU-10 Member States[36]. Their railway undertakings employ 39% of all railway jobs in the EU while providing only 11% of passenger activity (in terms of p-km). This seems to suggest that labour productivity in the rail sector has room for improvement and is an important efficiency driver given that labour costs represent some 30% of all costs of rail undertakings.

Secondly, there are significant differences in asset utilisation such as rolling stock and infrastructure (cf. graph 4). The ratio of p-km to train-km is almost double in France and Sweden compared to the rest of Europe (cf. table 7a of Annex 3) and variance of this indicator has diverged by 14% between 1993 and 2008 (cf. table 1). The utilisation rates of rolling stock and that of the infrastructure, while in general significantly improved, have also diverged between the Member States – the variance has increased respectively by 45% and 58%. For instance, the Paris-Lyon high-speed line has some 17 high-speed trains an hour and the Rome-Milan some 3.5 trains-hour, while the high-speed lines between Madrid-Barcelona and Frankfurt-Munich only have 1.7 and 1.3 trains per hour (operated only by the incumbents). In Portugal, public expenditure for railways has tripled but p-km have

[34] Geographic concentration, population density and public funding play an important role

[35] Eurostat, Structural business statistics (SBS), 2009 edition, pp.445-446

[36] The productivity of the best performing railway systems (Sweden, Spain and UK)is more than 3 times higher than the productivity of the worst performing railway undertakings (Romania, Poland, Bulgaria, Latvia)

increased by barely 5% between 2000 and 2008, whereas in Sweden (also a sparsely populated country), public expenditure has increased by 40% and p-km by 80%.

Thirdly, the rail sector absorbs a substantial level of public funding compared to other economic sectors. Between 2008 and 2010, the subsidies[37] of railways outside infrastructure were 7 times larger than all the State aid to the remaining transport sector[38] while the modal share of rail is only 6%[39]. In spite of significant public support, many railway undertakings have been making losses for several years in a row (cf. table 3), which indicates either serious efficiency problems or systematic underfinancing. In many instances, railway undertakings had to be bailed out[40], costing serious money. This perspective will become increasingly acute within the context growing government spending cuts in many countries. In Austria, the new entrant Westbahn indicated that for the same amount of subsidies provided by the Austrian government to the incumbent ÖBB in the line Salzburg-Graz it could operate 7 daily services instead of the 3 provided by ÖBB, whose personnel costs are 20% higher than that of its competitors[41].

Table 3 - Performance of EU railway undertakings (operational profit 2000-2008)

RU	2000	2001	2002	2003	2004	2005	2006	2007	2008	Conclusion
DB (DE)	+	-	-	+	+	+	+	+	+	+
SNCF (FR)	+	-	-	-	+	+	+	+	+	+
SNCB (BE)	+	+	-	-	-	-	-	-	-	-
OBB (AT)	-	-	+	+	+	+	+	+	+	+
PKP (PL)	-	-	-	-	-	-	-	-	-	-
RENFE (ES)	+	+	+	+	-	+	+	+	+	+
BDZ (BG)	-	-	-	-	-	-	-	+	+	-
CD (CZ)	-	-	-	-	-	-	-	+	-	-
DSB (DK)	+	+	+	+	+	+	n.a.	+	+	+
OSE (EL)	-	-	-	-	-	-	-	-	-	-
VR (FI)	+	+	+	+	+	+	+	+	+	+
MAV* (HU)	-	-	-	-	-	-	-	-	-	-
FS (IT)	-	+	+	+	+	+	-	-	+	+
LG (LT)	+	+	+	+	+	+	+	+	+	+
CFL (LU)	-	+	-	-	+	n.a.	n.a.	n.a.	n.a.	-/+
NS (NL)	+	+	+	+	+	+	+	+	+	+
CFR Calatori (RO)	n.a.	n.a.	n.a.	n.a.	+	-	+	-	+	-/+
SJ (SE)	n.a.	n.a.	n.a.	+	+	+	+	+	+	+
SZ (SI)	-	-	-	+	+	-	+	+	+	+
ZSSK (SK)	n.a.	n.a.	+	-	-	-	-	-	-	-
CP (PT)	-	-	-	-	-	-	-	-	-	-
CIE (IE)	n.a.	-	-	-	-	+	-	+	-	-

"+"= profit / "-"= losses

* MAV data 2000-2006, MAV Start data 2007-2008. No data available for the UK ATOC operators

Source: Railway time-series data. International Union of Railways (UIC), 2009.

37 Railway subsidies include some 25 billion EUR of expenditure in infrastructure, which may not be accounted in the subsidies for road transport, hence we exclude them for the sake of comparison with other sectors.

38 Rail subsidies are to some extent justified to cover for the cost of externalities of other sectors such as cash for clunkers in the automotive industry, subsidies to regional airports etc

39 Even adding investment to road infrastructure, railway still absorbs 42% of all government infrastructure expenditure (based on CER/ITF data).

40 The Belgian railway incumbent had to transfer in 2004 a debt of 7.4 billion EUR to the Belgian State. This amount is comparable to 2% of Belgium's GDP

41 IA support study, Appendix J, Country Fiche: Austria, point 2.16

Overall efficiency of public subsidies can be measured in terms of PSO p-km per EUR of subsidy and as shown in Annex 3 tables 9c and 9d, in these terms there are important discrepancies between the Member States. Sweden and the UK, with liberalised rail markets, are in these terms outstanding performers. However, some partially liberalised (Germany, Austria[42]) and non-liberalised (Belgium and Finland) have also achieved remarkable improvements. During the 2000-2008, Germany was able to increase its p-km by 9% while reducing the subsidies by 20%, achieving reduction in subsidy per p-km by 29%. In France, at the same time, subsidies increased by 48% but resulted only in 24% of additional p-km (increase in subsidy per km by 24%). For several EU-10 Member States the level of subsidies has doubled since 2003, while the number of p-km has remained fairly stable (graph 7a). A similar phenomenon appears to be emerging also in EU15 Member States (graph 7b).

Table 2c – Evolution of efficiency indicators

Evolution	Ranking MS "6++"	
Growth of productivity of RS/Frequency	HU, SI, DK, EE, SE, CZ	d
Growth of pkm/train-km	SE, BE, NL, UK, DE, FR	f
Growth of pkm/line	UK, SE, BE, SI, ES, FI	g
Growth of employment	SE, UK, NL, LU, IE-DE	h
Growth of productivity of labour	IE, HU, DE, UK, FI, ES	i
Improvement of subsidy efficiency	SE, UK, EE, DE, AT, BE	j

Finally, as suggested by the benchmarking exercise in Annex 3 (cf. graph 9 and table 2c), the growth of efficiency indicators has been more systematic in fully or largely liberalised markets, which figure more often among the 6 best performing countries. The average benchmarking points summarised across all the aforementioned efficiency indicators are provided in Table 2d.

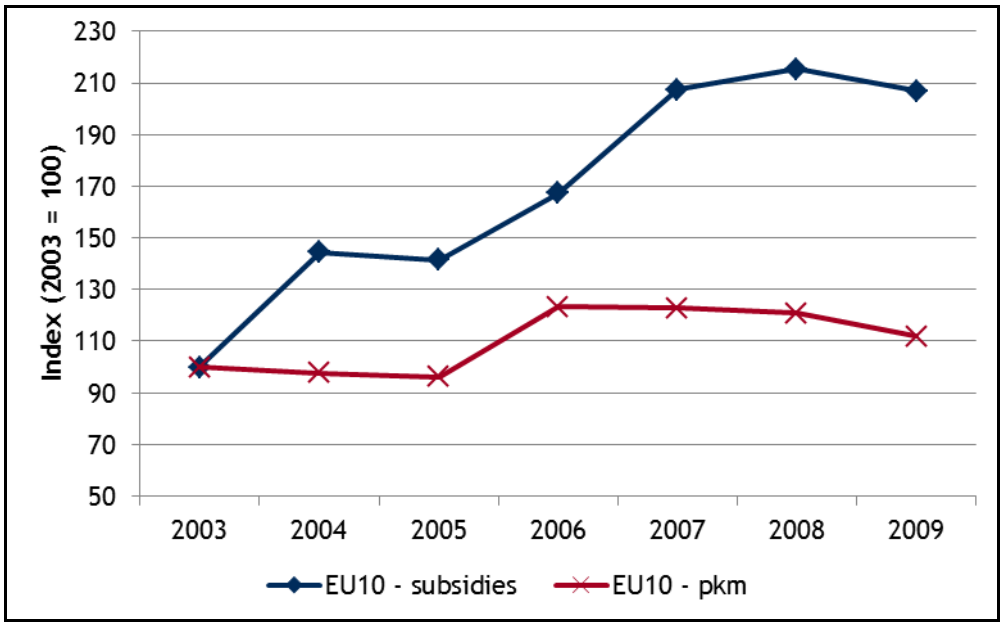
Table 2d – Annex 3 benchmarking points per type of cluster (efficiency indicators):

Fully Liberalised:	20.5
Largely liberalised:	5.5
Fully or largely liberalised	*11.5*
Partially liberalised:	3
Quasi-liberalised:	1.5
Not liberalised:	6

Like for quality, the countries with most liberalised markets (Germany, Sweden and UK) score well in terms of efficiency evolution. At the same time some Member States like Belgium, Slovenia and Hungary whose markets are "non-liberalised" also score very well. Hungary has seen an important improvement of labour productivity and Slovenia of the usage of its rolling stock. Interestingly, non-liberalised markets score almost twice as well as quasi-liberalised markets.

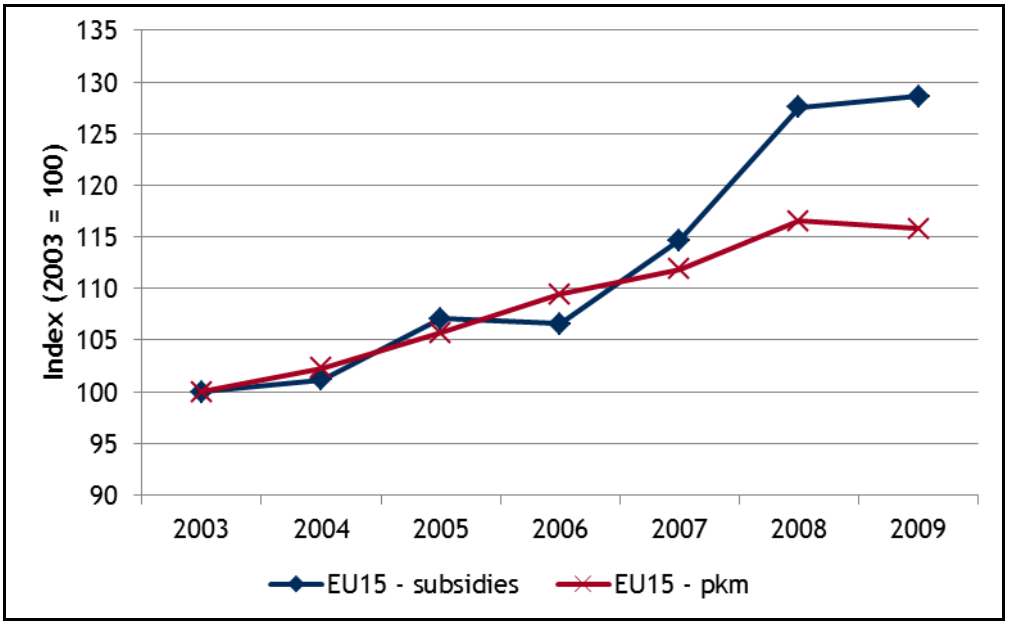
[42] While the PSO efficiency partially liberalised Italy has significantly worsened.

Graph 7a – Rail Subsidy payments in EU10



Source: IA support study (2012).

Graph 7b – Rail Subsidy payments in EU15

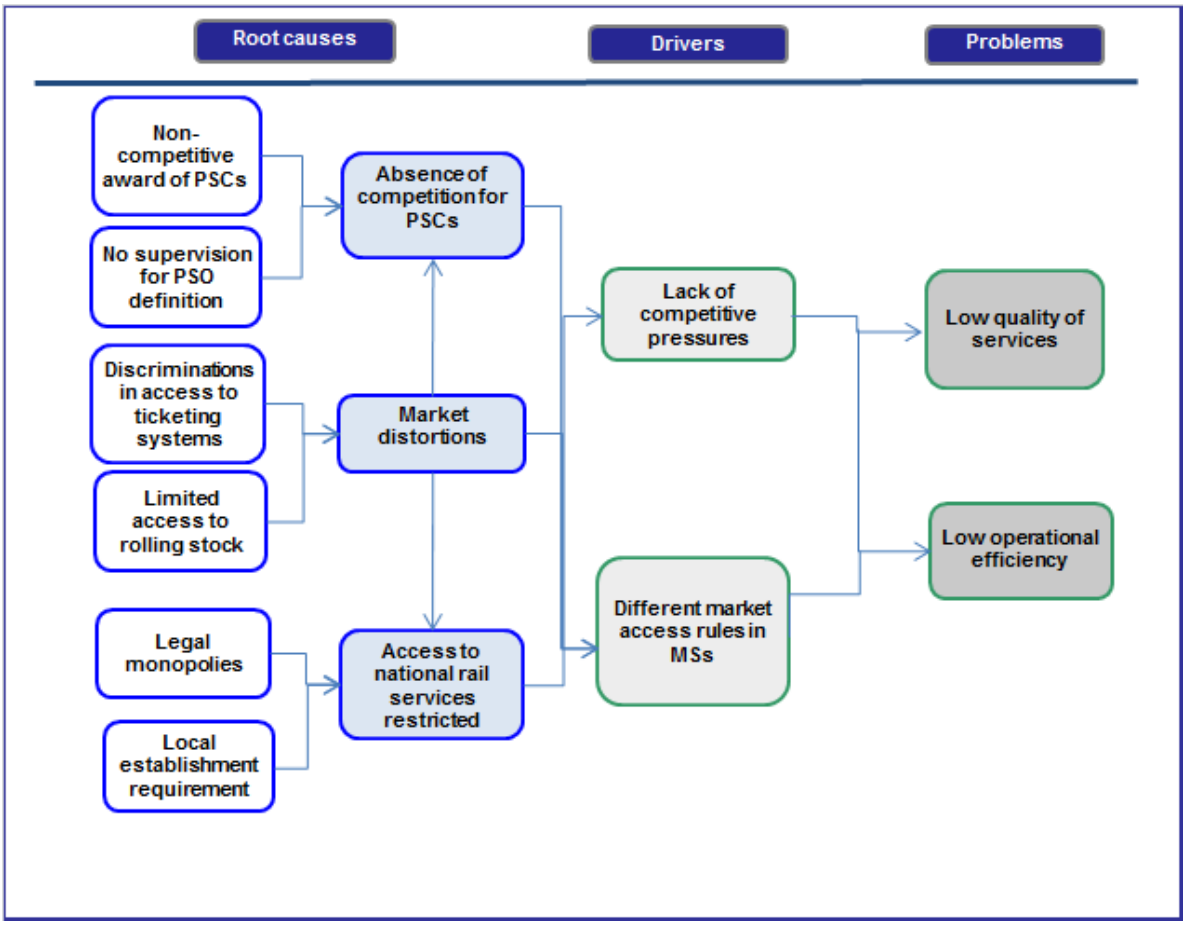


Source: IA support study (2012).

3.3. Problem drivers

According to stakeholders, existing railway undertakings are not sufficiently responding to market trends and curbing their operational inefficiencies due to a large extent to a lack of competitive pressures and to the existence of an increasingly complex patchwork of national approaches to liberalisation of domestic passenger rail markets which prevent the emergence of a genuine internal market for passenger rail services.

Graph 8: Problems, drivers and root causes



3.3.1. Lack of competitive pressures

Some 70% of respondents to the stakeholder consultation considered that the lack of competitive pressures on the European rail market affects negatively the quality of rail services and the competitiveness of the sector.

In many Member States, national incumbents are in either a monopolistic or almost monopolistic situation. As shown in Graph 3 (cf. supra), in all but 2 Member States (UK, Estonia), there is an incumbent with a market share above 90%[43]. In the UK, the incumbent (British Rail) was dismantled, whereas in Estonia, the incumbent Eesti Raaudtee abandoned long-distance services which were directly awarded to a private operator under a PSC.

Competition in the market

Competition in the market is in general more suited for high-speed and long-distance intercity services, which represent half of all rail passenger-kilometres in the EU (box 1). 16 Member States permit "open access" (exposing half of the EU market in passenger-km, cf. Graph 4 and Table 1 in Annex 4), but only in 6 of them effective competition happens. Map 2 and in table 3 list the few

[43] In Poland, the incumbent, PKP was subdivided into several entities, including Przewozy Regionalne, whose activities have been transferred to the 16 regional governments of Poland and cannot as such be considered as a new entrant.

lines with competition in the market. The new entrants competing *in* the market only have a 6% market share of the market in open access[44].

Map 2 – Domestic railway lines with competition *in* the market

- - - - - fringe competition ———— strong competition

[44] Open access passenger-km represent 16% of all EU passenger-km in the EU (cf. Annex 4), as a result if new entrants competing in the market have an share of 1% of all EU passenger-km, then their share of open access passenger-km is estimated at 6%. The passenger-km produced in PSO where there is open access are not taken into account.

Table 3 – List of domestic railway lines with competition in the market

Member State	Operator	Route	Service	Entry	Total market (est. m-pkm) (% dom pkm)	Competitor	Rolling stock	Fares, services and ticketing
Austria	WESTbahn	Vienna-Linz-Salzburg	Long distance	2011	Ca. 700-1000 (10%)	ÖBB	New	Tickets purchased on board More stops
Czech Republic	RegioJet (RJ)	Prague-Ostrava	Long distance	2011	Ca. 116 (2%)	České dráhy (ČD) Leo Express	2nd hand	Price reduction(-30%) RJ Trains are slower than ČD Pendolinos
	Leo Express	Prague-Ostrava	Long distance	2012	Services launched on 16 November 2012	České dráhy (ČD) RegioJet	New	Competes on service quality
Germany	Veolia Verkehr Interconnex	Leipzig-Berlin-Rostock	Regional Long distance	2001	Ca.80-160 (0.1%)	DB	2nd hand	Simple fare structure Niche service
	HKX	Hamburg-Köln	Long distance	2012	<1%	DB	2nd hand	Niche Late night / Week-end service
Great Britain	Grand Central (Arriva)	London-Sunderland	Long distance	2007	Ca. 540 (1%)	Several	Leasing	Compete with PSCs that have regulated fares
	Hull trains	London-Hull	Long distance	2002		Several	Leasing	
Italy	NTV	Salerno-Naples-Rome-Milan-Turin	High speed	2012	Ca.750 (2%)	Trenitalia *(Frecciarossa)*	New	Price reduction (-30%) Competes on service quality Uses secondary stations
Sweden	Bla Taget	Stockholm-Göteborg	Long distance	2010	< 2%	SJ	?	2x day Faster service Single Fare
	Veolia	Stockholm-Malmö	Long distance	2012		SJ	?	Slower service Cheaper fare

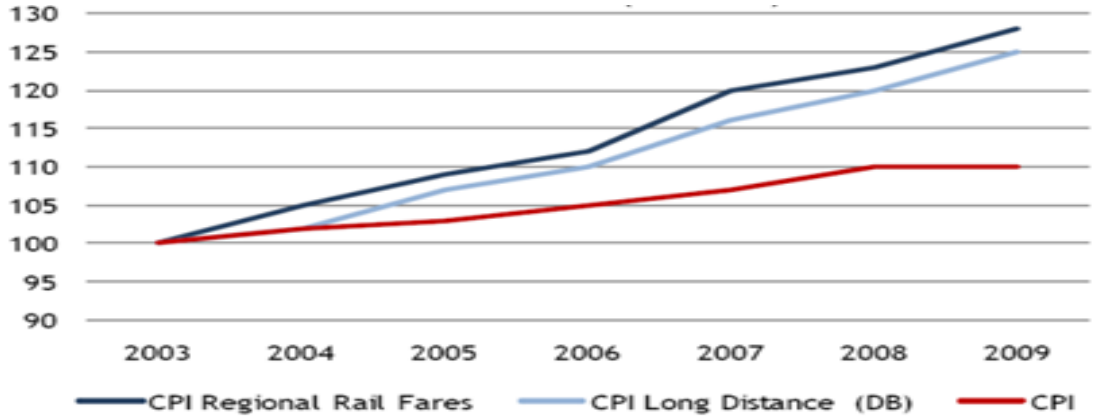
Source: Appendix K "Country fiches" of the IA support study and own estimations (Annex 4).

These routes have experienced a combination of traffic increase, price reduction and/or service innovation when new entrants have come in the market with critical mass (Italy, Czech Republic, Austria and the Stockholm-Malmö route in Sweden)[45] and a widening of services offered with 'niche' operators. Some new entrants opted for offering slower services at lower prices (Regiojet, Westbahn and Veolia Sweden) or to use quality to differentiate themselves (NTV[46], Leo Express and to some extent Grand Central and First Hull[47]). Also, some new entrants have voluntarily opted for 'niche' services (HKX and Blå Taget) or 'niche' routes (Interconnex). Where new entrants have come with critical mass, incumbents have also co-benefited from an overall traffic increase made at the expense of other modes. Finally, for some railway undertakings investing into new rolling stock is part of their business strategy (Italo high-speed trains for NTV and the new trains of Leo Express and Westbahn), while others have opted for second-hand rolling stock (RegioJet and the niche operators).

It is interesting to compare the Madrid-Barcelona (no competition) and Rome-Milan (competition) routes, which cover the same distance in countries with similar GDP per inhabitants: while the latter has doubled the number of trains and reduced the prices, the service characteristics of the former have not significantly changed. The business and leisure fares per km were found to be half the price between Rome and Milan than between Madrid and Barcelona (cf. table 5h of Annex 3).

However, competition is slow to expand and in some cases remains unsustainable in the long-term. Although there is formal open access in Italy since and 2001, NTV was launched in 2006 and started its operations only in 2012. In Germany open access has been liberalised since 1994, but there are just a few niche operators operating and no competition on the German trunk network Munich-Frankfurt-Köln-Hamburg/Berlin. Finally, competition in the market is not always successful: SJ, the Swedish incumbent, abandoned the route Malmö-Goteborg after the entry of a competitor and pulled out of the Copenhagen-Odense route in Denmark, and it would appear that some open access railway undertakings would operate at loss in UK.[48]

Graph 9 – Trend in DB rail fares



Source: Appendix K "Country fishes" of the IA support study.

45 After NTV entered the high-speed trunk Rome-Milan route, traffic increased by 28% (80% of this increase was captured by the incumbent), prices decreased on average 30%, yield management was also introduced by the incumbent. In Austria, ÖBB has almost not lost market share on the Vienna-Salzburg market.

46 NTV proposes business facilities, cinema wagons, high-quality catering and wi-fi

47 In the UK, the majority of revenues of open access operators come from inter-available tickets, the price of which is set by the PSC operator with which they compete.

48 IA support study quotes that the UK department for Transport would have stated that the published accounts of both Hull Trains and Grand Central would operate at loss , UK Country fiche, p.26

Major air routes in EU remain domestic and are almost all exposed to (high-speed) rail competition – except for the busy routes between mainland Spain and Balearics and Canary Islands. However, except for the Rome-Milan route, there is no intra-rail competition. At the same time, there are for instance in parallel 3 airlines on the Madrid-Barcelona route. As a result, rail fares on those lines are very likely to position themselves vis-à-vis air fares or cars rather than to reflect the actual costs of operation within the dynamics of intra-modal competition[49].

Table 4 – Air-rail competition versus rail-rail competition in the main intra-EU air routes[50]

Rank	Air route	Pass.	Train	Rail status	RU	Nat airl	Other airl
1	Madrid-Barcelona	3.1	Yes	Exclusive right	RENFE	IB, UX, VY	
2	Paris-Toulouse	2.1	Yes	Exclusive right	SNCF	AF	U2
3	Paris-Nice	2.1	Yes	Exclusive right	SNCF	AF	U2
5	Hamburg-Munich	1.7	Yes	Open access	DB	LH, AB	
7	Frankfurt-Berlin	1.7	Yes	Open access	DB	LH, AB	
8	Munich-Berlin	1.6	Yes	Open access	DB	LH, AB	
10	Dusseldorf-Munich	1.5	Yes	Open access	DB	LH, AB	
12	***Rome-Milan***	***1.5***	***Yes***	***Open access***	***FS, NTV***	***AZ***	***FR, U2***
14	Frankfurt-Hamburg	1.4	Yes	Open access	DB	LH	
16	London-Amsterdam	1.3	Yes	Open access	*	BA, KL, U2	
18	London-Paris	1.3	Yes	Open access	Eurostar	AF, BA	
19	Madrid-Rome	1.3	No-too long	-	-	AZ, IB, UX, VY	FR, U2
20	London-Frankfurt	1.3	Yes	Open access	**	BA, LH	

Source: Eurostat; own research, AB=air Berlin, AF=Air France, AZ=Alitalia, BA= British Airways, FR=Ryanair, IB=Iberia, KL=KLM, U2= Easyjet, UX=Air Europa, VY=Vueling, *=Eurostar intends to enter this market, **= DB a,d Eurostar intend to enter this market

Furthermore, in the quasi-liberalised Member States (Bulgaria, Denmark, Estonia, Latvia, Lithuania, Poland, Romania and Slovakia), "open access" has co-existed in parallel with a subsidised service under a directly awarded PSO[51], most likely deterring potential new entrants. The only country with open access entry has been Denmark, where SJ, the Swedish incumbent abandoned its intercity services between Copenhagen and Odense, the third largest city in Denmark,

Competition for the market

Competition *for* the market is in general more suited for regional and suburban services, which are mostly exclusively run through PSCs and represent half of all rail passenger-kilometres in the EU (box 1).Two-thirds of all passenger-kilometres in the EU are operated in PSCs as several Member States cover their entire network under PSO and therefore also cover long-distance services under PSOs (e.g. UK, Belgium and Netherlands - cf. graph 4).

The intensity of competition in competition for the market depends on whether the contracts are awarded directly or via competitive tendering. So far competitive tendering is fully or partially used in 11 Member States, while in 16 contracts are directly awarded (although in Bulgaria, Estonia, Latvia, Lithuania and Slovakia, this results from failed tenders). Furthermore, even if competitive tendering is de jure a requirement, effectiveness of tender depends notably on the number of bidders

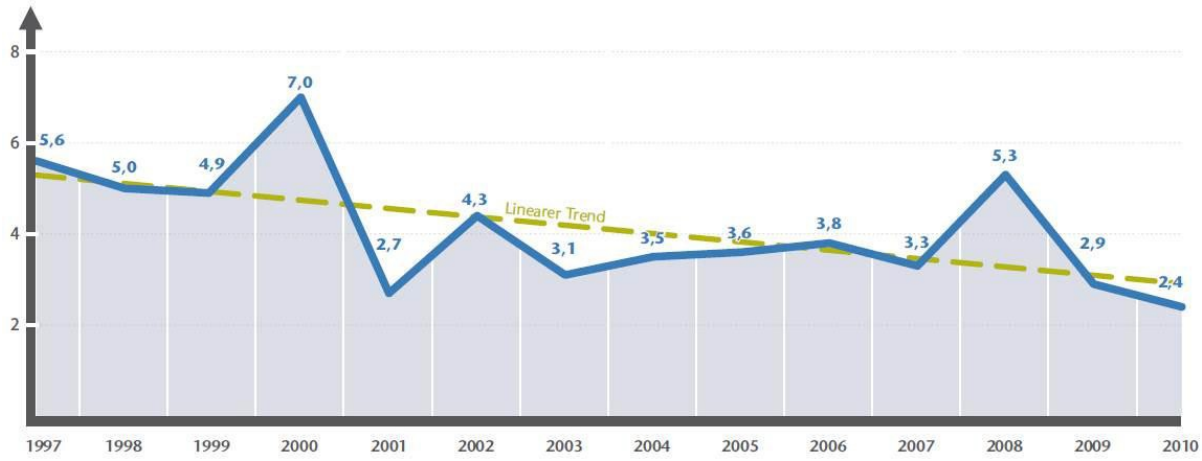
[49] In the Rome-Milan line, NTV has been applying fares up to 70% below those of the incumbent Trenitalia (source: Steer Davies Gleave), this represents probably as wide a variation as all the fares of the competing airlines in that route (Alitalia, Ryanair)

[50] The main intra-EU air routes, except those between UK and Ireland and mainland Spain and Italy and Baleares, Sicily and Canary Islands; the rank reflects the overall rank among EU intra-air routes

[51] In Bulgaria, Latvia, Lithuania and Slovakia, direct award was necessary because of unsuccessful tenders. The same has happened in Polish regions, although one of the problems there has been the very short deadlines to tender

for each PSC[52]. However, the number of bidders remains low in most Member States, except maybe in the UK[53]. In Sweden and Germany, two fully or partially liberalised railway markets[54], 2 to 3 bids were typical[55] and in Italy only 1 or 2 bids[56]. There are several examples of tenders that have not been able to attract a single bidder (not even from the incumbent railway undertaking), in particular in the new EU10 quasi-liberalised Member States (e.g. Bulgaria, Lithuania, Latvia, Slovakia, Poland). This means that despite the efforts and costs to organise tenders PSCs are actually directly awarded to the incumbent or its historical successor (Poland).

Graph 10 – Number of bidders in Germany in PSC tenders (1997-2010)[57]



Source: IA support study quoting Holzhey, M., Berschin, F., Kühl, I. and Naumann, R. (2011) Wettbewerber-Report Eisenbahn 2010/2011 quoted in Appendix K of the IA support study.

Finally, the benchmarking exercises have shown that the Member States with fully liberalised rail market and thus highest level of competition (UK and Sweden) have improved performance across the board (cf. tables 2b and 2d). At the same time, many railway systems run as legal monopolies, also perform well in many aspects, but each of them seems to have certain "weak points". For instance productivity of labour in Belgium and Austria is low, usage of public funds in France is high and there seems to be service undersupply in Spain. It indicates that quality improvements in non-liberalised markets have been achieved with higher price than that in liberalised markets.

3.3.2. National approaches to liberalisation prevent the emergence of a genuine Single Market for rail passenger services

As said above, more and more Member States take measures aimed at revitalising their domestic rail passenger sectors through liberalisation. The Bundesgerichtshof has recently stated that public service contracts must be awarded through competitive tendering, whereas Finland, Austria and Czech Republic, Spain are now considering legislation to open or extend the opening of their railway markets to competition (Sweden has just withdrawn the exclusive rights of SJ on long

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52 Other parameters intervene such as the risk and the incentives in the contract. In "Net cost contracts", the risk is take by the railway undertaking, whereas in "Gross cost contracts" all risks belong to public authorities.

53 In the UK, according to the Department for Transport, franchises attract 7-8 bidders, out of which 4-5 are pre-qualified. Most bidders are either bus groups or incumbents, mostly from other EU Member States, whereas, for instance, procurement procedures in the EU public procurement market attract 5 bidders on average.

54 In the meaning that they have been opened for competition for more than 20 years

55 In Germany, it would appear that market maturation and greater experience have played a role, but also integrated franchises[55] and technical barriers (cf. Annex 6, KCW (2011)).

56 In Italy, in the 3 tenders that were organised, the one in Veneto only attracted 1 bidder (in spite of 3 invitations to tender sent to firms), while the tenders in Lombardy and Liguria attracted 2 bidders (in spite of respectively 8 and 5 invitations to tender sent to firms).

57 Holzhey, M., Berschin, F., Kühl, I. and Naumann, R. (2011) Wettbewerber-Report Eisenbahn 2010/2011.

distance lines). However, in the absence of a common approach at EU level, a patchwork of national models has emerged, which, according to stakeholders, prevents the emergence of the Single European Railway Area.

Given the high entry costs, foreign rail operators (including foreign incumbents), rather than 'green field' new entrants, are the actual source for intra-modal competition in railways, being able to create critical mass to challenge national incumbents. However, currently rules for making business vary significantly between Member States. For instance, PSCs may be awarded for entire networks or for small bundles of lines and bidding procedures vary. In the same manner, railway undertakings may enjoy full open access rights in some Member States while in others such rights are subject to the economic equilibrium of PSCs (e.g. Italy) or depend on the existence of reciprocity (Italy, Luxembourg). In several Member States there are services under legal monopoly (long-distance services in France, Spain, Portugal and most of Finland).

Because of these diverging approaches, it is difficult for railway undertakings to develop consistent business strategies throughout the EU, as low-cost airlines have been for instance able to do, and to create critical mass to challenge the national incumbents. Only 5 incumbents have developed activities in other Member States and only one of the UK franchise operators is actively present in the continent. In an interview and during the stakeholder conference of the 24th September 2012, a UK-based railway group explained that it would be more likely to bid overseas if the EU had a more consistent approach on market access rules.

This patchwork situation acts as a drag on the creation of innovative industrial and business structures for a better exploitation of economies of scope and scale, while enforcing on operators the business logic based on national rather than EU dimension.

3.4. Root Causes

These two problem drivers – low competitive pressure and patchwork of access rules, that prevents the emergence of more efficient Single Market for passenger rail services – are the result of interplay between several root causes.

3.4.1. Access to national rail markets is restricted

As indicated above, except in few Member States, domestic rail passenger transport remains in many Member States closed to competition.

3.4.1.1. – Local access rules on domestic rail passenger markets

(a) Establishment

Except for the opportunity for cabotage within the international passenger services, EU railway undertakings do not have the freedom to provide passenger rail services in the domestic markets of other Member States under EU law. In at least 9 Member States (Spain, France, Belgium, Portugal, Luxembourg, Finland, Hungary[58], Slovenia and Greece), the incumbent appears to still enjoy a legal monopoly for the provision of domestic passenger services laid down in the national legislation.

In most Member States, access to the domestic passenger market is subject to specific conditions, such as establishment in that Member State (the exceptions are Bulgaria, Denmark, Latvia, Slovakia, Sweden and the UK are the only exceptions – the situation appears to be unclear in Finland, Spain, Portugal and Poland). In this case, foreign railway undertakings face entry barriers compared to national operators as they must first set up a subsidiary in the host Member State. Italy and Luxembourg moreover apply reciprocity clauses against companies originating in Member States that have not opened their own domestic passenger market.

[58] In the case of Hungary, there are 2 historic operators: MAV and GYSEV

BOX 5 - ECONOMIC EQUILIBRIUM OF PSCs

The question of the economic equilibrium of PSC first arose in the context of the 3rd Railway Package and the opening of domestic cabotage in international services. Article 10 (3) (b) of Directive 2007/58/EC foresees that Member States may limit cabotage if it compromises the economic equilibrium of PSCs.

The question of the economic equilibrium of PSC was further clarified in the Interpretative communication on certain provisions of Directive 2007/58/EC. The interpretative communication[59] indicated that the assessment should be made transparently and on a non-discriminatory basis, based on economic analysis and it should determine how far the PSC is impaired.

The recast of the 1st Railway Package foresees that implementing measures should lay down the details of the procedure to assess whether the economic equilibrium is compromised.

The competition between RegioJet and the Czech incumbent České Drahy (ČD) provides a good example of the problems of economic equilibrium of PSCs. Both compete on the Prague-Ostrava line with ČD apparently calling at some stations under the terms of its directly awarded PSC. Nonstop intercity trains are not covered by PSCs. According to ČD, the price reduction against RegioJet would have resulted in an increase of losses from 15 to 40 million EUR. In parallel, at the time of writing, RegioJet has complained to the Czech competition authority that ČD has abused its dominant position to undercut its competitor by lowering prices on the Prague-Ostrava route while increasing prices in others[60]. The Czech competition authority has launched administrative proceedings and ČD risks a fine of up 10% of its revenues. ČD argues that similar commercial offers were available in other routes that are not subject to competition.

3.4.1.2 – Legal monopolies

In Finland, France, Portugal and Spain, national incumbents enjoy exclusive rights on 17% of EU passenger-km that cover routes that fall outside public service obligations, as, for instance, AVE and TGV lines (e.g. Paris-Lyon, Paris-Bordeaux, Madrid-Sevilla and Madrid-Barcelona) and the intercity services in Portugal and Finland (cf. table5). In those circumstances, it is not possible to develop any competition for railway services, which could result in underutilising of infrastructures, as monopolists tend generally to undersupply[61].

[59] OJ C 353/01 28.12.2010, available at: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:353:0001:0006:EN:PDF

[60] Source; Steer Davies Gleave (Czech Republic country fiche) and interviews with CER

[61] cf Annex 3 Table 9 comparing the usage of the high-speed lines in France, Spain and Germany with the Italian Rome-Milan line, which is used almost twice as much.

Table 5 – Main lines falling under legal monopolies

Finland	France	Portugal	Spain
High-speed (Pendular)	**High-speed (TGV)**	**High-speed (Pendular)**	**High-speed (AVE)**
Helsinki–Oulu	Paris-Bordeaux	Alfa Pendular Lisbon-Porto	Madrid-Cordoba-Sevilla
Helsinki–Turku	Paris-Lille		Madrid-Barcelona
Helsinki–Joensuu	Paris-Lyon-Marseille		Madrid-Valencia
Helsinki–Jyväskylä–Kuopio	Paris-Strasbourg		Madrid-Cordoba-Malaga
			Madrid-Zaragoza-Barcelona
			Madrid-Valladolid
Intercity	**Intercity (Corail, Lunéa, Téoz)**	**Intercity**	
Helsinki–Tampere–Oulu–Rovaniemi	Paris-Nice	Lisbon–Coimbra–Porto–Guimarães	
Helsinki–Turku	Paris-Toulouse	Lisbon–Coimbra–Guarda	
Helsinki–Iisalmi	Paris-Clermont-Ferrand	Lisbon–C.Branco–Covilhã	
Helsinki–Joensuu		Lisbon–Faro	
		Lisbon-Évora	

3.4.2. Obstacles to an effective 'regulated competition' for PSCs

3.4.2.1 - Direct award of Public Service Contracts

While PSCs remain essential part of rail passenger services, this section discusses the relevance of competition in awarding PSCs (e.g. competition *for* the market)). While some Member States have already introduced competitive tendering for PSCs, in other Member States the domestic urban, suburban and regional services, and often also inter-city services, are provided on the basis of a directly awarded PSC. In small-sized Member States like Belgium, Denmark, Estonia, Hungary, Ireland, Netherlands, Greece and Slovakia, the whole network is covered by a single PSC which is directly awarded.

Although Regulation 1370/2007 on public passenger transport services recognised that, *with appropriate safeguards, the introduction of regulated competition between operators leads to more attractive and innovative services at lower cost and is not likely to obstruct the performance of the specific tasks assigned to public service operators*, it excludes the rail sector from the obligation to award PSCs through an open tendering procedure.

As a result:

– 42% of all the EU p-km are not accessible to other railway undertakings than the national incumbent.

– The long-distance services of small-sized Member States Like Belgium, Hungary, Netherlands are not accessible to other railway undertakings, but the incumbent

– The regional services of many important EU regions (e.g. Ile-de-France) are not accessible to other railway undertakings, except the incumbent (cf. table 6a)

– The suburban services of all EU main cities, but Berlin and London are not accessible to other railway undertakings, but the incumbent (cf. table 6b)

At the same time introduction of competitive tendering has resulted in significant savings of 20% to 30% for PSC contracts in Germany, Sweden and Netherlands (cf. box 7)

60% of stakeholders agreed that further market integration of the rail sector should be progressed by opening of domestic passenger service through compulsory competitive tendering of PSCs. Some railway undertakings disagreed indicating that only the availability of state funding to the railway system as a whole would provide for the success of tenders. Passenger transport authorities reported that administrative costs would increase and therefore competitive tendering should only take place if there was the assurance that it would deliver best value for money

Table 6a – Intercity services under PSOs – type of award

Intercity services	Type of award
UK	
London-Birmingham-Manchester	Tender of franchise
London-Newcastle-Edimburgh	Tender of franchise
Netherlands	
Amsterdam-Utrecht-Eindhiven-Maastricht	Direct award of national PSC
Rotterdam-Utrecht-Groningen	Direct award of national PSC
Amsterdam-Rotterdam	Direct award of national PSC
Belgium	
Oostende-Gent-Brussels-Liège	Direct award of national PSC
Denmark	
Copenhagen-Odense-Aarhus-Aalborg	
Estonia	
Tallinn-Tartu	Direct award of national PSC
Greece	
Athens-Thessaloniki	Direct award of national PSC
Hungary	
Budapest – Miskolc–Tiszai–Debrecen–Budapest	Direct award of national PSC
Ireland	
Dublin-Cork	Direct award of national PSC
Dublin-Limerick	Direct award of national PSC
Slovakia	
Bratislava-Kosice	Direct award of national PSC

Table 6b – Regional services Main EU regions – type of award

Nordrhein-Westfalen	***17,996,621***	***Mix Direct Award/Tenders***	***DB Regio, misc.***
Bayern	***12,520,332***	***Mix Direct Award/Tenders***	***DB Regio, misc.***
Île de France	*11,659,260*	*Direct award*	*SNCF*
Baden-Württemberg	***10,749,755***	***Mix Direct Award/Tenders***	***DB Regio, misc.***
Bassin Parisien	*10,707,873*	*Direct award*	*SNCF*
Lombardia	***9,642,406***	***Mix Direct Award/Tenders***	***FS/LeNord***
South East (UK)	***8,332,013***	***Competitive tendering***	***Misc.***
Andalucía	*8,046,131*	*Direct award*	*RENFE*
Niedersachsen	***7,971,684***	***Mix Direct Award/Tenders***	***DB Regio, misc.***
London	***7,635,284***	***Competitive tendering***	***Misc.***
Cataluña	*7,238,051*	*Direct award*	*RENFE, FGC*
Comunidad de Madrid	*6,189,297*	*Direct award*	*RENFE*
Vlaams Gewest	*6,161,600*	*Direct award*	*SNCB-NMBS*
Rhône-Alpes	*6,117,229*	*Direct award*	*SNCF*
Hessen	***6,072,555***	***Mix Direct Award/Tenders***	***Misc.***
Campania	*5,811,390*	*Direct award*	*FS,-TI, SEPSA, Circumv*
Lazio (NUTS 2006)	*5,561,017*	*Direct award*	*FS-TI*
West Midlands (UK)	***5,393,394***	***Competitive tendering***	***Misc.***
Yorkshire and The Hum	***5,199,613***	***Competitive tendering***	***Misc.***
South West (UK)	***5,194,435***	***Competitive tendering***	***Misc.***
Mazowieckie	*5,188,488*	*In-house*	*Koleje Mazowiecke*
Scotland	***5,156,298***	***Competitive tendering***	***ScotRail***
Sicilia	*5,029,683*	*Direct award*	*FS-TI*
Comunidad Valenciana	*4,892,475*	*Direct award*	*RENFE, FGV*

3.4.2.2 – Difficulty to verify the absence of a manifest error for Public Service Obligations

The TFEU - including Protocol N°26 on Services of General Interest - gives Member States a wide margin of discretion in providing, commissioning and organising services of general economic interest. The Union's competence in this respect is limited to checking whether the Member State has made a manifest error when defining the service as public service obligation and to assessing any State aid involved in the compensation.[62] National competent authorities have core competence in defining PSO (i.e. identifying areas where it is necessary to impose PSO for passenger transport) and establishing the necessary service conditions (e.g. fares and frequencies).

As shown in graphs 4 to 6, the scope of PSOs varies from Member State to Member State. In Finland, it appears to cover only 14% of all p-km, whereas in 16 Member States, it covers more than 80% of p-km. In some countries, PSO covers the whole territory, most likely including services that could be profitable on their own but which could have been included in PSO definition in order to contribute to financial sustainability of remaining unprofitable parts of the network.

However, in this context, there is a risk that PSO definition could lead in some cases to an excessively wide scope of the definition of PSO with the consequence of market foreclosure. In the current situation, the EU lacks a control mechanism to verify the absence of a manifest error in the definition of PSOs. At the same time any EU control mechanism should respect the core competences of national authorities in identifying areas for PSO for passenger transport.

3.4.2.3 - The size of Public Service Contracts can be too large for other bidders beyond the incumbent

In Member States like Austria, Italy[63], Netherlands or Germany[64], the whole domestic passenger network is covered by a single or several voluminous PSCs (instead of several medium-sized bundles), which have been awarded through competitive tendering, but whose operational requirements (rolling stock, staff) are so extensive[65] that only the incumbent, which has actually access to rolling stock and other recourses, can obtain the contract, thus leading to a de facto monopoly.

For instance, the railway incumbent in Germany has successfully won in 58% of all tenders between 2006 and 2010 (with all access to rolling stock being a decisive factor). In particular, all contracts larger than 5.3 million train-km[66], were awarded directly to the incumbent[67]. Yet small entrants have been able to win 65% of small contracts. This is indicative of another current obstacle for new entrants to compete on large contracts. It is inter alia related to the question of availability of rolling stock as discussed below.

3.4.3. Market distortions hurting potential new entrants

The stakeholder consultation and the in-depth analysis undertaken by the Commission has identified a series of factors creating an uneven level playing field between the different service providers in

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62 Case T-289/03 BUPA and Others v Commission [2008] ECR II-81, paragraphs 166-169 and 172; Case T-17/02 Fred Olsen [2005] ECR II-2031, paragraph 216.

63 The Italian competition authority criticised the bundling of all lines in Liguria

64 In Germany, several PSCs have covered huge train-km sizes (a contract of some 99 million train-km was awarded in 2003). In recent years, the trend of the size of the PSC has quite decreased, with much networks below 1 million train-km (cf. Annex 8)

65 More information on the size of bundles is provided in Annex 8 – in the Netherlands 95% of all passenger-kilometres are covered by a single PSC (in the Ranstad) and in Germany in 2003 a PSC was awarded in Bavrai for 98 million train-km, i.e. as much as the whole networks of Austria or Hungary.

66 This figure is comparable to Lithuania's current passenger train-km.

67 Source: SDG, 2012

(partially) liberalised markets, thereby hampering the expansion of new entrants. While market distortions in terms of different access barriers were mentioned in consultation responses from new entrants, passenger associations and passenger transport authorities, many holding groups responding to the stakeholder consultation disagreed with discriminatory framework conditions.

Many sources of discriminations against new entrants have been identified, such as access to infrastructure, stations, key rail related services (like information display, marshalling yards shunting facilities) and maintenance services, ticketing systems and rolling stock availability. Many of those have been/will be dealt with in other legislations/proposals. The question of access to infrastructure is being dealt in the context of the initiative on the governance of infrastructure (cf. Annex 1), whereas the question of the non-discriminatory access to ticketing facilities in stations, travel information display, marshalling yards, shunting and maintenance services has been dealt with in the Recast of the 1st Package.

The core factors leading to uneven level playing field are: the discriminations in the access to ticket distribution systems and the access to rolling stock.

3.4.3.1 – Discriminations in the access to ticket distribution systems

Conceptually a distinction be made between services under PSC and open access services. In the case of PSC non-discriminatory access to integrated ticketing schemes is less of an issue, as the competent authorities decide about the existence of such schemes and their conditions of access. However, it may be interesting to establish ticket integration between services of different PSCs.

For open access services, access to ticketing is more of a problem if the new entrant wants to offer through-tickets and inter-available tickets. Therefore, the new entrants often face problems with the access to integrated ticketing systems, in particular when these are run nationwide through a *de facto* mandatory single system by incumbents[68]. This is the case in Germany, Denmark, Romania, Slovenia, Slovakia and the Czech Republic. 55% of stakeholders consulted agreed that it was necessary to improve non-discriminatory access to rail-related services, such as ticketing and information systems. For instance, according to an interviewed new entrant, the incumbent in one Member State takes a commission of 14% on all ticket sales, which are reimbursed to new entrants up to 2 years later (whereas in the UK, the payment is organised by ATOC, the association of train operating companies which reimburses operators within 8 days with a 1.5% commission). In the Czech Republic, although national law foresees through ticketing, the new entrant is required to pay a 25% commission on all through-tickets. There is no evidence of problems in the remaining aforementioned Member States, as there are no new entrants in open access in Denmark, Romania, Slovenia and Slovakia. However, as far as competition in international services is concerned, although DSB has the obligation in Denmark to sell tickets, the incumbent refused to sell tickets for competing services across the Oresund Bridge from Copenhagen.

At the same time, if every operator were running a different ticketing system, this would be to the detriment of the service offer from the passengers' view-point, fragmenting the service offer and diverting costs away from improvements in service towards covering commission in ticket sales.

3.4.3.2 - Problems of access to rolling stock

Competition *in* and *for* the market is often further complicated by limited access to rolling stock that is linked to investment costs, financial risks related to its long economic life and the time needed for its acquisition and homologation. In addition, much rolling stock is adapted to the particular

[68] Passenger authorities in Germany have reported that by requiring in their tenders to integrate with the main network of the incumbent (as there is no other railway undertaking in the long-distance lines), they involuntarily force railway undertakings to go through the incumbent ticketing clearing system

technical conditions or commercial needs of specific routes or networks[69]. 61% of respondents to the stakeholder consultation agreed that access to rolling stock was an access barrier for railway undertakings.

Access to rolling stock appears to be a serious problem in Germany, France, Italy, Greece, Portugal, Spain and the majority of EU-10 Member States that joined the EU in 2004 and 2007. In at least 8 Member States[70], ownership of rolling stock continues to be dominated by incumbent railway undertakings, which are unable or unwilling to make it available on commercially attractive terms to new market entrants. In Germany and Austria, it appears that the incumbent scraps rolling stock rather than putting it for sale[71]and second hand stock offered for sale typically does not meet the requirements of PSCs. In Italy, PSC tenders have been hampered due to problems of access to rolling stock by new entrants (as well as for the related requirements within these tenders[72]). Finally, in some small Member States, the pool of rolling stock is limited. Just to operate a typical suburban service, a new entrant could need up to 8% of the domestic rolling stock[73].

Emergence of rolling stock market is linked to liberalisation of services and harmonisation of technical standards. As it stands, leasing market is still immature as only 10% of passenger rolling stock is leased[74]. The short lifespan of some PSCs (10-15 years) compared to the longer operating life of rolling stock (30-35 years) discourages new entrants competing for the tender to invest into new rolling stock. In addition, new entrants do not have the bargaining power of incumbents that can place mega-orders[75].

The Member States with liberalised markets have already taken measures to ease the access to rolling stock. In Sweden and the UK, public authorities own rolling stock that they procure on behalf of railway undertakings, enjoying also economies of scale from increased bargaining power[76]. In the UK, rolling stock companies have been set up (the so-called ROSCOs), but also in non-liberalised Spain, it appears that the surplus rolling stock of the incumbent (RENFE) would be transferred to a new body with the view to facilitate the access to rolling stock by new entrants.

3.5. Who is affected in what way?

The problems described above and the measures to be proposed to address them will affect a large number of actors in the rail market and beyond. They affect primarily railway undertakings that either gain or lose business opportunities. They will also affect rail passengers who are likely to face a different offer of services, the railway manufacturing industry that will face a broader spectrum of customers and the workers of railway undertakings whose working conditions could be

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69 There are varying gauges and electric current used throughout the EU. For instance, gauge is 166mm (Spain and Portugal), 1520 mm (Lithuania, Latvia and Estonia), 1524 mm (Finland) whereas most of the EU is at 1435 mm.

70 Bulgaria, France Ireland, Portugal, Romania, Finland, Spain and Hungary; Source: Steer Davies Gleave

71 In Austria, new entrants have complained to the regulator, the Schienen Control, about this practice, which appears to take place also in Germany (source: Steer Davies Gleave).

72 The Italian Competition Authority recommended that adequate time should be conceded for bidders for public service contracts in order to procure rolling stock

73 Cf. table 17 in Annex 8, simulation of the rolling stock needed for a suburban line with 2.5 train-km/year compared to the rolling stock in Greece, Portugal, Finland and Ireland.

74 EPTTOLA, European Passenger Train and Traction Operating Lessors' Association (EPTTOLA) claims that its members own 12.350 passenger vehicles. EPTTOLA regroups the 7 largest lessors of rolling stock, including the UK ROSCOs.

75 Examples: SNCB-NMBS ordered 95 EMU trains with 200 options for 1.5 billion EUR, the DB Regio-Bombardier framework contract for 200 locomotives for 600 million EUR and the SNCF contract with the Alstom-Bombardier for 210 double-decker commuter trains for 1 billion EUR.

76 The UK DfT purchased some 500 carriages from Hitachi for 4.5 billion GBP for all intercity trains; Transitio AB procures rolling stock on behalf of all Swedish passenger transport authorities

altered. More fundamentally, these measures will also affect the way public authorities – both at national and regional level –interact with railway undertakings and finance rail services.

3.6. How would the problem evolve?

The Commission has carried out an analysis of possible future developments in a scenario at unchanged policies, the so-called baseline scenario. The existing regulatory situation for the different aspects is summarised in the table below.

Issue	Assumption
Background	First Package Recast and other relevant legislation
Competitive tendering	Regulation 1370/2007, in which Competent Authorities may award PSCs directly or through a competitive tendering process
Open access	No domestic open access right provided under EU law, de jure monopolies can be retained
Rolling stock	No specific EU requirement
Ticketing	Implementation of the passenger rights Regulation and Recast Directive which envisage that: • Railway Undertakings and ticket vendors shall offer, where available, tickets, through tickets and reservations • Operators of ticketing services are not obliged to supply their services to all railway undertakings but when they decide to offer them to others, they shall supply them to Railway Undertakings on a non-discriminatory manner

The baseline scenario also assumes growth in demand in passenger markets in line with the projections of the Impact Assessment accompanying the 2011 White Paper. Based on these projections, the demand for rail services is expected to grow considerably in the coming years (1.8-1.9% for urban transport, 2.0-2.1% for long distance/medium rail services and 2.9%-3.1% for high-speed and international services), in particular because of increases in oil prices and congestion. In addition, whereas incumbent share in most Member States is currently 90-100%, the baseline assumes that, in the long distance and high speed markets, new open access operators will continue to increase their market share in Austria, the Czech Republic, Italy and Sweden, even in the absence of further liberalisation measures. In other markets, it is assumed that existing market shares will continue. At the same time, the variance of several efficiency ratios is likely to continue growing.

Table 4- Baseline growth in demand

Mode	Segment	2009-2010	2011-2015	2016-2020	2021-2025	2025-2035
Rail	Urban and suburban	0.9%	2.1%	1.9%	1.8%	
	Medium and regional	0.8%	1.9%	2.0%	2.1%	
	Long distance					
	High speed	2.1%	2.1%	2.9%	3.1%	
	International					
Road	All	0.7%	1.6%	1.1%	0.8%	
Air	All	1.3%	4%	3.5%	2.8%	
Inland waterways	All	0%	0%	0%	0%	

Competitive pressures

Directive 2007/58/EC on market opening for international services has already had a small impact on the opening of domestic passenger rail services through cabotage. In addition, some Member States have decided to open their domestic rail passenger services market independently of EU decisions (e.g. Germany, Sweden), and it cannot be excluded that other Member States also introduce such measures (e.g. Spain and Finland are already considering taking measures). Member States which have already opened their domestic passenger services market but that impose restrictive conditions may also decide to remove such restrictions.

The expected growth in demand for passenger services is likely to create more pressure for the improvement of rail services and operational efficiency, precisely at a time when most Member States are undergoing a period of constrained spending.

However, if no changes are brought at the EU level to the current restrictions in access to market, some *de jure* national monopolies will continue to exist, preventing the development of competition in railways. In these conditions, it will be impossible to operate within a Single European Railway Area, even more so as foreign railway undertakings will still need to establish themselves in other Member States to access their markets. Also some Member States will maintain their reciprocity clauses, thus leading some railway undertakings not to benefit from market opening outside their own Member State borders, until the Member State from which they originate accepts to withdraw its monopoly on the domestic market. Finally, the development of rail services throughout the EU will be impaired by the variety of assessments of the frictions between PSCs and open access operations.

Some Member States have decided to tender the PSCs competitively despite this not being called for through EU legislation and to actually publish calls for tender in the *EU Official Journal* (as many German and Swedish transport authorities already do), and it cannot be excluded that other Member States also introduce such measures (as the recent decision by the Bundesgerichtshof to make competitive tendering of public service contracts mandatory). However, without the introduction of an explicit requirement, it is not expected that all Member States will do so, and nothing prevents those Member States from backtracking.

If no changes are made to the current system of direct awards, several national incumbent railway undertakings will continue to operate exclusively all PSCs. This would maintain the low level of competition and limit the market share of new entrants.. Moreover, those Member States that organise competitive tendering for whole regions or countries with high volumes of train-km will not attract railway undertakings other than the national incumbent itself. As a result, the efficiency of railways and the level of service will most likely not improve.

Finally, in parallel, low-cost airlines and bus coach operators will continue to expand their services, further grabbing modal share from inert railway undertakings. In Germany, the federal government submitted a bill in December 2011 envisaging the liberalisation of the long-distance coach market.

Market distortions

Ticketing

If substantial changes are not introduced to prevent discriminatory measures against new entrants in ticketing systems (including their clearing mechanisms), the latter will continue to be discouraged to enter new markets, at least there where integrated ticketing schemes run by the incumbent exist, further decreasing competitive pressure and therefore giving few incentives to improve the efficiency and the quality of railway systems. If they do enter the markets, the new entrants will be discouraged from offering through-ticketing, reducing the overall attractiveness of rail compared to other modes. However, in the long run, it cannot be excluded that the development of interoperability and technical through-ticketing solutions in domestic rail through the implementation of the Technical Specification for Interoperability "Telematic Application for Passenger transport" (TAP TSI[77]) ultimately provides technical solutions which will facilitate non-discriminatory access to ticketing systems in domestic rail services, although this is not a primary purpose of this measure.

Finally, the European Court of Justice will provide an interpretation of Article 8(2) of the Rail Passenger Rights Regulation 1371/2007 to determine whether real-time timetable information made available by infrastructure managers should be made available or not to all operators, including new entrants.

Rolling stock

It can be anticipated over time that market consolidation and market changes induced by the implementation of TSIs will reduce the number of vehicle types on the market, and reduce the technical obstacles to running on particular networks. Hence the pool of vehicles of each type should increase. This will have beneficial impacts on the availability of 2nd hand rolling stock markets and vehicle leasing markets. While rolling stock leasing companies are already developing their activities throughout Europe, there are no guarantees whether they will reach in all Member States. In particular, the development of leasing companies could be complicated in national stand-alone or almost stand-alone railway networks such as in Finland, Ireland, Lithuania, Latvia, Estonia, and Greece.

Member States may also undertake national measures to ease the access to rolling stock (like has happened in UK and Sweden) or should be encouraged to do this. The ERA initiative will also help to solve this problem (cf. Annex 1).

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77 Commission Regulation 454/2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services' (TAP TSI) of the trans-European rail system has not yet fully covered the development of applications for inter-availability of tickets or through-ticketing at domestic level. (it remains an open point) In addition, a Commission Decision will be adopted that will determine the timing of measures that railway undertakings have to implement in order to set up rail information and reservations systems based on TSI TAP pursuant to Art 10 of Regulation 1371/2007.

However, if no further changes are brought to ease access to rolling stock for new entrant, the latter will in many Member State continue to be de facto prevented from entering into new markets, keeping the competitive pressures low and therefore giving few incentives to improve the efficiency and the quality of railway systems.

Conclusion

Some Member States may be prompted to add competitive pressure in rail to improve its efficiency. Yet, by taking purely national measures, Member States will maintain a great variety of legal regimes preventing the emergence of true (cross-border) competition for PSCs or a real access to their domestic passenger markets.

Some Member States may for other reasons opt to keep their markets "partially or non-liberalised" which overall seems to slow down quality and efficiency improvements. As a result, competition in railways will continue to evolve at the fringe and the Single European Railway Area will remain incomplete.

3.7. Subsidiarity

3.7.1. Legal base

Articles 90 and 91 of the Treaty extend to railways the objectives of the Treaty in terms of competition and creation of a genuine internal market in the context of an EU Common Transport Policy. Pursuant to Articles 90 and 91 TFEU, the Common Transport Policy should contribute to the broader objectives of the treaties. The goal of the Common Transport Policy is to remove obstacles at the borders between Member States so as to facilitate the free movement of persons and goods. To this end, the prime objectives of the initiative are amongst others to complete the internal market for transport. In addition, Article 56 of the Treaty refers to the freedom to provide cross border services which is central to the effective functioning of the EU Internal Market. This is fully applicable to transport as recognised in Article 58 TFEU.

As far as PSOs are concerned, Article 14 of the Treaty confirms the place occupied by services of general economic interest in the shared values of the Union. The competence of the EU in this field is limited by Protocol n°26 to the TFEU to checking whether the Member State has made a manifest error when defining the service as public service obligation and to assessing any State aid involved in the compensation. Article 106(2) of the Treaty lays down that undertakings entrusted with the operation of services of general economic interest are subject to the rules contained in the Treaty, in particular to the rules on competition, in so far as the application of such rules does not obstruct the performance, in law or in fact, of the particular tasks assigned to them.

According to Article 4 of the TFEU, EU action on common transport policy has to be justified and the subsidiarity principle set out in Article 5(3) of the Treaty on the European Union must be respected. This involves assessing two aspects.

BOX 5 – SUBSIDIARITY IN AIR TRANSPORT, URBAN TRANSPORT AND PUBLIC PROCUREMENT

By analogy, the question of subsidiarity can be approached through the freedom to provide domestic air transport services in the whole internal market, competitive tendering for urban transport and public procurement policy.

Today, thanks to the opening of the domestic air transport market, several low-cost operators, most notably with from the UK (Easyjet), Hungary (Wizzair) and Ireland (Ryaniar) operate domestic routes in other Member States. NTV and Trenitalia compete with Ryanair and Easyjet on the Rome-Milan route.

The PSO Regulation is currently opening the market for for urban transport under public service contract through mandatory competitive tendering (these provisions will fully apply as from 2019).

Public procurement policy covers today some 400 billion EUR of government purchases throughout the EU and all tenders above specific thresholds are published in the TED database of the EU Official Journal (OJEU). In December 2011, the Commission adopted a proposal aiming at introducing competitive tendering for service concessions. Public service contracts for heavy rail are similar to service concessions, but do not fall within the scope of this initiative. Some 40 PSCs in railways have been already published on average in the OJEU on yearly since 2012[78], including the tender for the Berlin S-Bahn[79].

3.7.2. Necessity test

Firstly, it is important to be sure that the objectives of the proposed action could not be achieved sufficiently by Member States in the framework of their national constitutional system, the so-called necessity test.

Actions by Member States alone cannot ensure the coherence and coordination of market access rules needed for the emergence of a genuine internal market for rail transport. The absence of open access to specific rail routes and the lack competitive tendering for PSOs hinders the pan-European operations of railway undertakings. It also limits the potential of competition for international passenger services as new entrants do not have the possibility to offer integration with other services.

At the same time, it is not necessary or appropriate for EU to intervene as regards definition of PSO or conditions set to PSCs, as far as these do not carry risk of market foreclosure. The measures considered under different PSC options of this IA are therefore all assessed in terms of their compliance with the subsidiarity principle (cf. Annex 4) and geared towards maximum flexibility to be left to Member States. Subsidiarity concerns are equally high as far as different rolling stock and ticketing measures are analysed, where the Member States could at this stage be better placed for defining the appropriate solutions. For instance, it could not be appropriate to impose the creation of leasing companies or ticket distribution systems, even if those measures are were supported by stakeholders.

3.7.3. Test of EU added value

Secondly, it has to be considered whether and how the objectives could be better achieved by action on the part of the EU, the so-called "test of European added value".

[78] There is currently no publication obligation for tenders that have the CPV procurement code '60210000' Public transport services by railways for publication in TED, the OJEU database. Yet, contract notices in the OJEU published with the aforementioned code: 38 (2008), 37 (2009), 46 (2010), 28 (2011) and 42 (2012), mostly in Germany, Poland, and Sweden. It can be estimated that on average some 40 PSC contract notices are published in TED every year.

[79] OJEU, Contract Notice S/144-241103 published by the Verkehrsverbund Berlin on the 28.07.2012

Since the 1990s, the Commission has elaborated a framework of common rules and procedures intended to open the European rail market to competition and create a common European Railway Area. The approach so far has been consistent with the objective of developing Europe's transport sector and contributes to the achievement of Lisbon Strategy objectives. The successive related EU legislations have already recognised the EU added value when they were adopted and the arguments, which substantiate this added value, still hold.

Problems affecting the railway passenger sector involve trans-national aspects and further action at EU level should allow ensuring consistency of proposed measures and initiatives with the acquis in railway policy and the regulation of PSOs. In these terms the EU is best-placed to adopt common rules for the rail passenger market that grant the right to all railway undertakings to operate throughout Europe without discrimination. The envisaged regulatory framework will provide railway undertakings with confidence to benefit from a single consolidated legislative framework and to face predictable business conditions throughout the EU, therefore providing the ground to consolidate the Single European Railway Area.

As far as the competitive tendering of PSCs in urban and suburban networks is concerned, Regulation 1370/2007 has already recognised the EU added value when it was adopted and the arguments which substantiate this added value (cf. section 3.4.2.1) still hold.

4. OBJECTIVES

Overall, the stakeholders have supported the problem drivers of insufficient quality and efficiency of rail sector and the problem drivers as identified by the Commission, as well as the general direction of EU action. 72% of stakeholders responding to the targeted consultation agreed that access to rail-related facilities was a barrier for railway undertakings and 69% agreed that the objective of improved access to infrastructure addressed the objectives of the initiative.

4.1. General objectives (GO):

The 2011 White Paper foresees a progressive modal shift from aviation and road vehicles, so that by 2050 the majority of medium-distance passenger transport should go by rail. This modal shift will contribute to the 20% reduction of GHG emissions foreseen in the Europe 2020 Agenda for smart, sustainable and innovative growth, and to the 60% reduction in transport emissions needed by 2050 to achieve the overall 80-95% cut targeted for the EU by that date.

In this context, the general objective of the proposed initiative is to:

GO: Improve the quality of rail passenger services and enhance their operational efficiency thereby improving the competitiveness and attractiveness of rail sector vis-à-vis other modes and developing further the Single European Rail Area.

Together with the other initiatives of the 4th railway package, the present impact assessment will identify the most suitable policy option(s) that will reach the above-described general objective by addressing the problems of insufficient quality and efficiency of rail services. To this aim, the general objective has been translated into specific and operational objectives.

4.2. Specific objectives (SO):

SO1:	**Intensify competitive pressure on domestic rail markets**
SO2:	**Create more uniform business conditions**

SO1 aims to contribute to the withdrawal of legal barriers and to stimulate competition in markets with PSOs, whereas SO2 aims to create a more predictable business environment with similar features.

4.3. Operational objectives (OO):

There are several dependencies between the operational objectives and specific objectives. For instance, in order to intensify competitive pressure on domestic markets (SO1), progress needs to be made in terms of all operational objectives. Equally, all operational objectives contribute to more uniform business conditions (SO2). Better value for public money (SO3) can be achieved if the competition for PSCs will be made a reality; the latter however depends on the outputs defined in OO2 to OO4.

OO1: Facilitate cross-border entry into domestic rail passenger markets
OO2: Abolish legal monopolies
OO3: Open PSC market for competition
OO4: Establish a common approach to control the definition of PSOs and to define public service contracts
OO5: Facilitate the level playing field in access to rolling stock
OO6: Facilitate the level playing field in access to ticketing

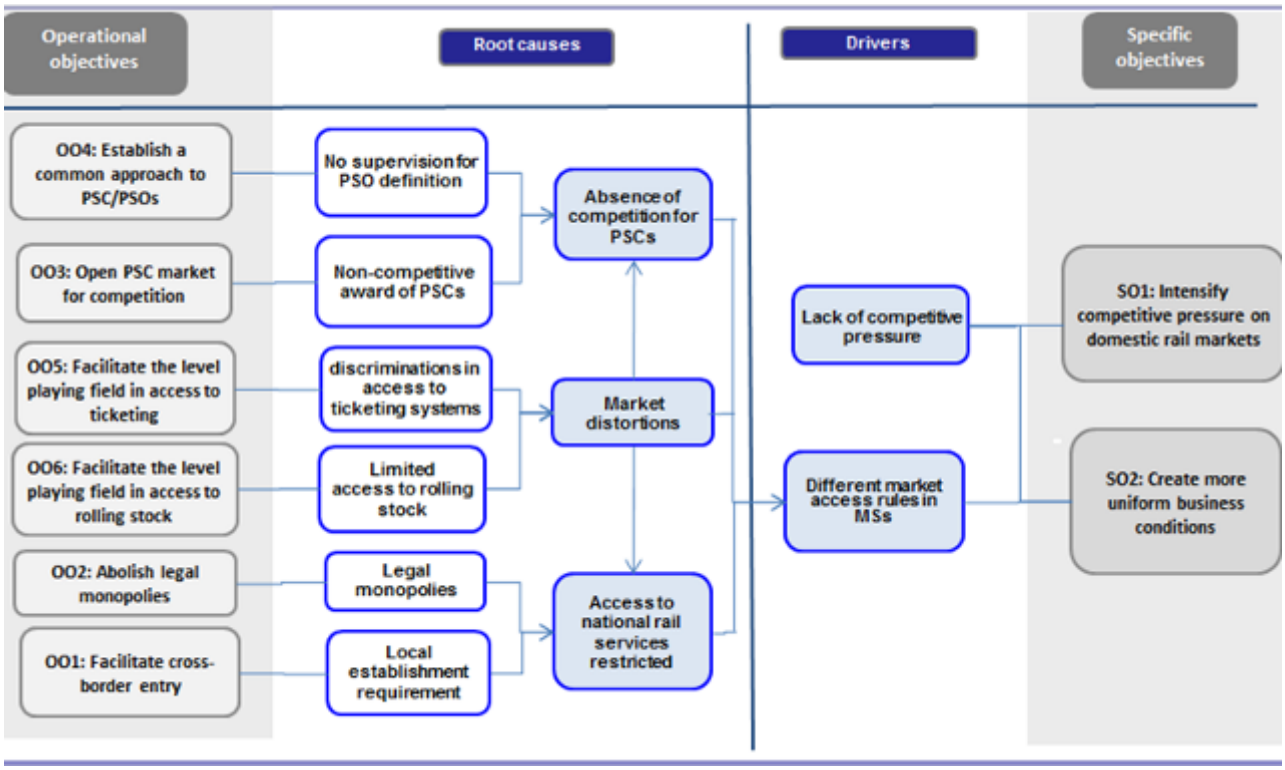
The operational objectives defined above are specific and realistic. However, given the nature of the initiative, no targets have been set. The initiative aims to act as a catalyst of more competitive rail passenger market, but its effectiveness heavily depends on specific approach taken at national level. The progress will be measured according to the monitoring indicators as outlined in Section 9.

4.4. Mapping problem, drivers and objectives:

Graph 12 hereunder presents the links between:

- the operational objectives and the root causes
- the drivers and the specific objectives

Graph 12: Mapping drivers, root causes and objectives



5. POLICY OPTIONS/POLICY SCENARIOS

5.1. Identification of possible policy options

Taking into account the stakeholders' consultation and the problem analysis, the Commission has defined four broad areas for action corresponding to the different root causes identified in section 2, namely restricted access to national rail markets, absence of competition for PSCs and the remaining market distortions on liberalised markets (access to ticketing systems and to rolling stock)[80]:

- Policy options A: addressing competition for open access lines (competition in the market)
- Policy options B: addressing the competition for PSCs and the supervision of their scope (competition for the market);
- Policy options T: addressing discriminatory access to ticketing systems;
- Policy options RS: addressing discriminatory access to rolling stock.

In a second step, the Commission services have identified several policy options in each of the above areas, which have the potential to address the identified root causes. Coherence with the EU Treaty objective of achieving a common transport policy, with the Europe 2020 Strategy and its main priorities, with the priorities set in the White Paper for transport and with the results of the stakeholder consultation has provided the main conceptual grid for considering the policy options in the first place.

5.2. Pre-screening of policy options

The combination of the 17 possible policy options could theoretically create 54 scenarios. The high number and complexity of the resulting possible policy combinations raised issues of feasibility and efficiency of an in-depth assessment for all of them, making a preliminary assessment and the discarding of policy options necessary.

Therefore, for each area for action, policy options have been pre-screened on the basis of stakeholder views, of their effectiveness in terms of policy objectives, of their efficiency as well as of their overall feasibility.

In parallel, the coherence of the possible policy options with the principles of subsidiarity and proportionality has been assessed. As compliance with these principles is a *sine qua non* condition for any Union policy initiative, any policy option that did not fulfil this condition could not therefore constitute a viable alternative for action. In this respect, given that the competence of the EU in the field of Public Service Obligations is limited,[81]only policy options B0 and B1 (supervision at national level) were retained for in-depth assessment. For the same reason, only policy options A2 and A3, impinging on Member States' wide discretion for defining PSO, have been discarded.

As far as competitive tendering is concerned, as stakeholders clearly supported competitive tendering with flexibilities akin to those of the negotiated procedure in public procurement (cf. figure 9 in Annex 2), no further sub-options were analysed (compared to direct award, which is the baseline).

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80 As said above, other possible sources of discriminations against new entrants such as access to infrastructure or stations are or have been dealt with in other legislation.

81 The competence of the EU in the field of Public Service Obligations is limited by Protocol n°26 to the TFEU to checking whether the Member State has made a manifest error when defining the service as public service obligation and to assessing any State aid involved in the compensation.

Where relevant, the implementing and mitigating measures are also discussed.

Table below presents all 18 policy options initially considered as well as the outcome of the screening process. A more detailed assessment of each scenario's impacts on the problem drivers is presented in Annex 5. 11 policy options, including 4 baseline scenarios, have been retained for further analysis.

Respective category of options	Policy options considered	Motivation	Retained?
A options: Open access	**Option A0: Baseline scenario** - no open access rights to domestic market provided under EU law, the progressive implementation of ctive 2007/58/EC.	Limited positive developments through international cabotage[82], and national measures. Some Member States have opened certain routes for cross border competition (e.g. Sweden, Italy, Czech Republic, Germany), but foreign operators face restrictions in market access.	√
	Option A1: Open access with possibility to limit access when the viability of PSC is compromised; legal monopolies and local establishment requirements are dismantled.	This is the approach already adopted in some Member States. It would abolish legal monopolies and local establishment requirements. It potentially ensures the cost-effectiveness of public funding for domestic rail passenger services under PSO and applies principles that have already been established for cabotage in international rail services. It minimises the risk of "cherry-picking", protects the viability of PSCs and offers the greatest scope for Competent Authorities to let PSCs on a net cost basis. However it could incite competent authorities to enlarge the range of services covered by PSC in order to limit the scope for open access services.	√
	Option A2: Open access limited to routes being commercially viable (such as high speed lines); legal monopolies and local establishment requirements are dismantled.	This option was ranked third by stakeholders. Like option A1, it would abolish legal monopolies and local establishment requirements. This option is not compliant with the subsidiarity principle in light of Protocol n°26 of the TFEU. In addition, there is no certainty that rules set in EU legislation could identify in advance, in each individual Member State, either (a) where open access would be viable and would occur and (b) where PSCs would not be needed. Therefore the set of routes to be covered by open access could be difficult to specify.	
	Option A3: Open access limited to routes not covered by PSCs[83]; ; legal monopolies and local establishment requirements are dismantled.	Received the second highest rating by stakeholders. Like options A1 and A2, it would abolish legal monopolies and local establishment requirements. At the same time the effects might be limited by new PSCs introduced either to meet genuine mobility needs or simply to prevent market opening. More widely, while new PSCs may be introduced, existing ones may never be cut back, raising the prospect of a gradual trend to PSCs extending to all stations.	√
	Option A4: Open access unlimited	Received the lowest rating form stakeholders being identified as likely to be costly for taxpayers. Unlimited open access may compromise the	

82 In force since January 2010.

83 If a Member States opts for competition for the market across the whole of its national network, it shall be considered as not granting open access rights

Respective category of options	Policy options considered	Motivation	Retained?
		viability of PSC and put additional pressure on public subsidies. There is no practical experience of how this option could be introduced and would work in a fully liberalised rail industry, but in practice there could be little commercial entry. This option is not compliant with the subsidiarity principle in light of Protocol n°26 of the TFEU.	
B options: Competitive tendering of PSCs	**Option B0: Baseline scenario -** as defined in Regulation 1370/2007 - competent authorities can choose between direct award and competitive tendering; no common criteria for defining PSCs	It is up to Member States whether to open their PSO contracts to competition or not. Differences in national approaches remain diverse and may lack transparency.	√
	Option B1: Mandatory tendering with flexibility, PSC scope under the control of national regulatory body. To allow for complexities and differences in national conditions, the requirement of competitive tendering would be subject to de *minimis* criteria and allotment thresholds, in addition the tendering procedure can be negotiated. Competent authorities are obliged to define transport policy objectives in public transport plan. National regulatory bodies need to carry out an assessment of compliance of a draft PSO to ensure compliance with fundamental legal principles. PSO should be financially sustainable (i.e. not underfinanced) and include efficiency and innovation incentives. The concerned stakeholders need to be consulted on draft PSO definition and results of assessment have to be published. Core operational information should be accessible to all bidders.	This option potentially ensures the competition for PSCs, while providing necessary flexibility to adjust the definition and tendering procedure to the specific characteristics of each PSC. Supervision and transparency requirements should secure against possible abuse or regulatory capture. However, given that control mechanism and PSC criteria will be applied at Member State (rather than EU) level, differences in national approaches are bound to remain, making cross-border bidding less smooth.	√
	Option B2: Mandatory tendering with flexibility, PSC scope under the control of the Commission. The same criteria would apply to tendering procedure as under Option B1. The PSC scope will be also defined as under Option B1, however assessment of compliance of PSO definition would be carried out by the Commission rather than by national regulatory bodies.	The same as above, but supervision will be performed at EU level, allowing for emerging more coherent EU approach. However, this option would not comply with subsidiarity principle, as national authorities *per se* are more competent for deciding on appropriateness of PSO. Furthermore, this option would be inconsistent with general policy approach in railways, which has granted any supervision competences to national regulatory bodies.	
T options: Integration of ticketing systems	**Option T0: Baseline -** implementation of the Passenger Rights Regulation 1371/2007 and the Recast of the 1st Railway Package. The Recast foresees that railway undertakings and ticket vendors shall offer tickets, through tickets and reservations. The operators of ticketing services, if they decide to offer services to other operators, shall do so	Implementation of the Recast should ensure some progress in the integration of ticketing systems, since some RUs have established joint ticketing systems with their competitors and will now have to open them to other RUs in a non-discriminatory manner. On the other hand, some	√

Respective category of options	Policy options considered	Motivation	Retained?
	in a non-discriminatory manner (i.e. allow access to everyone in equal conditions)[84]. These provisions preserve the commercial independence of RUs, who are not obliged to establish ticket integration schemes but only to sell the ones which are made available.	Member States have established national ticketing systems without any EU legal framework and could create problems of distortion of competition.	
	Option T1: voluntary national integrated ticketing systems; subject to non-discrimination requirements. It foresees an enabling clause allowing explicitly Member States and RUs to establish national-wide ticketing systems. It would also clarify existing provisions and would clarify that ticketing systems must be subject to non-discrimination requirements.	This option would reinforce to some extent the impacts of the baseline scenario.	√
	Option T2: mandatory national integrated ticketing systems; subject to non-discrimination requirements. Under this option Member States are imposed to set up national integrated ticketing systems. These systems should ensure the availability of all tickets throughout the national network.	This option has clear advantages for passengers in terms of accessibility to different services. It would also constitute a strong political encouragement to Member States and operators to put in place ticket integration schemes without prescribing specific measures. However the costs and benefits of such systems may vary considerably between Member States depending of the structure of the market (in particular the number of operators and the type of services offered). The efficiency of this measure can be low. Compliance with the subsidiarity principle has to be carefully assessed.	√
	Option T3: Integrated EU ticketing system, subject to non-discrimination requirements. Under this option a comprehensive, EU-wide ticketing system will be established, ensuring availability of all tickets for national as well as cross-border travel.	Establishing a single integrated ticketing system for the EU could foster further market integration and provide additional benefits to passengers using cross-border services. However, considering the number of operators involved and the diversity of the services provided, the cost of such measure would be very high while the benefits would remain limited (cross-border traffic represents around 5% of rail trips). This measure would have the same disadvantages than measure 2 in terms of efficiency and subsidiarity.	
RS options: Access to rolling stock	**Option RS0**: Baseline - no specific EU requirements, but only implementation of State aid Guidelines. Access to rolling stock appears to be a serious problem in Germany, France, Italy, Greece, Portugal, Spain and the majority of Member States that joined the EU in 2004	Access to rolling stock remains a major issue in Germany, France, Italy, Greece, Portugal, Spain and the majority of EU-10 Member States. Key issue for emergence of rolling stock market is the number of vehicles per type and the development of a leasing rolling stock market. It can be	√

[84] Article 10(1) of the Passenger Rights Regulation and Article 13(8) of the Recast.

Respective category of options	Policy options considered	Motivation	Retained?
	and 2007. There seem to be no national measures in pipeline to address this issue, except in Spain	anticipated that over time the market consolidation and implementation European standards[85] will lead to harmonisation of vehicle types and would have gradual beneficial impacts on the availability of 2nd hand rolling stock and leasing markets. It is unclear whether leasing market can develop in Member States whose railway networks are physically (almost) isolated (Ireland, Finland, Greece, Lithuania, Latvia and Estonia).	
	Option RS1: Mandatory creation of rolling stock leasing companies (ROSCOs), with the objective of creating a leasing market for rolling stock. This option would apply only where leasing markets are inexistent.	There was generally high support for this option among stakeholders. Also the evidence from Sweden and particularly Great Britain is that an effective leasing market can remove many barriers to entry. However, this option inducing the obligation for Member States to create a leasing company is not compliant with subsidiarity principles. Also it would in practice difficult to establish at EU level who should create fund, manage it or, if necessary, regulate the ROSCOs.	
	Option RS2: Mandatory ownership of rolling stock by competent authorities (where leasing companies do not exist). Would require that competent authorities owned all the rolling stock necessary to operate the PSCs.	This option could only apply to existing rolling stock if owners were willing to be bought out and, without powers amounting to confiscation, they would have every incentive to demand generous terms. The potential conflicts with generally established property rights can be avoided by requiring bidders for PSCs to commit to transfer their rolling stock to the competent authority at the end of the contract. There are, however, examples of dominant national incumbents refusing to bid on this basis. Even if operators were willing to accept these terms, it would not be until the end of the next PSC cycle, of up to 22½ years under current EU legislation, that all existing stock would be transferred.	
	Option RS3: Mandatory selling or leasing of rolling stock by the previous PSC beneficiary (where leasing companies do not exist)	20% of stakeholders supported "automatic" transfer of rolling stock and only 5% supported "compulsory" transfer. This option conflicts also to a large extent with existing property rights and the subsidiarity principle similar to option RS2, but the core problem of illiquid rolling stock market could imply that it would be difficult to establish "market price".	√
	Option RS4: Obligation for the competent authority to take the financial risks (where leasing companies do not exist). The competent authorities are obliged to provide or procure residual value guarantees on rolling stock if a bidder has no other means of avoiding residual value risk. This would not preclude Member States and competent authorities applying a mix of options RS1 (leasing companies), RS2	In this option competent authorities are obliged to take residual value risk on rolling stock, if there is no functioning rolling stock leasing market. However, this could have important implications for public finances and bring with it some counterproductive incentives such as maintaining old equipment and principal-agent problems.	√

[85] The development of interoperability and through-ticketing in domestic rail through the TAP TSI (Commission Regulation 454/2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services') could ultimately provide technical solutions for non-discriminatory access to ticketing systems in domestic rail services, although this is not the primary purpose of this measure.

Respective category of options	Policy options considered	Motivation	Retained?
	(competent authorities own rolling stock) and RS4 (competent authorities provide guarantees) as considered appropriate. It would leave it to competent authorities to decide the "least bad" approach to improving accessibility to rolling stock achievable with the funds available.		
	Option RS5: Guidelines on best practices of rolling stock procurement. This option foresees that the Commission will prepare guidelines which Member States can referrer to when planning national measures for improving the access to rolling stock.	This option would enable to share the best practices between Member States as regards the effectiveness of different approaches to improve liquidity of rolling stock market. However, its added value would be limited, given that the known successful approaches of UK and Sweden are already known by railways stakeholders.	

5.3. Detailed description of the retained policy options

This section explains the content of retained options in more detail.

5.3.1. Core policy options on market opening

The retained A and B policy measures will be combined to define the 6 policy options on interaction of open access rights and PSCs:

Option A0: Baseline scenario - no open access rights to domestic rail market provided under EU law Some Member States have opened certain routes for cross border competition, but not all. Within the baseline, national measures and the progressive implementation of Directive 2007/58/EC may have an effect on market opening through the cabotage arrangements of international rail services.
Option A1: Open access with possibility to limit access when the viability of PSC is compromised Open access provided on the whole network with possibility for Member States to limit access when the economic equilibrium of PSC is compromised; open access abolishes legal monopolies and national establishment requirements.
Option A3: Open access limited to routes not covered by PSCs Open access provided only on the parts of network not covered by PSCs; open access abolishes legal monopolies and national establishment requirements.

Option B0: Baseline scenario - competent authorities can choose between direct award or competitive tendering, no common criteria for defining PSCs
Option B1: Mandatory tendering with flexibility, PSC scope under the control of national regulatory body, meaning that: PSCs are defined on the basis of general legal and economic principles and a list of compliance criteria is established at EU level. An independent entity such as the national regulatory body supervises the correct application of all the public service criteria To define the maximum size of networks that do not preclude competition, it is proposed to use a maximum threshold for PSCs of train-km or a percentage of total volume of directly awarded PSC in each Member State. Competitive tendering applies only for contracts above certain thresholds, foresees transitional measures for the phasing-in of tendering or existing, directly awarded PSC, mobilisation periods and would preclude "internal operators"[86] at the national level. Provisions include the possibility to negotiate after the pre-selection.

5.3.1.1. – Sub-options considered for PSCs ('B options')

Option B1 requires in parallel the definition of:

- *de minimis* thresholds under which tendering procedures would not be mandatory as the costs relegated to the arrangement of tender could be disproportionate to the price of the service purchased;
- *de maximis threshold* on the maximal size of clusters of train services (to ensure that there are bidders in the market capable of responding to the competitive tenders;
- the phasing-in of competitive tendering of PSC (i.e. the transition periods).

Below are summarised the key elements of each PSC sub-option, while detailed analysis is provided in Annexes 5 and 8.

[86] Practicalities related to the implementation of these elements are explained in Section 8 of the report.

(a) *De minimis* thresholds

The choice of potential *de minimis* threshold has been determined on the basis of two criteria:

1. **Cost of tendering for contracting authorities**: the analysis in Annex 8 shows that it is only proportionate to impose tendering for contracts respectively above **4.5 million EUR**[87].
2. **Consistency with other initiatives in public procurement policy:** Legislative initiatives in the area of public procurement of the Commission use the threshold of **5 million EUR**[88] for complex contracts

In this context, it is proposed to use a de minimis threshold of **5 million EUR,** which should be completed by a threshold of **150.000 train-km**. In fact, as shown in detail in Annex 8, depending on the level of financing of PSC per train-km, which varies throughout the Member States[89], the proposed *de minimis* thresholds could end up covering very small networks.

(b) Maximal size of clusters of train services (*'de maximis* thresholds')

The choice of a *de maximis* threshold has been performed on the basis of three considerations:

1. observations on maximum PSCs sizes awarded to new entrants ;
2. PSCs tender should not require accessing more than 10% of a Member State rolling stock ;
3. necessity to accommodate the characteristics of small and large Member States.

The impacts of 4 different thresholds (5 -10-25 and 50 million train-kilometres) were assessed. On the one hand, no single competitive tender with a size above **5 million train-km** has ever been won by a new entrant in Germany, while on the other hand, UK franchises with up to 45 million train-km have been successfully tendered. In Italy, new entrants operate PSCs with up to **10 million train-km**.

The choice of these thresholds of 5 and 10 million train-km could however disproportionally slice the networks of large Member States (some 100 packages in Germany and the UK). At the same time thresholds of 25 and 50 million train-km would imply that the PSCs of respectively 7 and 11 small-sized Member States would be put for tender *en bloc*. To ensure adjustability of *de maxims* thresholds for small and large Member States, it appeared necessary to complement the absolute train-km threshold with a relative threshold anchored to the size of each country network. Two values - **10%** and **33%** – were analysed.

Each of the combinations of absolute and relative thresholds has been assessed in Annex 8. The analysis covers potential number of packages and the respective number of tendering procedures, the consistency of suburban networks and amount of rolling stock required (including consideration of higher rolling stock needs for suburban services[90]).

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87 It would not be proportionate to impose competitive tendering for PSCs of small volume as the cost of the tender could outweigh the potential benefits. As the average cost of a tender is estimated at 450.000 EUR/pkm (cf. analysis of impacts on administrative burden in Annex 9), if savings are assumed at 10%,

88 This threshold is used for the procurement of public works and works concessions. This threshold has also been proposed in the recently adopted proposals on the access of third country operators to the EU procurement market (notification procedure) and, more importantly for this initiative, for the opening of service concessions (PSCs in rail are service concessions)

89 The level of financing of the PSCs per train-km, which greatly varies among Member States (15-25 EUR/train-km in France, 50-150 EUR/train-km in Germany, 10-35 EUR/train-km in Italy and an estimated 35 EUR/train-km in the UK)

90 For the operation of a same number of train-km, a suburban line requires more trains than a regional line, as the former is shorter but requires more frequent operations, whereas the latter is longer and requires less trains.

The analysis concluded that the *de maximis* threshold consisting of the higher value of either (a) an absolute threshold of **10 million train-km** or (b) a relative threshold of **33% of the total national volume of rail passenger services** shall be the optimum.

(c) Phasing-in of competition for PSCs

The phasing-in of competition for PSCs can take place under 3 main scenarios:

– "Big bang" scenario – no transitional phase, all PSCs are put for tender at adoption.

– Natural expiry of directly awarded PSC (16 years phasing-in): under the terms of the current PSO regulation, directly awarded contracts can last up to 10 years. All PSCs concluded up to 2 December 2019 (last day of the transitional phase of Regulation 1370/2007) could then last up to 2 December 2029.

– Transitional phasing-in between 2019 and 2023 (10 years phasing-in): this scenario would ensure consistency with urban transport[91] PSCs directly awarded between January 2013 (i.e. the moment when after publication of the Commission proposals the concerned actors would be aware that legislative changes may occur) and before 3 December 2019 may continue until they expire but shall not last longer than 1 January 2023.

There seems to be a need to regulate the phasing-in of competitive tendering to ensure a minimum of legal certainty to operators and to guarantee the continuity of public rail passenger services. A large majority of the respondents to the stakeholder consultation favoured transitional periods for the gradual letting of all PSCs (80% of respondents agreed). A workers' organisation that answered to the stakeholder consultation highlighted also that transitional aspects could soften social impacts.

Transitional periods would give all incumbent railway undertakings the time to restructure and prepare for competitive tendering of PSC. In addition, it would ensure for competent authorities a reasonable time to organise the re-award of existing PSCs. Additionally, a workers' organisation answered to the stakeholder consultation highlighted also that transitional aspects could soften social impacts.

Further to the analysis provided in Annex 8, a **10 years phasing-in lasting till 2023** was considered sufficient. Given that Germany, Austria and the Czech Republic will generalise competitive tendering, some 50% of all passenger-kilometres in PSO will be competitive tendered already by 2019.

5.3.1.2. Combination of market access and PSC competition options

A and B options are the core measures of the initiative and their combination determines the means and ambition of market opening. In this context, the following combined options are to be assessed:

Option 0 (A0, B0) - Baseline scenario
Option 1 (A1,B0) - Market opening based on 'broad open access', no measures on competitive tendering of PSCs
Option 2 (A3, B0) - Market opening based on 'limited open access', no measures on competitive tendering of PSCs
Option 3 (A0, B1) - Market opening based exclusively on competitive tendering of PSCs
Option 4 (A1, B1) - Market opening based on 'broad open access' and competitive tendering of PSCs
Option 5 (A3, B1) - Market opening based on 'limited open access' and competitive tendering of PSCs

[91] The obligation to tender out new PSC for rail would become effective on 3 December 2019, the date currently mentioned in Regulation 1370/2007 for the application of the provisions on contract award.

5.3.2. Ticketing policy options

The essence of the ticketing and rolling stock (cf. Section 5.3.3) option consideration is to create framework conditions necessary for more effective application of A/B core policy options.

The following ticketing policy options have been retained for further analysis:

Option T0: Baseline - implementation of the Passenger Rights Regulation and the Recast of the 1st Railway Package
Option T1: voluntary national integrated ticketing systems National ticketing systems established on a voluntary basis, subject to non-discrimination requirements. This option foresees an enabling clause allowing explicitly Member States and RUs to establish national-wide ticketing systems. It would also clarify existing provisions and remove some legal uncertainties.
Option T2: mandatory national integrated ticketing systems National ticketing systems established on mandatory basis, subject to non-discrimination requirements. Under this option Member States are obliged to set up national integrated ticketing systems. These systems should ensure the availability of all tickets throughout the national network.

5.3.3. Rolling stock options

The following rolling stock options have been retained for stand-alone analysis in Chapter 6 (Analysis of impacts):

Option RS0: Baseline - no specific EU requirements
Option RS3: Mandatory selling or leasing of rolling stock by the previous PSC beneficiary Rolling stock must be sold (if property rights allow this) or leased at market prices by the previous PSC beneficiary to the new one
Option RS4: Obligation for the competent authority to take the financial risk linked to the residual value of rolling stock at the end of the contract period If there is no functioning leasing market for rolling stock, obligation for the competent authority to take the risk of the residual value of rolling stock leaving the authority the choice of appropriate means. This option includes any appropriate measure taken by the Member State or the competent authority to facilitate the access to rolling stock. The competent authority may opt for different solutions to comply with this obligation such as e.g. to assume ownership of the rolling stock (to be made available to PSC beneficiary), providing a bank guarantee for the financing of new RS for the period after the expiry of the contract, issuing a guarantee of takeover of the rolling stock.

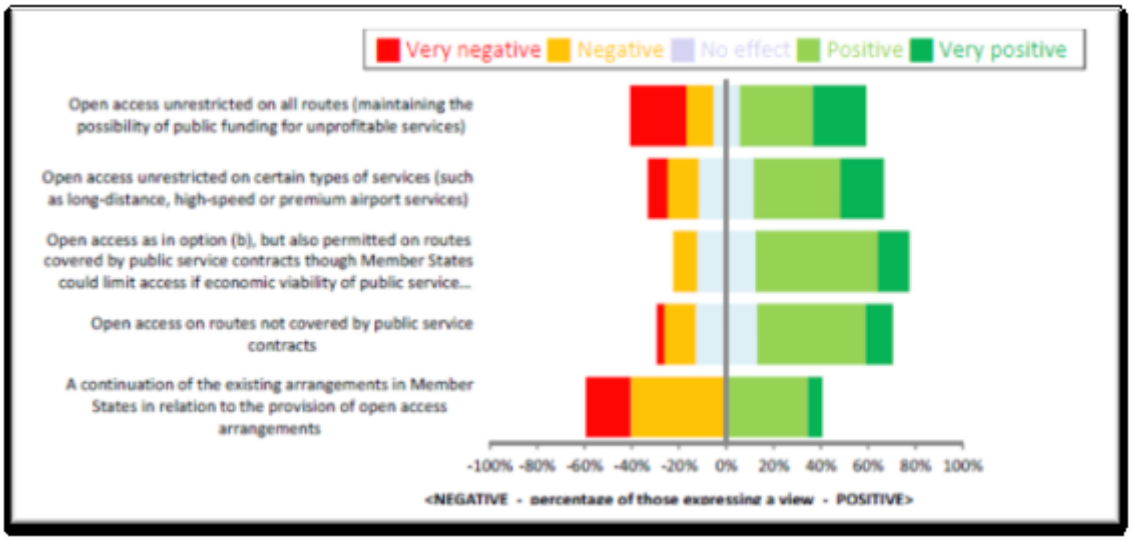
The favoured option of stakeholders was creation of leasing companies (RS1), however the Commission would not dare to impose because of subsidiarity concerns. In all shortlisted options the Member States should take the necessary measures to ensure non-discriminatory access to rolling stock only where no leasing companies would exist.

5.4. Options in the consultation of stakeholders

In terms of market opening, an equal majority of respondents (60%) agreed that additional new open access rights or compulsory competitive tendering could stimulate market integration. A small minority of respondents (15%) disagreed. Most of those agreeing are Transport Ministries and regulatory bodies, with most holding groups neither agreeing nor disagreeing.

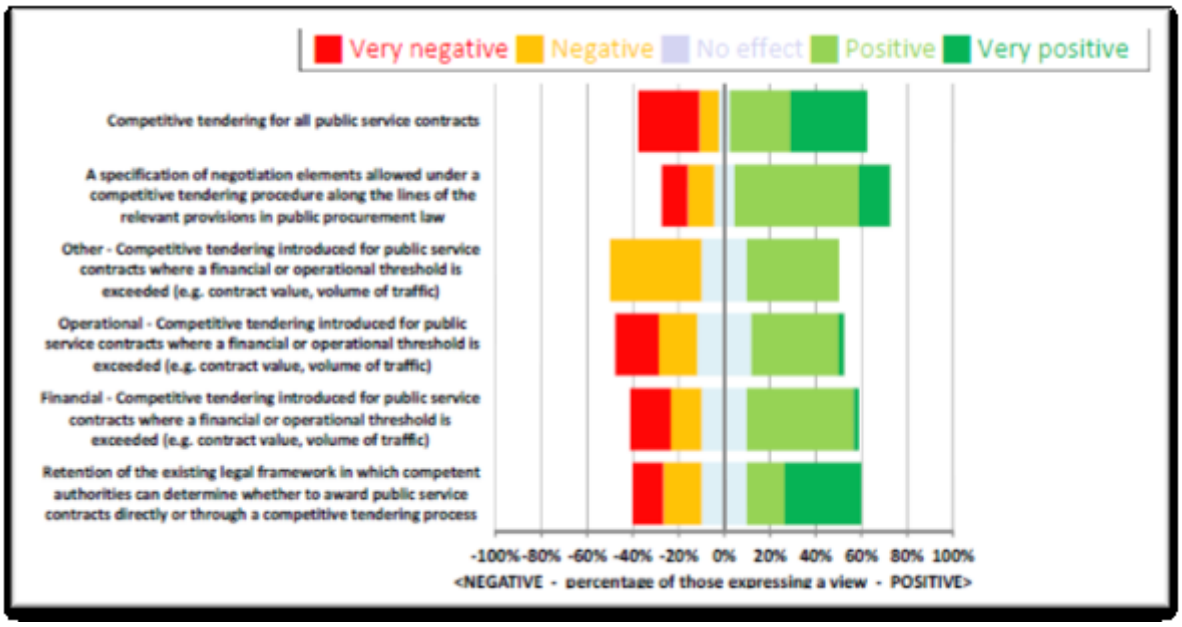
Open access subject to the viability of PSCs is seen more positively than all the other options (55% of respondents agreeing) – the current arrangements are seen very negatively (20% of support). The continuation of existing arrangements (i.e. baseline) was the worst rated option.

Graph 13 - Support of the different possible policies for open access



As regards compulsory competitive tendering, respondents were also more supportive of flexibilities akin to those of the negotiated procedure in public procurement (45% of agreeing respondents) and transitory periods for the gradual letting of all PSCs (80% of agreeing respondents).

Graph 14 - Support of the different possible policies for competitive tendering



Source: SDG analysis

In terms of framework conditions, there is overwhelming support (95%) for clear conditions on the transfer of staff during the transfer from one operator to another of a rail service contract. Regarding improved access to rolling stock, a majority of respondents (60%) agreed that the creation of rolling stock leasing companies would help to solve the problem and a vast majority (75%) called for full access to technical information to be provided by the infrastructure manager. As regards ticketing, there was a preference for a light approach such as non-binding provisions or enabling clauses for voluntary agreements rather than compulsory measures at EU level or at Member State level.

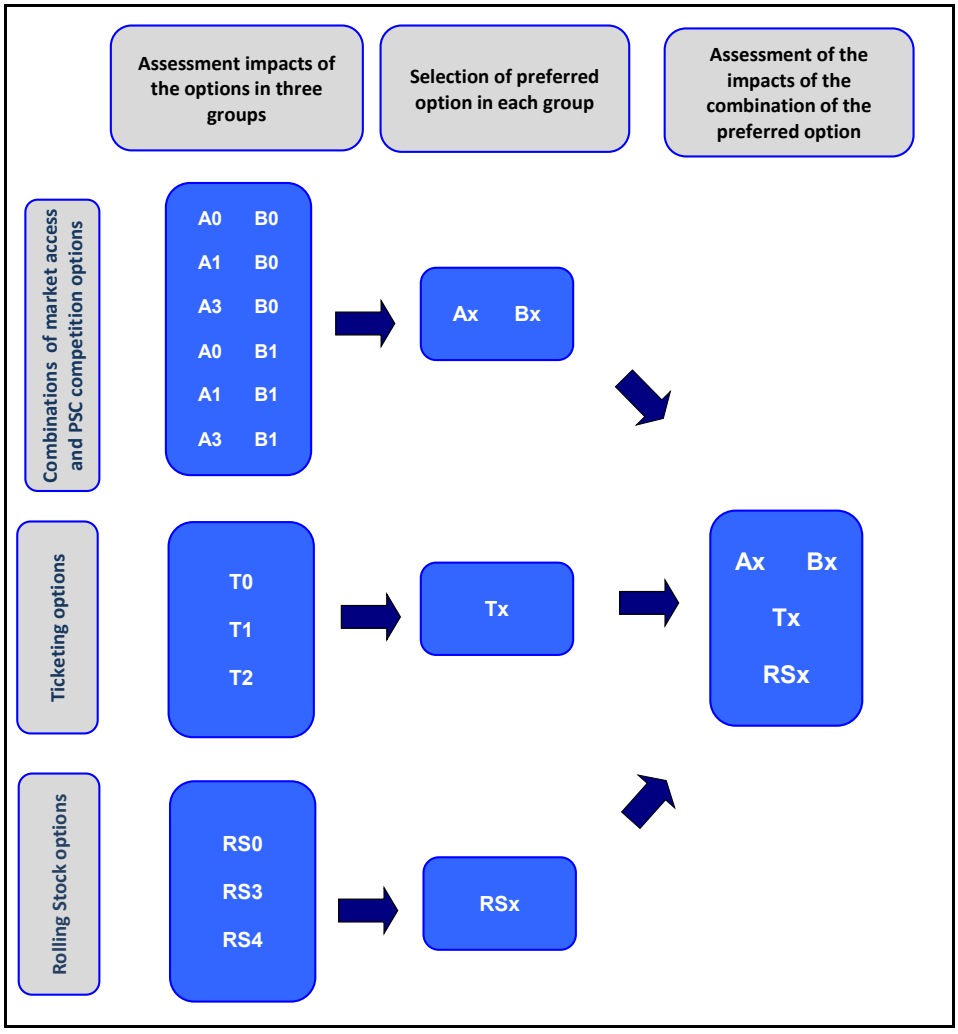
5.5. Identification of the preferred option

A and B options are the core measures of the initiative and their combination determines the means and ambition of market opening. Therefore, the IA report will start by assessing the 6 combinations of the core options A and B and concludes which is the preferred one as illustrated in graph 15 below.

In a second stage, the ticketing (T) options and rolling stock (RS) options will be assessed in order to identify which of these are best to support market opening.

The combination of the preferred choices in each group (c.f. Graph 14) would then form a preferred policy scenario, which will be assessed in its own right in order to identify possible overlaps and synergies in impacts.

Graph 15 – Combining retained options



6. ANALYSIS OF IMPACTS

6.1. General approach to the assessment of options and methodological constraints

The aim of the initiative on domestic rail passenger market opening is to remove the remaining institutional and legal obstacles which in some Member States still hamper market access and operational efficiency of rail services which is expected to make for better service offer and more efficient operations. However quantification of these impacts is very challenging:

– While the EU rules would aim to create necessary market structures to this end, the actual impacts of any measures depend largely on the 'baseline' situation in each Member State as well as the 'spirit' of transposition and enforcement at national level.

– Except for the UK and Sweden, the actual experience on market liberalisation so far is limited. This implies high uncertainties in any assumptions for extrapolation.

– There is also an important impact of other principal uncertainties, such as baseline developments and exogenous factors affecting the passenger rail demand.

The IA support study has made an attempt to quantify **impacts** in terms of potential investments, profits of operators and savings of public authorities; however results were rather illustrative estimates with up to 50% uncertainty range. These results were not robust enough to be used for a comparative assessment of options. Instead, the quantitative scenario analysis has been presented for the preferred policy scenario in Section 7. Being accompanied by sensitivity tests of the core assumptions, it should give a fair indication of the potential policy outcomes for operators, public authorities and passengers.

Analysis in this section, aiming to compare the impacts of different policy options, is mostly qualitative. However, the core liberalisation effects in terms of open p-km have been quantified (c.f. Table 7a). **Qualitative analysis** builds on (a) the scope of impacts, (b) lessons drawn from Member States' experiences (cf. table 5) and (c) associated risks (both exogenous and endogenous).

The scoring of options is made on the basis of a comparison of the relative impacts within a single selected impact (rows in tables) but not the relative importance of different rows.

Table 5 – Link between the options and experience in Member States

Option	Experiences
1	Quasi-liberalised Member States Austria, Italy and Germany networks with direct award
2	Czech Republic
3	Analogy[92] with UK, PT and NL
4	Fully Liberalised Member States: Sweden since 2011, parts of Germany
5	Sweden before 2011

The analysis focusses on most prominent economic, social and environmental impacts of different policy options and is subdivided into three parts:

[92] As the UK and the Netherlands are composed almost only of PSC, they have similarities with option 3. It is important however to underline that there are no legal monopolies in the UK, while option 3 retains the possibility to maintain them. Portugal combines exclusive rights, a competitive-tendered PSC and directly awarded PScs.

– Analysis of impacts of the market opening options (A and B options)

– Analysis of impacts of ticketing policy options (T options)

– Analysis of impacts of rolling stock policy options (RS options)

6.2. Analysis of impacts of the market opening options

This section is composed of (a) the presentation of the overall impact of market option measures on the different market segments including expected outcomes of the assessments of thresholds (*de minimis* and the size of packages of rail services) and transitory periods and (b) the assessment of the related most prominent economic, social and environmental impacts.

6.2.1. Overall impact of the market opening options

6.2.1.1 - Impact on the different rail market segments

The importance of any impacts in each Member State depends on to which extent the different rail market segments are present. Table 6 presents an estimation of the share of passenger-kilometres under each market segments, and whether each segment falls under PSO or not in the different Member States.

Table 6 – Market segments (%p-km) and PSO

		High-speed	Long-Distance/ Intercity	Medium-Distance/ Regional	Suburban/ Commuter
Austria	AT	-	34%	46%	19%
Belgium	BE	11%	34%	34%	21%
Bulgaria	BG	-	47%	26%	27%
Czech Republic	CZ	-	54%	36%	10%
Germany	DE	27%	23%	32%	18%
Denmark	DK	0%	24%	50%	26%
Estonia	EE	0%	17%	74%	9%
Greece	EL	0%	32%	32%	36%
Spain	ES	12%	37%	25%	27%
Finland	FI	9%	46%	13%	32%
France	FR	57%	22%	7%	15%
Hungary	HU	0%	33%	32%	35%
Ireland	IE	0%	32%	32%	36%
Italy	IT	18%	33%	33%	15%
Lithuania	LT	0%	50%	50%	0%
Latvia	LV	0%	34%	35%	31%
Luxembourg	LU	0%	4%	67%	29%
Netherlands	NL	5%	62%	10%	23%
Poland	PL	0%	31%	57%	11%
Portugal	PT	0%	30%	51%	19%
Romania	RO	0%	31%	38%	31%
Sweden	SE	20%	25%	27%	28%
Slovenia	SI	0%	37%	37%	25%
Slovakia	SK	0%	50%	50%	0%
Great Britain	UK	0%	28%	44%	28%
		PSO	Mix	Commercial	

Source: Steer Davies Gleave, own analysis based on UIC data and White Paper

The **urban and suburban** networks and the **medium/regional long-distance** services will be almost exclusively impacted by options 3, 4 and 5 that introduce competitive tendering for PSCs. This will mostly affect the densely populated Member States (Benelux, Germany, Northern Italy) but also the rail networks around important cities (as is already the case with the German S-Bahns). There could be some open access operators venturing in regional services (but most likely not in the congested suburban services) - open access could co-exist in regional services as few Member States.

As far as **high-speed** and **long-distance** services are concerned, they will be impacted mostly by options 1, 2, 4 and 5 that introduce open access for domestic services, but also to a limited extent by options 3, 4 and 5 that introduce competitive tendering. In several large-sized Member States, long-distance services are self-sustaining commercial services and do not need public service obligations (e.g. France, Spain, Portugal, Austria, Czech Republic, Italy, and Germany). In small-sized Member States and the UK, all passenger-kilometres are under PSO, including long-distance services.

International services are likely to be marginally affected, as *cabotage* in international services remains limited, but could benefit from the possibility to develop feeder services under open access. These views were also corroborated by stakeholders in the consultation.

The analysis of impacts examines separately the consequences of each option on traffic under PSO on the one hand and commercial traffic on the other hand:

– Some national rail markets, such as those of Belgium, Greece, Hungary, Luxembourg, Netherlands, Slovenia and the UK relates predominantly, if not in totality, to PSO traffic and it will be assumed that such situation will not change radically in a foreseeable future.

– Other national markets, those of most large-sized Member States, are characterised by a more balance division between PSO traffic and services provided on a commercial basis. Here again we assume that market opening will not modify substantially such characteristic.

As a result, in the analysis of impacts, the following potential developments will be considered:

As mentioned, precise impacts of liberalisation are difficult to detect, but box 5 below aims to illustrate the possible outcome using the example of air transport liberalisation.

BOX 5 - AIR TRANSPORT LIBERALISATION

Civil aviation greatly contributes to the European economy: more than 150 scheduled passenger carriers, a network of over 450 airports, some 4,5 million employees. Its activities contribute 1,5% to the EU GDP. The fact that the civil aviation sector has grown significantly since the early nineties is mainly a result of the liberalisation of the sector.

Prices have fallen quite dramatically in the sector and numerous new entrants have emerged. In 2009 some 750 million passengers were carried in Europe. The number of intra-community routes has increased by 140% between 1992 and 2010.

The internal aviation market gives every EU carrier freedom to perform services, i.e. to carry out flights within any EU country and between EU countries. It also gives them complete freedom to set tariffs. The regulatory framework works as a safeguard for passengers, for safety and security and for fair competition. It also allows Member States to serve certain routes/areas, which are not economically viable, but have to be served for reasons of territorial cohesion. They can do this by imposing a PSO on such a route.

The aviation sector employment has undergone substantial changes due to the development of new players, such as the low-cost carriers or the outsourcing of services previously contained within carriers and airports, like ground-handling or maintenance. These dynamics are the result of increased competition, the dynamics of which led to a sharp rise in productivity, which in turn helped sustain employment levels.

Finally, it is important to underline that PSOs in air transport remain a limited phenomenon compared to the same situation in rail, where they cover some 66% of all passenger-kilometres.

6.2.2. Economic impacts

6.2.2.1- Direct impacts

a) Impact on competition levels between railway undertakings

Option	0	1	2	3	4	5
Impact	0	+/++	+	++	++++	+++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact:

The larger the part of the market to be liberalised, the more significant are the potential impacts on intra-rail competition.

For PSO traffic the introduction of competitive tendering completely opens the market under options 3, 4 and 5 and makes all segments open. In options 1 and 2, PSCs are directly awarded, therefore closing the whole market of PSO.

The introduction of open access opens the market of commercial services under option 1, 2, 4 and 5, opening therefore most long-distance and high-speed services. In option 3, legal monopolies are maintained, therefore leaving most long-distance and high-speed services closed.

As a result:

– As suburban rail markets are always under PSO, they may not be opened under Option 1

– In Option 2 the whole market is closed through direct awards in "100% PSO Member States"

– In option 3, only PSO markets are open (suburban, regional)

– In options 4 and 5, the whole EU rail market is always open for competition (hence at least +++); Option 4 has a very slight advantage over option 5 as "open access" provides for the possibility to start a rail business at any moment, whereas competitive tendering constraints it to the timing of competitive tenders (hence ++++).

Table 7a – Scope of options in terms of opening of the rail market

	Option 1		Option 2		Option 3		Option 4	Option 5
	Reference	Pessimistic	Reference	Pessimistic	Reference	Pessimistic		
OPEN	55%	34%	54%	34%	84%	67%	100%	100%
CLOSED	-	14%	19%	33%	17%	34%	0%	0%
SEMI-CLOSED	45%	53%	34%	34%	0%	0%	0%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 7b – Evolution in terms of opening of the Member States under each option

Options	0	1	2	3	4	5
AT	Large lib	Large lib	Large lib	Full lib	Full lib	Full lib
BE	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
BG	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
CZ	Part lib	Part lib	Part lib	Full lib	Full lib	Full lib
DK	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
EE	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
FI	No lib	Large lib	Large lib	Part lib	Full lib	Full lib
FR	No lib	Large lib	Large lib	Part lib	Full lib	Full lib
DE	Large lib	Large lib	Large lib	Full lib	Full lib	Full lib
GR	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
HU	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
IE	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
IT	Large lib	Large lib	Large lib	Full lib	Full lib	Full lib
LV	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
LT	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
LU	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
NL	Part lib	Part lib	Part lib	Full lib	Full lib	Full lib
PL	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
PT	Part lib	Large lib	Large lib	Large lib	Full lib	Full lib
RO	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
SK	Quasi-lib	Quasi-lib	Quasi-lib	Full lib	Full lib	Full lib
SI	No lib	Quasi-lib	No lib	Full lib	Full lib	Full lib
ES	No lib	Large lib	Large lib	Large lib	Full lib	Full lib
SV	Full lib	Full lib	Full lib	Full lib	Full lib	Full lib
UK	Full lib	Full lib	Full lib	Full lib	Full lib	Full lib

Experience in Member States: Competition has been strongest in Member States with legal frameworks that resemble to option 3, 4 and 5. Competition in Member States whose legal framework resembles option 1 has mostly remained confined to few routes (e.g. Vienna-Salzburg); in Denmark and Slovakia, governments have directly awarded contracts for PSCs to new entrants.

To take stock of the impact of each option on the degree of opening of each of the Member States, each Member State is re-categorised under each of the clusters of Member States ("fully liberalised", "largely liberalised", "partially liberalised", "quasi-liberalised" and "non-liberalised"). This simulation is conducted under the assumption that Member States don't backtrack from their current degree of market opening (baseline) and that the current percentage of passenger-kilometres remains identical (knowing that market opening is likely to lead to a change of this percentage either in the sense of more open access for commercials services or more public service obligations). For each of the options, Member States are likely to evolve in the following manner:

- In Option 1, most Member States become or remain quasi-liberalised markets (12), with some largely liberalised (6) and partly-liberalised (2). Non-liberalised markets do not exist anymore. The strongest impacts are felt in France, Spain and Finland, which move from a non-liberalised market to a largely-liberalised market, where more than 30% of all passenger-km are open for competition.
- In Option 2, all quasi-liberalised and largely-liberalised markets do not change category. Most non-liberalised Member States are also not affected, except France, Spain and Finland, which move from a non-liberalised market to a largely-liberalised market and are therefore the most impacted by this initiative.
- In Option 3, most Member States move to a fully liberalised market, except France and Finland become partly liberalised and Portugal and Spain that become largely liberalised. The biggest impact is felt in small Member States with a large portion of PSC such as Belgium, Greece, Hungary, Luxembourg and Slovenia.
- In Option 4 all Member States move to a fully liberalised market. The biggest change impact is felt from non-liberalised markets but also quasi-liberalised markets.
- In Option 5 all Member States move to a fully liberalised market. The biggest change impact is felt from non-liberalised markets but also quasi-liberalised markets.

Risks: There are several exogenous factors that influence the level of competition in all options, including the baseline (e.g. separation of infrastructure and operations, use of net contracts versus gross contracts). In option 2, it cannot be excluded that the size of PSCs is extended to foreclose competition (though this can be mitigated by appropriate processes to define PSOs). The actual number of bids and consequently the success of competitive tendering measures depends on the ease of the access to essential framework condition, such as station facilities, ticketing systems, rolling stock, essential business information (often available only to incumbent). Some of these are addressed by this initiative; others were covered by the Recast or will be addressed by the other initiatives of the 4th Package. Finally, it is important to avoid 'fake' bids, e.g. setting conditions where only the incumbent can de facto tender. Countermeasures to cover these risks are addressed in section 7.

b) Transport demand – modal share of rail

Option	0	1	2	3	4	5
Impact*	0	+	+	+	++	++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact:

New passengers could be attracted onto trains if travel journeys are reduced (time-elasticity), frequencies are added (time-elasticity) or fares decrease (price-elasticity).

Open access services increase demand, as suggested by the examples of the Vienna-Salzburg and the Rome-Milan lines (cf. table 2). The competitive tendering of PSC increases the prospects of savings that can be reinvested in additional train services, therefore increasing frequencies which then facilitate train to gain market share. Also, the usage of net cost contracts in PSC (box 6) gives commercial incentives to railway undertakings to increase traffic.

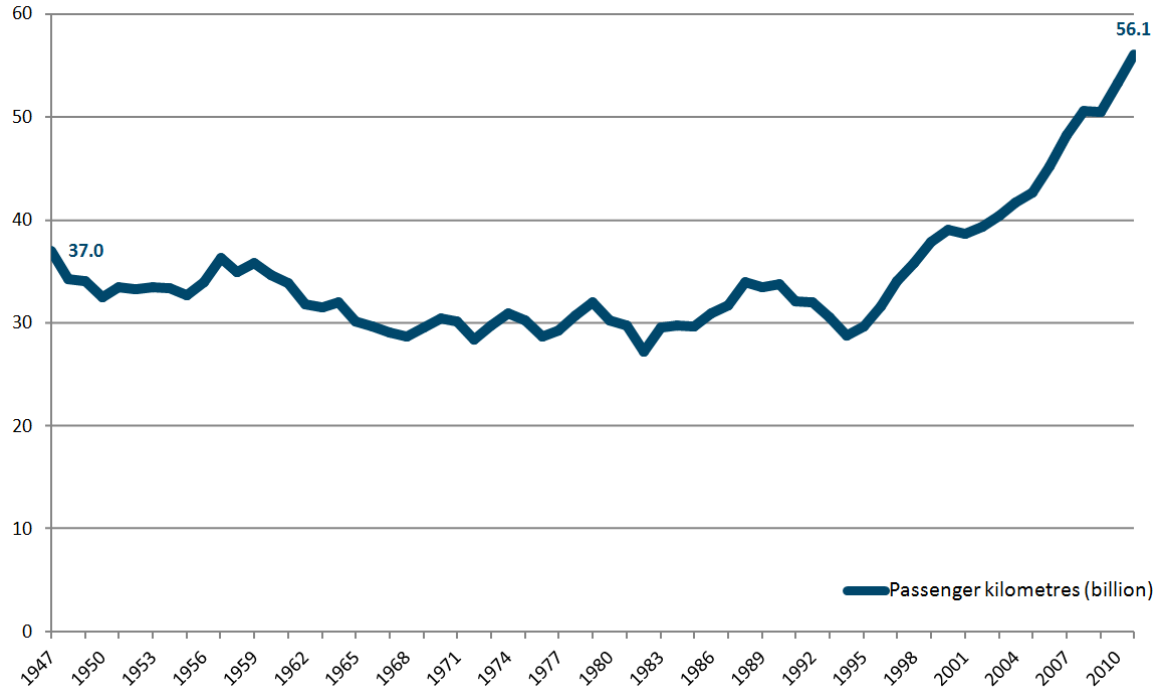
Given that options 4 and 5 combine both these possibilities (and that there is no evidence that competition *in* the market is more effective than competition *for* the market to increase traffic demand), they are better scored (++) than options 1 to 3 (+). In particular, option 3 does not provide for an opening of services under legal monopolies (essentially long-distance and high speed services in large Member States).

Experience of Member States: As shown in Annex 3 (table 10a), modal share of rail has taken off particularly well in countries like Sweden and the UK whose legal framework resembles options 3 and 5. In the UK after market opening rail passenger transport performance increased by 84% between 1995 and 2010. In Sweden performance rose by 70% in the same period (table 1c in Annex 3). While use of railways has also increased in countries like Belgium and France that have legal monopolies (by 47% and 54% respectively), this phenomenon can be to a large extent attributed to investments in high-speed lines (c.f. Section 3.1.1). And similarly road congestion has helped to stimulate rail traffic in the UK.

Estimations of price-elasticities[93] in the Member States suggest that there is room to increase the rail demand through price decreases. Also, in the Eurobarometer survey 43% of respondents indicated that they would be more likely to travel by train if prices decreased, while faster journeys, networks, services and comfort were all at 20% or below.

[93] France: price elasticity between -0.7 and -1.2 (source: Rapport à l'Assemblée Nationale n°875 – rapport d'information de Hervé Mariton; Elasticity in Spain, -0.4 and -0.57 according to Ganzalez-Savignat (2004) and Wardman-Whelan (1995); In the Netherlands, elasticity between -0.6 and -1.1 in the long-term according to CE Delft "Effect van prijsbelied in verkeer en vervoer; Elasticities in UK between -0.5 and -1.25 depending on segments according to DfT.

Graph 16 -Rail passenger performance in the UK 1947 – 2011: sustained growth since mid-1995



Source: Department for Transport and Office of Rail Regulation (quoted from ORR (2012))

Risks:

Several exogenous factors play into the transport modal split (oil prices, taxes on transport, congestions, internalisation of external costs in road etc.) and are likely to influence rail demand. It should be noted that among stakeholders, workers organisation have expressed scepticism on the capacity of the opening of domestic of passenger rail markets to stimulate the demand for rail. Also, there are bottlenecks in the conventional passenger rail network (e.g. Belgium, Germany, Netherlands, and UK) but also around the stations or junctions of some of the main European cities[94].

Congestion of certain railway networks will mostly impact on the development of commercial services in open access routes (public service obligations are in general pre-determined in the terms of reference of the public service obligation). As far as stations are concerned, railway undertakings will opt for alternative stations. NTV operates from Rome-Tiburtina and not from the main station Termini. SNCF has announced that it would operate low-cost TGV services from Marne-la-Vallée (Eurodisney) and not from central Paris stations. The success of open access commercial services also depends on their ability to operate in separate tracks compared to commuter or regional routes. The fact that ICE services operate partly not dedicated tracks is certainly one of the explanations for the lack of competition in German long-distance routes, compared to Italy, which has mostly dedicated rail tracks.

At the same time, the fact that open access operators in long-distance services may be inclined to operate at peak times could slightly impact congestion. However, it is unclear whether the impact will be major as the major users of paths are suburban trains that have restricted/constrained schedules.

94 NTV the Italian new entrant was not able to start operations in Roma-Termini, the main station of Rome and is using the station of Tiburtina, instead. In Brussels, the Jonction Nord-Midi cutting the city of Brussels is completely congested.

Finally, it cannot be excluded that large-sized Member States will decide to move to cover all their services under PSC, keeping all fares regulated, as in the UK.

BOX 6 -INCENTIVES IN PSCs

There are two important types of PSCs:

- **Gross cost contracts** where (ticket) revenues are fully collected by passenger transport authorities, which refund them to the railway undertaking. Gross contracts have targets in terms of customer satisfaction. Railway undertakings face almost no commercial risks in such contracts and have no incentives to improve service beyond the requirements of the contract. Railway undertakings however bear all the operational risks and benefit from potential efficiencies that they realise on the top of the requirements of the PSC conditions
- **Net cost contracts,** where ticket revenues accrue directly to the railway undertaking, which bears the risks in terms of traffic. Net cost contracts give incentives to the operator to increase ridership and customer satisfaction. However, they generally deter bids from new entrants which have limited commercial expertise on the rail sector.

However, in most cases, a combination of gross and net cost contracts specifications is used to transfer parts of the commercial and operational risks to the railway operator.

c) Industry revenues and costs

Option	0	1	2	3	4	5
Impact	0	+	+	++	+++	+++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact:

Competitive tendering provides strong incentives to reduce costs, and therefore better use all resources (labour, rolling stock and infrastructure) whereas open access and net contracts in PSCs contribute to increase revenues in rail.

As a result, options 4 and 5 (+++), which combine both competitive tendering and open access, fare better in terms of potential improvement of **both** revenues and costs than that of options 1 to 3. As the size of p-km in PSOs is twice the size of potentially commercial services, option 3 is scored higher (++), compared to options 1 and 2 (+).

Experience in Member States: As shown in table 2c and 2d (cf. problem definition – 3.2.2), among the Member States whose efficiency growth rates have grown most since the nineties and early 2000s one finds the liberalised countries like UK, Sweden, Germany, which have all introduced competitive tendering. Belgium, Slovenia and Hungary also score well but mask excellent scores only in some indicators – labour productivity in Belgium appears to be half of the Netherlands.

Risks: Several exogenous factors linked to inter-modal competition influence the outcome of all the options. The scale of actual impacts importantly depends on how the Member States design PSOs[95], whether they provide incentives to increase revenues in PSCs (net contracts), and the level of subsidies for PSOs (this point was raised by Lithuania in the stakeholder consultation). Impacts on

[95] In PSCs, networks need to be organised around coherent bundles of lines (generally linked to a terminus station, a depot or a maintenance facility). This will allow the operator to seek for network efficiencies in terms of connections and use its rolling stock and staff as efficiently as possible

operator profits depend on the compressibility of costs. It should be noted that workers' organisation have been very sceptical about linking competition with incentives of operational efficiency.

d) Public funding

Option	0	1	2	3	4	5
Impact	0	+	0/+	++	++	+++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact:

Public funding is impacted mostly through savings in PSCs and to some extent through better usage of rail infrastructure. Competitive tendering allows for savings, whereas open access and net contracts in PSCs contribute to increase in supply of rail services within a given infrastructure. At the same time, "cherry picking" behaviour of open access services may compromise the economic equilibrium of PSCs.

Public savings in PSCs

The positive impact of competitive tendering on public finances is greater under options 3, 4 and 5. There is no competitive tendering in options 1 and 2.

All options provided for open access protect public funding from the negative effects of cherry picking i.e. where the competition is developed only for the most profitable lines, leaving PSO to deal with any loss making services. Options 1 and 4 contain safeguard measures to avoid potential negative impacts of open access vis-à-vis PSCs by allowing for the test of economic equilibrium. Options 2 and 5 prevent cherry-picking by the limiting the scope of open access services. In option 3, there is no open access.

Better usage of rail infrastructure

The scope of coverage of open access is greater in options 1 and 4 than in options 2 and 5.

If options 3 and 5 score better with competitive tendering, options 4 and 5 score with allow for open access as well. Option 1 scores better than option 2, as there could be no open access in the latter in some Member States;

Experience in Member States:

The analysis of the efficiency of public funds shows that among the 6 Member States whose efficiency of public spending has increased since the early 2000s, there is the UK, Sweden and Germany, which conduct competitive tenders for PSCs (cf. tables 9d and 10 of Annex 3). As explained in box 7, literature shows savings of 20-30% in those countries that have organised tenders. In particular in the Netherlands direct awards have only resulted in savings of 5-10% compared to 20-30% with competitive tendering. It is interesting to note that in constant terms, subsidies for PSOs increased by 48% in France in 2003-2008 while p-km only increased 24% and in Germany they decreased by 20% but still resulted in a 9% p-km increase during that period.

Sweden and UK are also top performers in terms of p-km growth per line growth (cf. table 7C in Annex 3). Finally, introducing competition in the market in high-speed lines can increase their usage. It is interesting to compare the frequencies on the Rome-Milan and Madrid-Barcelona routes. Both cities are at the same distance from each other and are located in member states with similar

GDP per inhabitant. Yet, the high-speed line Rome-Milan on which railway undertakings are competing with each other (FS vs. NTV) has double the number of trains per hour compared to high-speed lines Madrid-Barcelona (operated only by RENFE), as shown in table 7d of Annex 3,.

It is important to underline that, during the stakeholder hearing of 29th May, railway incumbents and a worker organisation expressed their concerns that unrestricted open access would lead new entrants to cherry picking (leaving incumbents with "potato picking" with the remaining unprofitable services), whereas a new entrant referred to the level of public funding as the key criteria to enter the PSC market. At the same time, 34% of respondents to the Eurobarometer survey considered that the level of public funding would decrease, whereas 30% thought that it would stay the same.

BOX 7 - SAVINGS FROM COMPETITIVE TENDERING AND OPERATIONAL EFFICIENCY

The evaluation of EU public procurement Directives suggests that savings increase (logarithmically) with the number of bids and with the use of open procedures. Savings in the procurement of goods, works and services have reached some 5% (where there are on average 5 bids). In railways, evidence in Germany, Sweden and Netherlands has pointed to savings of 20-30% per tender (ITF, OECD). It could be assumed that 5% of savings is the "benefit of tendering" (i.e. reduced margins of operators), whereas the remaining 15%-25% savings would derive from the "benefit of increased efficiency". Given that in Member States currently directly awarding their PSC, the subsidy level is about 17 billion EUR, a 20% saving would result in a ball-park figure of 3.4 billion EUR on a yearly basis. Finally, prospective studies have also estimated potential efficiency savings in the 20-30% area. The PREDIT[96] study on the impact of the opening of rail competition in France assumes a reduction of 30% of operational costs based on an analysis of different cost headings, whereas, in Germany, the PRIMON study on the privatisation of Deutsche Bahn assumed an efficiency differential of 20% between DB and its competitors[97]. Finally, it is also interesting to underline that Swedish passenger transport authorities appear to systematically use competitive tendering although they are not required.

Risks: Several factors under the control of national authorities influence the potential for savings, like the initial level of public funding, or usage of infrastructure, like congestion or the type of PSC (net cost versus gross cost PSCs). Also, there are sometimes complex interactions between the various factors on public finances, e.g. while there are savings expected from PSC financing and infrastructure revenues could increase, higher competition may reduce the profits of State-owned railway undertakings or bring extra costs for authorities in order to secure continuity of service (cf. section 7). Finally, there are also factors such as the level of track access charges that must be taken into account.

e) Impact on investment in rail

Option	0	1	2	3	4	5
Impact	0	+	+	+	++	++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

96 Programme de recherche et d'innovation dans les transports terrestres (PREDIT): Groupe opérationnel n°6 Etude sur l'Impact de l'ouverture à la concurrence dans le transport régional ferroviaire de voyageurs sur la consommation d'énergie et sur les émissions de carbone – Beauvais Consultants, KCW et RAILCONCEPT (2012)

97 Booz Allen & Hamilton: Bundesministerium der Finanzen, Bundesministerium für Verkehr, Bau und Stadtentwicklung: "Privatisierungsvarianten der Deutschen Bahn AG "Mit und Ohne Netz" (PriMON) – 01.2006, Annex, p.523

Scope of potential impact:

Open access encourages private investment (in particular in rolling stock but of facilities for rail-related services like maintenance). Rolling stock can be part of the business strategy of new entrants or incumbents alike. Overall, as open access takes place in long-distance and high-speed segments, it is likely that investment in new rolling stock is likely to be mostly directed towards high-speed or pendular trains (cf. Italian examples). In some instances, new entrants may also opt for second-hand rolling stock, also based on a decision to compete based on lower service (e.g. slower train) for a better price. Open access operators can also invest in rail maintenance facilities.

Competitive tendering for PSCs encourages public investment for rail services, as it allows for public savings. Although of course Member States retain the possibility to redirect their PSC savings to other policies and there are no signs that this would the case (UK). Decreases, if any, have had to do with the financial crisis. Overall both incumbents and new entrant will benefit from the reinvestment of public savings in the same level depending to whom contracts are awarded.

The combination of open access and competitive tendering will help expanding activities of rolling stock leasing throughout Europe (cf. 6.4 assessments of options on rolling stock), bringing institutional investors to invest in railway assets.

Investment in infrastructure (and its maintenance) is relatively independent from market opening, but the increase of rail services either as PSO or as commercial services generates a better return on investment for public authorities.

Open access encourages private investment (in particular in rolling stock), whereas competitive tendering encourage public investment for rail services. As a result, options 4 and 5 that combine open access with PSOs score better ('++') than options 1 to 3 (hence '+').

Experience in Member States:

The trend of subsidies for public service obligations in the Member States varies substantially and in some cases erratically, as table 9c in Annex 3 shows, but despite the current economic crisis there are no signs that public expenditure for rail would necessarily decrease[1]. However, budgetary constraints can play an important role. In the UK, the subsidy per mile has decreased since 2008, but important infrastructure works are foreseen for the years to come and the DfT has just awarded a 4.5 billion GBP contract for the UK Intercity Express to Hitachi-Agility Trains (one of the largest train orders in Europe). Between 2007 and 2008, subsidies in Ireland were almost halved (cf. table 9c), most likely because of the crisis.

In terms of rolling stock, there are divergent experiences. Operators like NTV invested 650 million EUR in purchasing new high-speed trains from Alstom and decided that rolling stock was part of a critical part of their business strategy (as Westbahn), whereas most other new entrants opted for second-hand rolling stock (RegioJet, HKX). At the same time, Trenitalia is investing in new generation of high speed trains like the Zefiro Frecciarossa to compete against NTV (and has invested in its own maintenance facilities). Competition also implies that railway undertakings may want to invest in additional facilities (e.g. automated ticket distribution systems of NTV).

In terms of investment of infrastructure, it is difficult to link the degree of market opening with infrastructure investment. The entry of NTV in the Italian high-speed network will certainly help Italy to better recoup its investment. But, Spain has also increased its p-km/line ratio by 33% since 1993 (cf. table 7c) and the UK has managed to increase its p-km by 84% while decreasing its infrastructure by 7%.

Risks: As explained previously, the level of investments is mostly determined by exogenous factors to rail as well as national policy choices. Investment in rolling stock is also highly reliant on

business strategies and policy choices to improve access to rolling stock (cf. options RS under rolling stock).

f) Administration[98] costs for operators

Option	0	1	2	3	4	5
Impact	0	0/+	0/+	- -	-	- -

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact: The introduction of competitive tendering in options 3 to 5 will introduce bidding costs (hence'- -' for options 3/ 5 and '-' for option 4, taking into account that the scope of competitive tendering of options 3 and 5 is more important than 4), which will be proportional to the number of bidders, the number of competitive tenders and the number of packages that are put for tender –although the costs of bidding are in principle part of their business-as-usual activities ('marketing cost'). These costs have been estimated at 390.000 EUR in the EU10 against 780.000 EUR in the EU15, including a 10% probability of risk of remedies litigation to tenders. On the other hand, the opening of domestic markets in all options but the baseline will allow railway undertakings to save costs and delays of establishing a subsidiary in other Member States, although the savings are relatively modest compared to the bidding related costs.

BOX 8 – ADMINISTRATION COSTS FOR OPERATORS[99]

Average transaction costs (one-off tendering)			
Preparation of tender - Competent Authority	*200,000*	*100,000*	€ (2012 prices)
Preparation of tender-Total cost tenderers	*500,000*	*250,000*	€ (2012 prices)
Participation to bid-cost per tenderer	166,667	83,333	€ (2012 prices)
Average number of tenderers	3	3	Number
Other costs of tender - Regulatory Bodies/Authorities/Courts	*80,000*	*40,000*	€ (2012 prices)
Estimated cost of a legal dispute/Regulatory intervention	800,000	400,000	€ (2012 prices)
Propability of occurrence	0.10	0.10	Number
Total additional transaction costs	780,000	390,000	€ (2012 prices)

Risks: One of the main factors of uncertainty is litigation related to remedy procedures. Based on rough estimates for 200-2002, it appears that 2.5% of public procurement procedures in the EU have been affected by remedies, with great variations among Member States (the UK having the lowest number of remedies procedures because of their cost)[100].

98 Administration costs are considered of covering wider range of regulation related costs than traditional administrative costs and burdens. In particular these include also costs of defining PSO, arranging and participating in tenders and managing the PSCs.

99 More details are available in Annex 9

100 Impact Assessment on Remedies Procedures in Public Procurement (COM(2006) 195), http://ec.europa.eu/internal_market/publicprocurement/docs/remedies/sec_2006_557_en.pdf

g) Administrative costs for public authorities

Option	0	1	2	3	4	5
Impact	0	0	0	- -	-	- -

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact: The introduction of competitive tendering in options 3 to 5 will introduce administrative costs for public authorities to handle the competitive tenders. As a result, all options 3 to 5 are likely to have a negative impact, which is slightly more important in options 3 and 5 ('- -') as they imply more competitive tendering than option 4 ('-'). In options 1, 3 and 4 national regulatory bodies have to supervise the economic equilibrium of PSCs and, where not yet in place, to establish transport plans.

BOX 9 - ADMINISTRATION COSTS FOR PUBLIC AUTHORITIES

Contract features		EU15	EU12	Unit value
Total number of contracts (PSC)				
	Current situation	273	6	279
	Baseline	289	11	300
	Option B1	321	58	379
One-off cost of PSC				
	Cost of setting a PSC	750,000	500,000	
Rump-up period to get all PSC				
	Rump-up	5	5	Years
Average monitoring cost				
	Average yearly cost of PSC	*78,000*	*39,000*	€ (2012 prices)

Experience in Member States: (cf. infra – risk of litigation)

Risks: (cf. infra – risk of litigation)

h) Multinational[101] rail activities

Option	0	1	2	3	4	5
Impact	0	+	+	+++	++++	++++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impact: The capacity of operators to develop rail activities in several Member States will largely depend on the degree of openness of the various options, but also on the similarity of market structures throughout the EU. In this sense, the scope of potential impacts of multinational rail activities replicates the potential impacts of competition. However, by providing a general common framework on the proportionality and the necessity of PSCs, options 3 to 5 fare better than options 1 and 2. Given that options 4 and five address the rules both in open access and PSC market, their scores are better than that of option 3which regulates only PSC market.

[101] The impact on multinational rail activities development does NOT refer to the development of international services within the EU, but to the share of rail operators active in providing national services in several Member States

Experiences in Member States: UK, Sweden and, to a certain extent, Germany have subsidiaries of foreign railway undertakings (France, Germany, Italy and Netherlands) active in their PSCs. SNCF is also a shareholder of NTV and WestBahn, the new open access entrants respectively in Italy and Austria.

Risks: The development of rail activities in other Member States in PSC markets will also depend on the capacity of public authorities to honour their compensation payments on a regular basis. In this sense, the internationalisation of railway undertaking risks to be first oriented towards Member States with strong public finances[102].

BOX 10 -INTERNATIONALISATION OF RAILWAY UNDERTAKINGS

Thanks to the progressive opening of domestic markets like Germany, Sweden and the UK, several new companies run PSCs in other Member States (Veolia, Arriva, MTR). Progressively, incumbents are also venturing into domestic services outside their own Member State. SNCF bids outside France as Keolis, NS bids outside the Netherlands as Abellio, DB has purchased Arriva and Trenitalia has taken over Arriva's franchises in Germany (as Netinera). RegioJet, the Czech new entrant, operates PSCs in Slovakia. During interviews, it appeared that more and more EU-based incumbents are also bidding for UK franchises. Finally, SNCF has also invested into several EU new entrants like Westbahn and NTV. There are now 4 bidders for running the S-Bahn of Berlin, out of which only one is German (DB), the others being Raatp (France), MTR (Hong Kong) and National Express (UK).

j) Small and medium enterprises in rail

Option	0	1	2	3	4	5
Impact	0	0/+	0/+	+	+	+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: Overall, the initiative is not likely to have major impact on rail SMEs. Options 3 to 5 (+) are considered as scoring better than options 1 and 2 (0/+) due to the scale of potential liberalisation. Given the large upfront investments necessary to launch open access operations, opportunities for new SME entrants will be most likely confined to small scale tenders for PSCs. Based on extrapolations of the situation of operators of UK franchises, it appears that a medium enterprise (less than 250 staff or a turnover of 50 million EUR) could at most operate a PSC contract of around 2.5-3 million train-km.

Experience in the Member States: Most of the firms active in rail, even in markets with relatively small-size PSCs (like Germany but not Italy), tend to be either subsidiaries of railway incumbents or international groups (cf. Box 8). It is interesting to compare the situation in Germany with the situation in the UK. In the former bundles put for tender have had a median of less than 1 million train-km whereas in the UK many franchises have some 20 million train-km. In Germany, there are some 33 passenger railway undertakings[103] with less than 8% of German passenger-kilometres, some of which are local train companies[104]. In the UK, franchises have been mostly awarded to groups in the bus business (First, Arriva) or to railway undertakings from other Member States.

[102] Public service transport in the EU (CER-2011): there are appear to be problems with the regularity of payments for public service obligations in Member States like Romania, Slovakia and Greece, cf. p.32

[103] Wettbewerber-Report Eisenbahn 2008/2009, mofair – BAGSPNV.

[104] The so-called Landes- und Kommunalbahnen only represent one-third of the train-kilometres awarded to companies not being the incumbent (DB), whereas the subsidiaries of international groups or foreign railway

6.2.2.2- Indirect impacts

a) Innovation

Incentives to innovate will be stronger where there is the possibility for open access or competitive tendering with net contracts. In the Czech Republic, for instance, the new entrant RegioJet sells its tickets through the hard-discounter Lidl[105]. Freedom to innovate in PSCs may be constrained by terms of reference of PSCs (this is not to outright exclude any possibility of innovation in option 3), though PSC can equally encourage innovation by allowing operators to keep a share of efficiency savings or revenue from new passengers.

b) Macro-economic growth

It is difficult to predict how far domestic opening of rail services will impact growth. However, given the importance of the rail sector in the wider economy and its share in public investments , it is reasonable to assume that improved efficiency of rail operations will translate itself either into additional purchases of rail services, additional manufacturing of rolling stock or additional public savings, having overall positive effective on the economy.

c) Regional impacts

Regional services are mostly conducted through PSCs, therefore regional impacts are strongest in the options with a PSC tendering component. It can be assumed that regional mobility will benefit from efficient public spending, which will translate itself into the possibility to proceed to purchases of additional rail services and helping to stop the vicious circle of decaying regional services in some Member States (e.g. Central and South-Eastern Europe). At the same time, to ensure the continuity of services, it would be important that national authorities take account of any related risks as discussed in Section 7.Finally, the introduction of yield management in some open access commercial services will affect last minute travel between certain cities.

d) Relations with third countries

Some EU operators have already built activities in other rail markets (USA, Canada, India and Australia). More competitive EU railway undertakings will be even more inclined to venture outside the EU as they gain experience in different markets. As regards the impacts on the third country operators, none of the options is likely to affect existing trade agreements in services.

e) SMEs outside rail

Indirectly, higher service levels achieved by all options should have a positive impact on SMEs providing supplies or services to the rail sector. Furthermore, as voiced by stakeholders[106], liberalisation will normally lead to a more dynamic sector relying more on outsourced services than traditional incumbents. This would be a new business opportunity for SMEs. Last but not least, the creation of a Single European Area will be beneficial for the consistency of the EU internal market, further benefitting SMEs.

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operators (inculbents in France, Netherlands, Italy) represent the remaining two-thirds. Source: Wettbewerber-Report Eisenbahn 2008/2009, mofair – BAGSPNV, pp.27

105 NS, the Dutch incumbent also sells its tickets in retailers.

106 This comment was made during the stakeholder conference 'The Last Mile towards the 4th rail package'

6.2.2.3 – Summary of assessment of economic impacts

Table 8 – Economic impacts

	Option 0 Baseline scenario	Option 1 Broad open access only	Option 2 limited open access only	Option 3 Competitive tendering only	Option 4 Broad open access and competitive tendering	Option 5 limited open access and competitive tendering
Direct economic impacts						
Competition	0	+/++	+	++	++++	+++
Transport demand	0	+	+	+	++	++
Industry revenues and costs	0	+	+	++	+++	++/+++
Public funding	0	+	0/+	++	++	+++
Investment in rail	0	+	+	+	++	++
Administrative costs for operators	0	0/+	0/+	--	-	--
Administrative costs for public authorities	0	0	0	--	-	--
Multinational rail activities	0	+	+	+++	++++	++++
Small and medium enterprises	0	0/+	0/+	+	+	+

6.2.3. Social impacts

6.2.3.1- Direct impacts

a) Passenger fares

Option	0	1	2	3	4	5
Impact	0	+	0/+	0	+	0/+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts:

First and foremost, it is important to underline that fares in PSO are regulated, whereas fares in commercial services are mostly not regulated (except in the UK, where open access operators have to set their fares by reference to the regulated fares of franchise operators).

As a result, the impact of competition on fares will largely be confined to those services that could potentially fall under open access (although there are also incentives in net cost PSCs) – i.e. high-speed services and long-distance intercity trains. This excludes from outset suburban commuter services and the vast majority of regional services (as per 6.2.1), which represent some 50% of all passenger-km in the EU. At the same time, Member States that will continue to have 100% PSCs (or actually switch to 100% PSCs) will have to maintain systems of regulated fares.

The experience of open access (cf. table 3 and infra) shows that price reductions are taking place in routes with competition *in* the market. However, most evidence is quite recent[107] and it is important to distinguish short-term effects on fares from long-term effects. In the short-term, new entrants

[107] Evidence before 2010 only exists for the UK. However in the UK, open access fares are regulated to avoid compromising the economic equilibrium of franchises (PSCs).

may wish to start fare wars to gain market share at the expense of incumbents, but in the long run new entrants may find themselves in duopoly and therefore maintain similar levels of price. Also, the evolution of fares will depend on the strategy of the new entrant, which may want to provide an upper service for a higher fare and could be impacted by exogenous factors (track access charges, price of electricity) or competition that fails to materialise (e.g. long-distance services in Germany). Finally, fares of open access operators that are operating in lines where there are PSCs in parallel may need to be regulated to avoid that the economic equilibrium of the PSC is compromised.

The potential for the fare decreases is concentrated in services in open access and in net cost PSCs, whenever there is scope for additional frequencies (no congestion). In Member States with the majority of traffic provided under PSC, most fares will be regulated. Options 1 and 4 give more room to competition than options 2, 3 and 5, where most fares will be regulated. In cases of sustainable commercial services, there is more room for price decreases in options 1, 2, 4 and 5 (but not in option 3 as these services would most likely still fall under legal monopolies). As a result, option 3 scores '0', options 2 and 5 score '0/+' and options 1 and 4 score '+'. It is also true that in the context of PSCs, public transport authorities may decide to use the savings from competitive tendering to lower the fares.

Experience in the Member States:

Fares appear to have increased 28% in real terms since 2000 according to Eurostat (cf. table 5g in Annex 3). In the UK and Germany fares have increased. As these are regulated fares as new entry in open access routes is recent, this reflects rather shifts in public authorities priorities (giving a preference to financial support in favour additional services rather than lower passenger fares for a more limited number of services). It is however interesting to underline that, in Sweden, fares "only" increased by 9% in real terms over the period since 2000(they only appear to have decreased in Belgium).

In those lines where there is competition in the market, price reductions have taken place, yet evidence is still recent and can only serve to assess short-term developments. In the Czech Republic, the new entrant RegioJet proposed fares 25% lower than those of CD, the Czech incumbent, which reacted by decreasing its own fares by 30%. In Italy, Trenitalia appears to have switched to yield management (differentiated prices) in its high-speed services further to the arrival of NTV, a new entrant competition on high speed, and there are reports that NTV proposes fares up to 70% those of the incumbent before its market entry. In Sweden, Veolia opted for cheaper fares (but slower trains) in the Malmö-Goteborg route. Finally, in Austria, Westbahn has undercut fares by 50% in the Salzburg-Vienna to equalise with ÖBB fidelity fare. In contrast fares have increased by 15% (Graph 9) in German long-distance routes which are under open access but there is no other competitor. Finally, based on a quick analysis of fares between Rome-Milan and Madrid-Barcelona, which are located at the same distance, prices in the former appear to be half those of the latter (table 5h in Annex 3).

Risks:

Several exogenous factors and national policy choices may play an important role in determining rail fares. Member States may decide to maintain national fare systems and/or to use gross cost contracts. Also, effects may be difficult to isolate because of the use of yield management.

The fare structure will also depend on the way Member States will organise their PSO network. The expectations of citizens may not be matched by reality, in particular in those Member States that will opt for a large part of services under PSCs. In the Eurobarometer some 72% of citizens expect fares to go down further to the introduction of competition.

Finally, some rail services may move from a single-fare system to a yield management system, with reservation requirements. This could affect short-term travel which could become more expensive. This has been for instance the case in the heavily commuted Dutch-Belgian travel with the introduction of the Fyra high-speed services.

BOX 11 –YIELD MANAGEMENT

Some railway undertakings operate yield management systems in long-distance railway services as airlines. Yield management systems allow railway undertakings to provide a wide range of fares at several types of conditions. In Italy, NTV appears to have prompted also Trenitalia to use yield management in the Rome-Milan route. In France, the incumbent SNCF has already for a long time used yield management in its TGV routes, where it is in monopoly. The introduction of yield management allows railway undertakings to exploit the various elasticities of demand (time-elasticity, price-elasticity), but could create problems of transparency for passengers. Yield management is not as frequent in short-distance routes. Finally, the introduction of yield management affects mostly last minute travel between large cities that becomes more expensive.

b) Service quality (frequency, destination choice and punctuality)

Option	0	1	2	3	4	5
Impact	0	+	0/+	+	++	++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts:

Service frequency, availability and destination choice can improve with new open access rights filling service gaps (including a better price-quality ratio or 'niche' services as shown in table 3), as well as through the savings of competitive tendering being used to buy additional train-km. In terms of PSC, the ability to improve services will depend on the incentives established in PSCs (net costs versus gross costs contract, but also any additional conditions on quality such as minimum frequency and stations to be served) but also of geographical concentration (services are more costly in sparsely-populated remote areas). In this context options 4 and 5, containing both open access and PSC elements, score better (++) than options 3, where there is the risk that legal monopolies remain (in large-sized Member states) (hence'-'). Option 1 score better than option 3 in large Member States as it maintains open access, whereas Option 2 scores less than option 1 as it may imply the direct award of PSC for the entire services in small-sized Member States (with 100% PSCs), hence not providing any incentive for improvement.

Punctuality is influenced of course by exogenous factors like congestion or the traffic management by the infrastructure manager.

Experience of the Member States:

As shown in table 9 and graph 18 (cf. conclusions of Annex 3), among the Member States whose satisfaction/quality perception growth rates have grown most since the nineties and early 200s one finds the UK and Sweden, Germany, which have all introduced competitive tendering. Belgium, France and and Luxembourg also score well.

Service frequency, availability and destination choice:

Open access operators have sometimes opted for new services. NTV offers amenities that vary by type of customer rather than classes, while operators like RegioJet, Veolia (Sweden), Westbahn

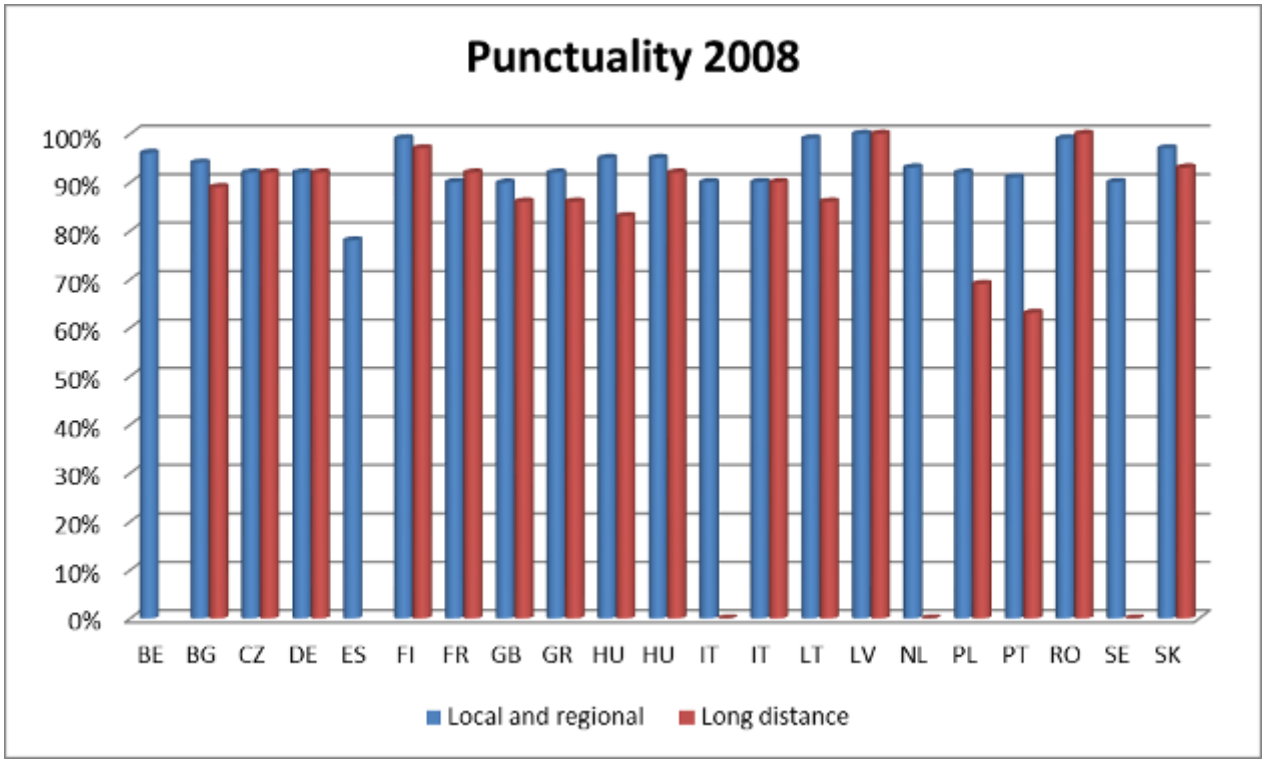
have opted for slower services at cheaper prices. In France, SNCF is considering to launch low-cost TGV services.

Availability could be an issue in some countries – in Sweden train supply has decreased (-25% of train-kilometres), but it has increased in the UK. On the other hand, analysis of the impacts of competitive tendering of public service contracts of rail transport in the German region of Baden-Württemberg indicates that from the 80 lines assessed (52 without competition, 28 with competition) the frequencies of services grew much stronger in the group of lines with competition than in the group of directly awarded contracts over the period 1994 and 2004[108]. Obviously this is not a direct effect of competition as service quality of PSO services is largely determined by the competent authorities but induced by reinvestment into better quality of savings of public funds. In the case of Sweden, geographic concentration makes some rail services to remote areas more expensive.

Punctuality:

Network Rail, the UK infrastructure manager, reports improved punctuality over the period of 2002-2009, despite increasing traffic intensity[109]. Punctuality is between 85%-90% in Sweden – as in France. Most of the countries with low traffic densities like Romania, Lithuania Latvia and Finland have higher punctuality rates. However data is patchy.

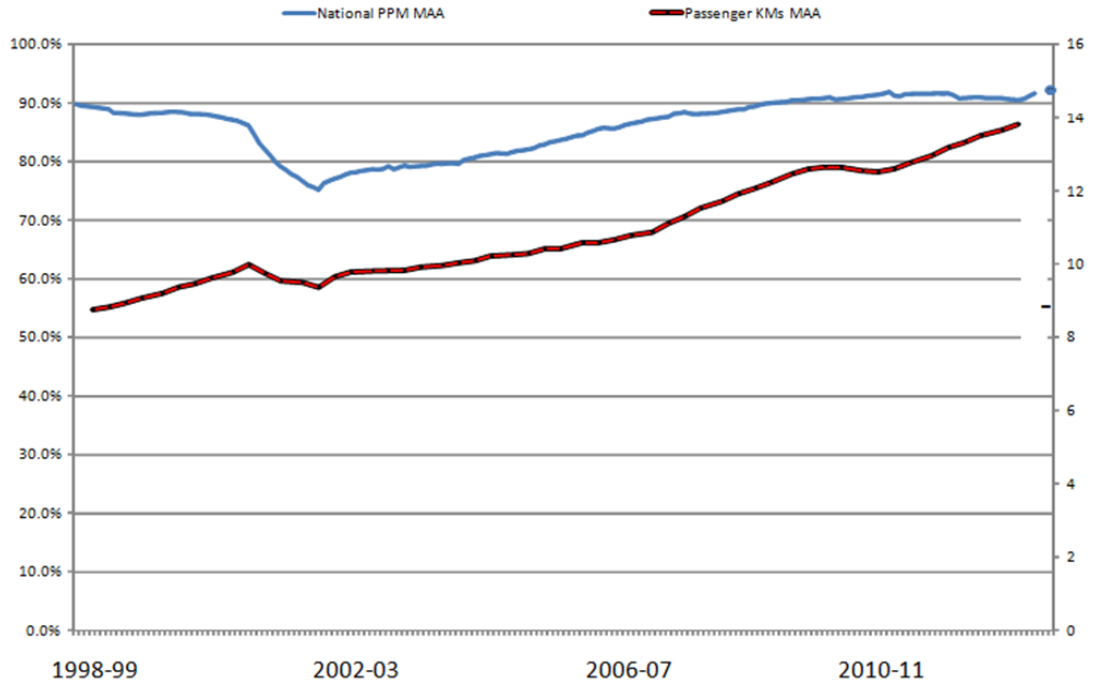
Graph 17: Punctuality in long-distance and local services (2008)



Source: UIC

[108] Lalive and Schmutzler (2007), Exploring the effects of competition for railway markets, published manuscript, Zurich 5.2.2007 and data in table 5d.

Graph 18: Passenger service reliability and punctuality in the UK since 1998



Source: ORR and Network Rail (quoted from ORR (2012))

The graph shows the monthly annual average for the Public Performance Measure (reliability indicator) and the proportion of trains arriving at their destination within 5 minutes (10 minutes for long-distance trains) of the scheduled time (punctuality indicator)

The enhanced reliability and punctuality performance in the UK since the late nineties has led to a significant increase in passenger satisfaction (see graph 18).

Risks:

Service frequency, availability and destination choice: the ability to improve service in PSCs depends on the choice of Member States to introduce net cost contracts, which is a decision which rests on the Member States themselves.

Punctuality: Higher utilisation rates of infrastructure will increase congestion risk and service disruptions, if there is no matching investment in infrastructure capacity.

c) Employment in railway undertakings.

Option	0	1	2	3	4	5
Short-term impact	0	0	0	-	-	-
Long-term impact	0	0	0	+	+	+
Impact	0	0	0	-/+	-/+	-/+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts:

The impact on employment is difficult to evaluate, as it will depend on different effects that counteract each other:

– Increase in demand for railway services (as foreseen in the White Paper baseline as well as the result of the current initiative) should lead to the creation of new jobs in the medium to long-run, especially in EU-10 where rail passenger services are currently relatively underdeveloped.

– Higher productivity called by competitive pressure would result in lay-offs in companies having room for efficiency gains (but these occur most prevalently in EU10), in particular in the short-run.

– Moreover, the previous point is partially neutralised by the fact that due to the age profile in the rail industry 30% of workers[110] in the rail sector will retire in next 10 years (cf. Annex 7, graph 14b) and that there are transitional periods for competitive tenders till 2023. However, effects may vary in each depending on the variation of the retirement age across Member States and its evolution in the years to come (likely to rise).

– There is a gradual move, especially by new entrants, to create multifunctional positions (except in the case of drivers), which is a divergence from the traditional approach. This creates scope for jobs requiring relatively higher levels of qualification and in-job training than in traditional incumbents.

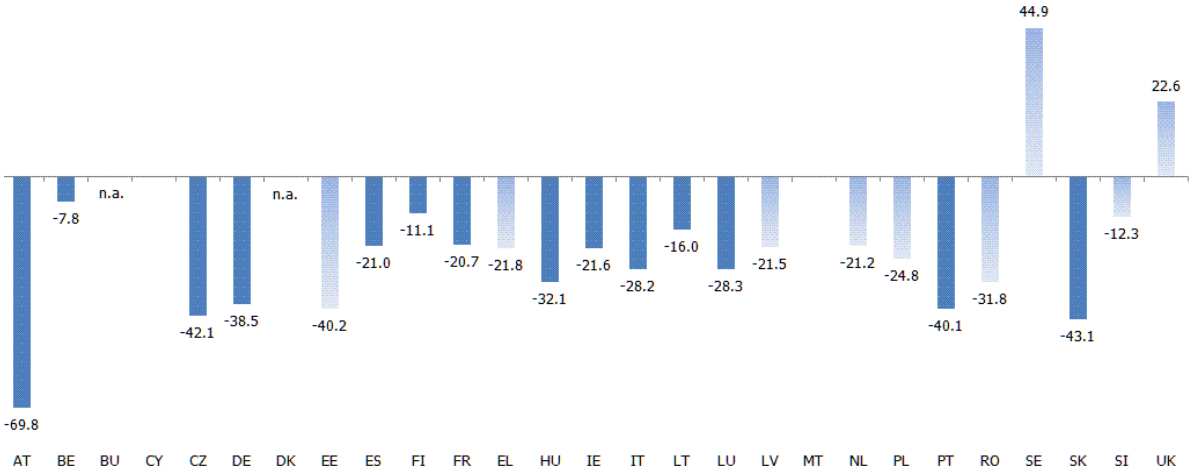
The options with the strongest market impact, potentially leading to significant restructuring of the sector, will be assumed to have the most negative impacts in terms of jobs in short term. However, as explained in box 12, in a long term perspective, the impacts should be neutral or even positive. Moreover, this assumption does not take into account the gradual effect of the movement to compulsory tendering of PSCs.

Experience in Member States: As shown in graph 19, based on a study from EIRO[111], total employment in railway transport decreased in all Member States, with Sweden and the United Kingdom creating jobs since 2001, which fit in the models of options 3 to 5. This is also confirmed in Annex 3 (table 8a) which analyses evolution in jobs since 1993. Employment in rail has decreased by 43% between 1993 and 2008 and by an estimated 13% between 2000 and 2008. Most of the employment losses appear to have been recorded in Central Eastern and South-Eastern Europe: in Hungary and Romania, more than 70% and 60% respectively. There was a decrease in jobs in the UK and Sweden in the nineties, but the latter was not more significant than in other Member States.

[110] CER (2011) Employability in the age of Demographic Change – Prospects for the European rail Sector: 54% of the rail workforce is older than 45 and 34% have already past the age of 50, In NMBS-SNCB, the Belgian incumbent, more than 50% of the working population had more than 50 years (source: Question écrite n° 5-2703 de Bert Anciaux (sp.a) du 12 juillet 2011 à la ministre de la Fonction publique et des Entreprises publiques)

[111] EIRO (2011), Eurofound - European Industrial Relations Observatory,, Study on Employment and industrial relations in the railway sector: http://www.eurofound.europa.eu/eiro/studies/tn1109030s/tn1109030s_3.htm

Graph 19 – Variation of total employment in railway freight and passenger transport in EU-27, years 2001/2010 (%)



Source: EIRO CAR 2 Employment and industrial relations in the railways sector, quoting Eurostat, LFS

Risks:

Specific groups of workers like older or younger workers could be exposed to restructurings. Important job reductions have already taken place in the railways because of the age profile of railway workers. Reductions related to productivity increases could affect older workers through early retirement or young workers – where old statutory regimes co-exist with flexible working conditions.

At the same time, the age pyramid of rail workers could point to shortages of personnel in the years to come, which should lead to continue encouraging the recruitment of women and young workers.

It is important to underline that effects on different groups may vary depending on the various retirement ages (cf. graph 21) that depend on statutory agreements, collective agreements, age, sex and, of course, profession.

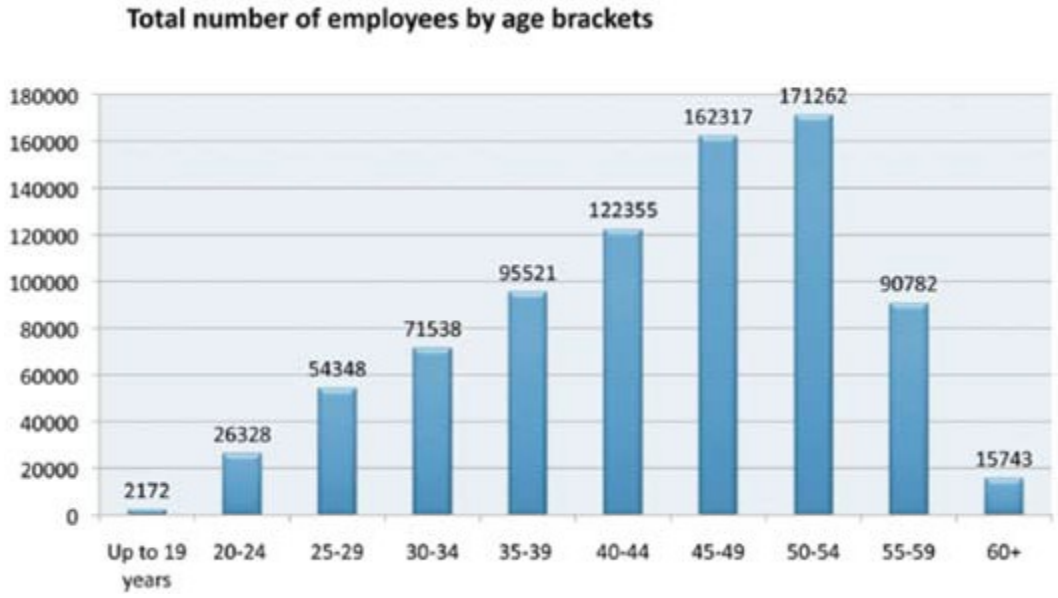
BOX 12 - IMPACT ON JOBS - A CONCRETE EXAMPLE

The potential impact on employment will greatly depend from the improvements in efficiency compared to the forthcoming ageing of the workforce in railways. 30% of the rail workforce (some 139.000 persons) will retire in the 10 years to come. If we were for instance to simulate a productivity improvement of 20%, based on a simple rule of three, some 92.600 workers could have been affected. However, in reality potential redundancies will be offset by the retirement of 139.000 persons, even more so if the transitional periods for existing contracts were to be foreseen as from 2021. In this sense, there is actually a risk of shortages.

At the same time, if the savings of competitive tendering were reinvested to purchase additional passenger-kilometres (box 7) the delivery of additional 34 million p-km would require more people work for rail, not counting additional infrastructure and rolling stock demand. Extra workforce needed could be up to 14 000 people.

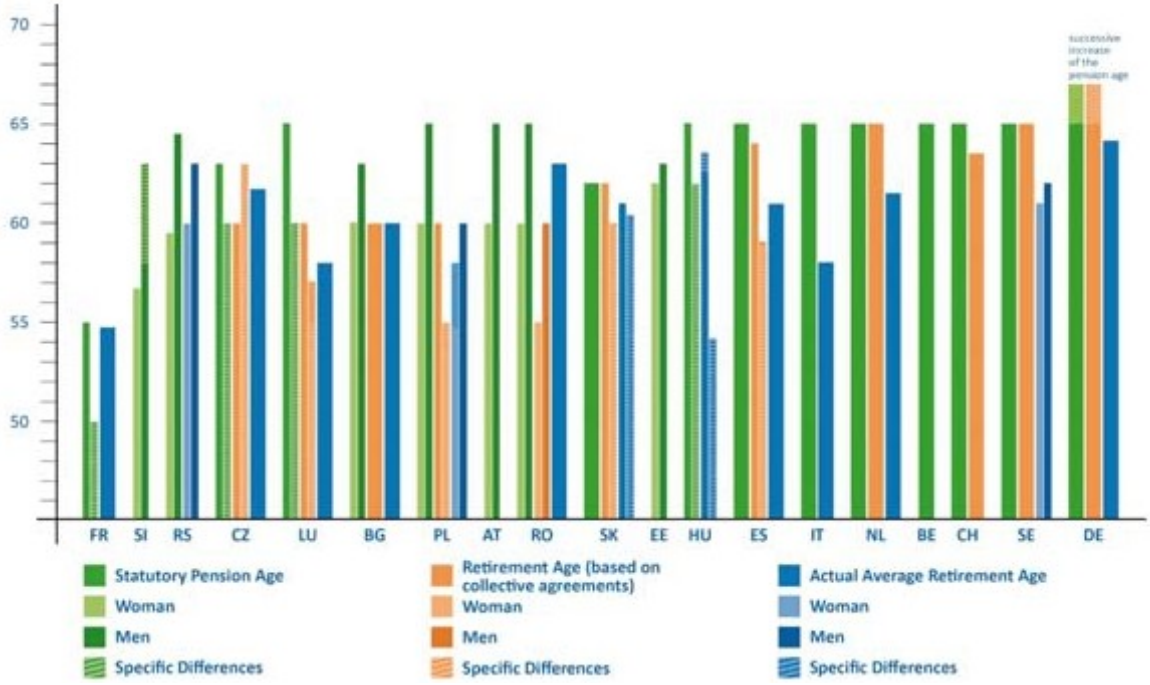
As a result, unless productivity increases by more than 30%, it is very likely that in the mid-long term perspective railways will face shortages of workers. In any case, time lags related to phasing the policies in, will play an important role in overall employment dynamics of the sector and will strongly depend on the starting position and measures taken in each Member State.

Graph 20 – Age pyramid of workers in rail (2011)



Source: CER (2011) –Employability in the face of demographic change – Prospects for the EU rail sector

Graph 21 – Retirement ages in railways



Source: CER (2011) –Employability in the face of demographic change – Prospects for the EU rail sector

d) Employment in rail-related sectors

Option	0	1	2	3	4	5
Impact	0	+	+	+	++	++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: The growth of railway activity will increase the demand for rolling stock and rail related services, therefore creating new jobs in connected industries. The impacts are directly correlated to the rail services demand, therefore the same scores have been attributed to each of the options.

e) Impact on working conditions

Option	0	1	2	3	4	5
Impact	0	-	-	--	--	--

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts, including experiences in the Member States and risks:

All the options that have an impact on labour costs could have some negative consequences for working conditions. In the stakeholder consultation, workers explained that they felt that competitive tendering could contribute to a deterioration of working conditions. According to van Dijk (ITF, OECD, 2008), this has been the case in The Netherlands, although the latter has legislated on transfer of staff.

Labour costs represent some 30% of railway operational costs. It is obvious that the opening of domestic markets to competition will impact the working conditions of railway undertakings currently operating in monopoly, but only within the lines of collective agreements negotiated within the Member States. In some Member States, railway undertakings had or will have to abandon the civil servant statutes of their workforce (Germany, Greece and Austria have already done this and are in a transition phase, while Belgium and Luxembourg currently maintain them). In others, railway undertakings are applying more profession-based collective agreements (e.g. the Austrian new entrant Westbahn applies to its catering staff the collective agreement of the catering sector and not that of the rail sector).

Wages are likely to evolve based on market conditions like specialisation, skills and scarcity. Higher-skilled professions (train drivers, train technicians) are most likely to witness an upward pressure on wages, with service, ticket control, catering and administrative functions aligning themselves with the rest of the market (mostly downward). This may involuntarily affect women more negatively than men, as high-skilled rail-related professions tend to be mostly occupied by men (drivers). Also, railway undertakings may be inclined to outsource the provision of services like catering (like air transport) or clerical functions to maximize efficiency.

BOX 13 – WAGES OF TRAIN DRIVERS

It is interesting to compare wages or incomes from drivers in different markets across the EU and their evolution in those countries that have taken steps to open up their domestic rail markets, based on different available sources.

During the conference of the 24 September 2012 (cf. Annex 10), it was claimed that the wages of train drivers in the UK reached some 50.000 €/year (hence some 4.200 €/month) and that those of private railway undertakings in Germany were at some 86% of the incumbent DB. The PREDIT study in France referred to net monthly driver wages at SNCF between 1500 € (career start) and 3400 € (end)[112] – hence probably between 3000 € and 7000€ gross. In those markets that have been liberalised, new entrants offer attractive salary conditions in order to ensure that they attract the staff and grow their service[113].

Finally, anecdotal evidence suggests that the opening to competition has not led to a deterioration of income. According to the European Foundation for the Improvement of Living and Working Conditions[114], between 1999 and 2004, the average monthly income of SJ (Swedish incumbent) increased by 18% (during the privatisation period of SJ while market opening had already taken place).

Productivity – cf. impact for the revenues and costs of the industry

Recruitment - The strengthening of efficiency and the introduction of competition will most likely result in an increase of flexibility and a move to a more contractual approach to employment.

Also, the usage of competitive tendering brings with it the question of transfer of staff. Directive 2001/23/EC on the approximation of the laws of the Member states relating to the safeguarding of employees' rights in the event of transfers of undertakings, already gives employees a considerable degree of protection[115]. Regulation 1370/2007 already extends the protection offered by Directive 2001/23/EC allowing for the possibility to ask for transfers of staff in tenders in cases where Directive 2001/23/EC would have not been applicable. Some Member States, like the Netherlands, have specific provisions on the transfer of staff[116]. And, in fact, taking into account the high median age of workers in rail, the possibility to request the transfer of staff may ultimately be beneficial to the subsequent operator.

Skills – As explained, the increase in demand for rail service could also lead to shortages of personnel. Railway undertakings that will cooperate with schools to train new personnel will be able to cope with this challenge. Finally, the progressive de-centralisation of railways into several types of businesses (maintenance, catering, traffic management,..) could lead to a trend towards more specialisation.

Finally, according to the Eurobarometer survey, more than 60% of Europeans think that the opening of rail competition is expected to have a positive influence on the way railway companies are managed. 55% of respondents of the Eurobarometer survey think that more competition in the rail market will be good for employees of rail transport operators (32% think there will be negative impacts on working conditions). Of the 3 representatives of worker's organisations that participated in the stakeholder consultation, all predicted more strikes with further opening of the domestic

112 PREDIT study on the opening of rail to competition in France – cf. references are provided in infra

113 New entrants indicated that in interviews that they were keen to offer multi-tasking activities or flexibilities to work on weekdays instead of weekdays.

114 European Foundation for the Improvement of Living and Working Conditions, Profile of the rail transport sector in Sweden

115 The directive 2001/23 is only applicable to transfers as defined therein. Consequently, following the case-law of the European Court of Justice, in sectors such as bus transport, based on tangible assets, the Directive "does not apply in the absence of a transfer of significant tangible assets from the old to the new contractor". The transfer will therefore depend on whether significant rolling stock and other tangible assets are transferred.

116 Dutch law requires staff transfer to the new operator after a tendering procedure - in such cases the transfer of tangible assets is not a condition for staff transfer

passenger rail market. Other stakeholders (almost 50% response rate) are much more diverse: 60% predict no change and 30% more strikes.

BOX 14 – EXISTING SOCIAL SAFEGUARDS IN RAIL

As detailed in Annex 7, the EU has implemented a series of social safeguards which apply for rail workers:

- The establishment of ERA and the adoption of safety legislation and drivers' licences and certificates protects the safety of rail workers.
- There is generally applicable legislation for working time and specific legislation for working time in cross-border services. The Posted Workers Directive obliges to apply to workers temporarily posted to carry out work in order to provide services in another Member State than the one in which they habitually carry out their work, including those involved in cabotage activities
- Legislation exists for working time in cross-border services, while for domestic services the Posted Workers Directive (PWD) obliges that host country core social legislation be applied to posted workers, including those involved in cabotage activities.
- EU legislation on the transfer of undertakings which obliges the transfer of workers has been strengthened by the PSO Regulation 1370/2007 which also allows competent authorities to impose specific social and service quality standards.
- European Works Council legislation aims to improve the right to information and consultation of employees at transnational level in Community-scale undertakings or Community-scale groups of undertakings on transnational issues. There are also other important legal acts applicable at national level and providing rules on information and consultation of employees including directive 98/59/EC (collective redundancies), Article 7 of Directive 2001/23/EC (transfer of undertakings) and Directive 2002/14/EC (general framework).
- The European Social Fund (ESF) can provide support to the training needed in the job transitions derived from any external restructuring or internal reorganisation, although it should be underlined that this could crowd out other beneficiaries.

f) Rail safety

Option	0	1	2	3	4	5
Impact	0	0	0	0	0	0

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

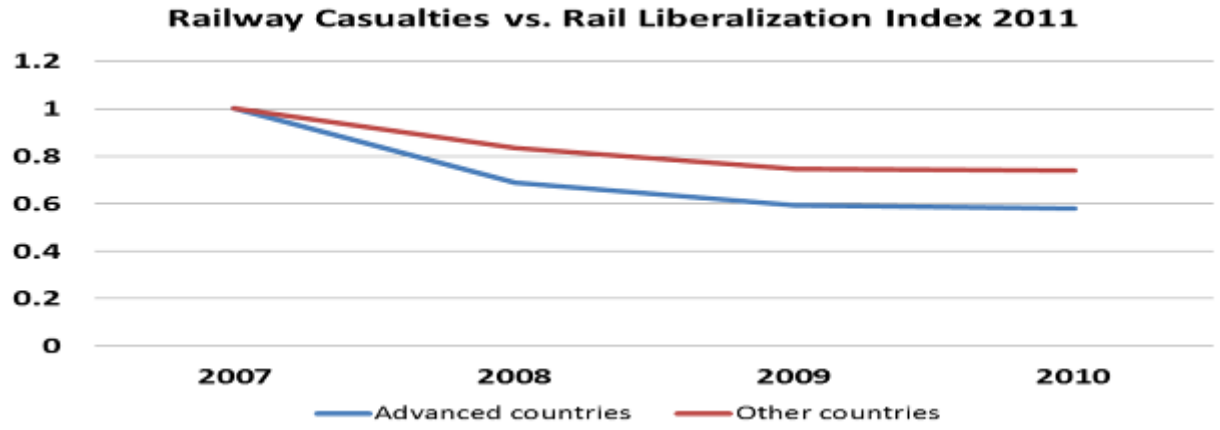
Scope of potential impacts: All options score identically as safety is not influenced by the degree of market opening (cf. tables 5e and 5f in Annex 3), as the mechanisms for certifying rail undertakings and authorising rolling stock as well as the remainder of the very comprehensive legislative framework will remain unchanged. Moreover, safety is mostly the result of interactions with the infrastructure manager (who is responsible for signalling and traffic management) than between railway undertakings. Finally, as rail is the safest transport mode, the potential increase of rail travel will result in overall safer passenger transport. This impact could be important in South-East Europe, where road traffic modal share is increasing and where the number of fatalities is highest.

Experience from the Member States: As explained in the EVERIS study,[117] there is no evidence that opening markets to competition jeopardises safety. Quite on the contrary, Sweden, Germany and UK score all very high in terms of safety (cf. Annex 3) and are "advanced" in terms of market opening, according to the IBM Rail Liberalisation Index. Academic studies have shown that

[117] EVERIS (2010), Study on regulatory options for further market opening in rail passenger transport, p.213

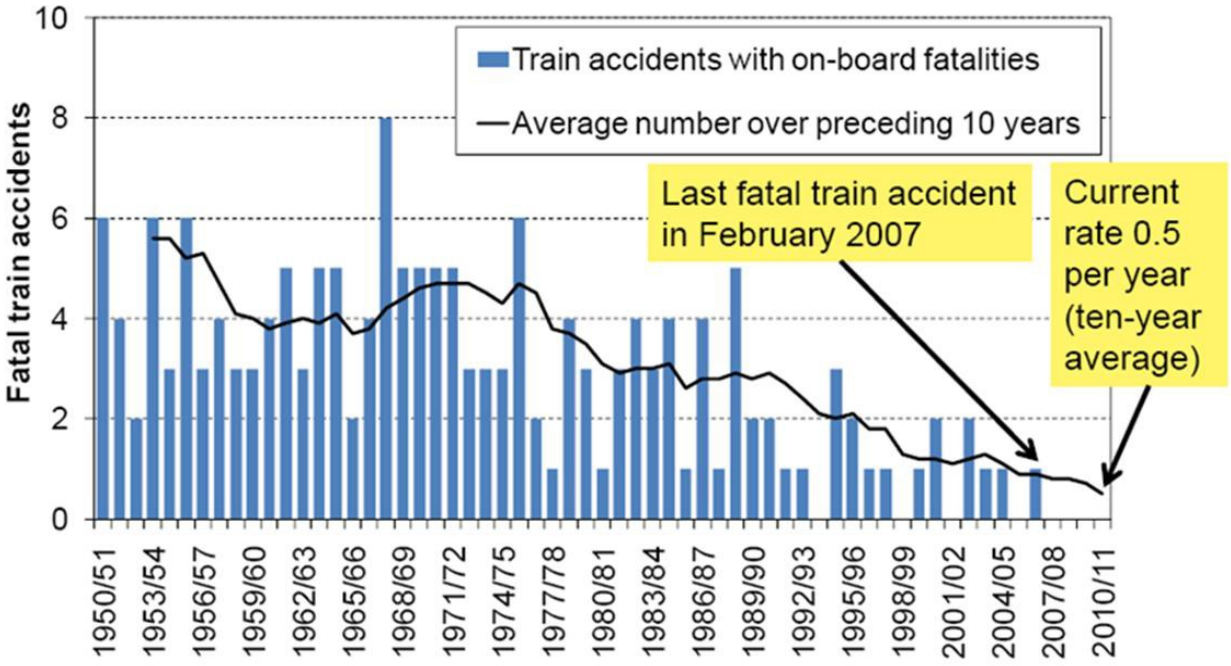
accident levels in the UK have fallen at a faster rate after market opening than before it[118]. See also graph 23 depicting the development of fatal train accidents in Britain since 1950. It illustrates that fatalities diminished significantly since market opening in the mid-nineties. Less than 20% of the respondents to the Eurobarometer survey think that the opening of railway competition is expected to have a negative influence on the safety of the network and 55% think that there will be an improvement. Those considering an increase in safety are responding from Member States with a very high safety level.

Graph 22- Safety in Member States with "advanced" market liberalisation



Source: European Railway Agency (ERA) and IBM Railway Liberalisation Index

Graph 23: Long-term decline in fatal train accidents in Britain since 1950



Source: ORR (2012)

[118] Evans A W Fatal Train Accidents on Britain's Main Line Railways, as quoted by EVERIS (2010), p.213

6.2.3.2 – Indirect impacts

a) Social inclusion

– cf. regional impacts

b) Noise

Noise is expected to grow in line with additional train activity. Also, as new rolling stock is introduced, it is likely to be built to more modern standards with improved noise reduction technology.

6.2.3.3 – Summary of assessment of social impacts

Table 10 – Social impacts

	Option 0 Baseline scenario	Option 1 Broad open access only	Option 2 limited open access only	Option 3 Competitive tendering only	Option 4 Broad open access and competitive tendering	Option 5 limited open access and competitive tendering
Direct social impacts						
Passenger fares	0	+	0/+	0	+	0/+
Service quality	0	+	0/+	+	++	++
Employment - rail undertakings	0	0	0	-/+	-/+	-/+
Employment – rail-related sectors	0	+	+	+	++	++
Working conditions	0	-	-	--	--	--
Rail safety	0	0	0	0	0	0

6.2.4. Environmental impacts

The policy options would have some positive impacts on GHG emissions, resource efficiency and air quality. All these impacts are correlated and derived from the potential growth of rail activity and related modal shift. As a result, options 4 and 5 (+/++) are likely to have a better, but still relatively modest impact on environmental sustainability, compared to option 3 (+) and options 1-2 (0/+).

Option	0	1	2	3	4	5
Impact	0	0/+	0/+	+	+/++	+/++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

6.2.5. Comparison of market opening options

The following table compares how the different market opening options 0-5 perform in terms of effectiveness, efficiency and coherence. Effectiveness is expressed using the three specific objectives, while the SO3: Better value for public money spent, is at the same time also an efficiency measure. The rest of the efficiency and coherence measures are derived from the different categories of impacts discussed above. The column 'Motivation' provides a brief summary of the overall assessment of each option.

Table 11 – Comparison of market opening options

	Effectiveness [119]		Efficiency				Coherence				Motivation
	SO1: Intensify competitive pressure in domestic rail markets	SO2: Create more uniform business conditions	Operational efficiency of RUs	Passenger fares	Administrative burdens for operators	Administrative burdens for public authorities	Employment and working conditions (rail)	Employment (rail related sectors)	Social inclusion, customer impacts	Environmental sustainability	
Option 0 Baseline scenario	0	0	0	0	0	0	0	0	0	0	Competition in railways will continue to evolve at the fringe, therefore no many new bidders would appear for competitive tenders and no improvements in public spending efficiency in rail. The disparity of market structures throughout the Member States remains and prevents the emergence of cross-European operators and development of a Single European Railway Area.
Option 1 Broad open access only	+/++	+	+	+	0/+	0	0	+	+	0/+	Broad open access rights would have positive impacts on competitiveness of rail market which should lead to some savings in public funds and possibly customer fares. Improved offer of rail services would be beneficial to customers. But given that only a minor part of services are under open access, the measure has limited 'teeth' and would not result in a major restructuring of the rail sector, therefore it is considered not having major impacts on employment and working conditions. Efficiency gains affect only a limited part of the market. There are no significant administrative burdens linked to this policy option, just that opening of domestic markets will allow railway undertakings to save establishment costs in other Member States.

[119] Effectiveness scores are linked to following categories of economic impacts assessed in Section 6: "competition" and "development of multinational rail activities."

	Effectiveness [119]		Efficiency				Coherence				Motivation
	SO1: Intensify competitive pressure in domestic rail markets	SO2: Create more uniform business conditions	Operational efficiency of RUs	Passenger fares	Administrative burdens for operators	Administrative burdens for public authorities	Employment and working conditions (rail)	Employment (rail related sectors)	Social inclusion, customer impacts	Environmental sustainability	
Option 2 Limited open access only	+	+	+	0/+	0/+	0	0	+	+	0/+	The impacts of this option are similar to that of Option 1, but even more limited. Given that under this option PSCs remain protected from the competition with open access operators, this option would hardly allow for any savings of public funds.
Option 3 Competitive tendering only	++	+++	++	0	--	--	-/+	+	++	+	This option addresses only the PSC part, i.e. the competition for the market, and thus only partially improves entry rights and uniformity of business conditions. Legal monopolies remain untouched. Competitive tendering is expected to inject more competition to the major part of the passenger rail market and support the growth of new entrant market share. Increasing competitive pressure should result in improved efficiency, especially felt by incumbents having so far operated in monopolistic conditions. Given that PSC market is characterised mostly by subsidised service and fixed fees, customer fares are expected to improve only marginally. There will be additional administrative burdens related to bidding procedures – both for operators and public authorities. The latter are, however, of a much smaller scale than the expected savings in subsidies. The mixed impacts, as regards employment and working conditions, mirror the fact that short term negative impacts should turn around as a result of increased demand for rail services. t. Other coherence indicators – social inclusion and environmental sustainability – are linked to expected slight increase in rail service provision.
Option 4 Broad open access and competitive tendering	++++	++++	+++	+	-	-	-/+	++	++	+/++	Option 4 is the most ambitious option addressing both – competition for the market and competition in the market, while to some extent allowing competition even between the two markets. At the same time, a safeguard clause is

	Effectiveness [119]		Efficiency				Coherence				Motivation
	SO1: Intensify competitive pressure in domestic rail markets	SO2: Create more uniform business conditions	Operational efficiency of RUs	Passenger fares	Administrative burdens for operators	Administrative burdens for public authorities	Employment and working conditions (rail)	Employment (rail related sectors)	Social inclusion, customer impacts	Environmental sustainability	
											foreseen to protect economic equilibrium of PSCs so as to avoid 'cherry picking' by new entrants. Therefore this option is most effective in terms of specific objectives. As regards industry revenues and operational efficiency, the results will be mixed – on the one hand elimination of monopoly profits of incumbents, on the other hand new business opportunities for new entrants. If the public authorities were to reinvest the saved money in rail sector, the overall turnover and service offer should increase along with improvement in passenger fares and service quality. Administrative burdens are same as for option 3. Regarding the coherence scores, the impacts on employment are again negative in short, but positive in long term perspective. The expected growth in rail services offer would be higher than under option 3, providing explanation of higher scores of other coherence indicators.
Option 5 Limited open access and competitive tendering	+++	++++	++/++ +	0/+	--	--	-/+	++	++	+/++	Option 5 has similar implications than option 4, however no competition is allowed between open access rights and PSCs. Therefore slightly fewer benefits are expected in the form of public savings. Impacts on operational efficiency are a bit more limited that for option 4, given that the PSC market is isolated from open access competition. The impacts on employment are largely the same as under option 3.

The analysis demonstrates that option 4 broad open access combined with competitive tendering performs best. This option will be included in the preferred policy scenario analysed in section 7.

6.3. Analysis of impacts of ticketing policy measures

While options 1-5 analysed above aim to open the rail passenger market to competition, the actual effectiveness of liberalisation measures depends of availability of certain framework conditions. Access to integrated ticketing systems is important in order to avoid fragmentation of service offer when provided by several operators. At the same time, 'over-integration' can hinder potential of service differentiation and price competition[120].

This section assesses the most likely economic and social impacts of ticketing options.

It is important to underline that there is a risk that the overall question of non-discriminatory access to ticketing systems may decline over time if ticketing is increasingly arranged by smart cards, internet or mobile phone, and passengers are willing to change from conventional ticket offices and on-train sales to other channels[121]. To ensure a level playing field between operators, however, equal access to sales channels including ticket offices and on-train sales may need to be mandated, at least in the short to medium term.

6.3.1. Economic impacts

a) Competition and other competition-driven impacts

Option	T0	T1	T2
Impacts	0	++	+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: Both options provide for the creation of common ticketing systems favouring availability of tickets. Mandatory ticketing systems may hamper the possibility of railway undertakings to develop their own business strategies, whereas voluntary systems have the advantage to leave the ultimate decision to join integrated systems to the railway undertaking on the basis of its own business analysis. T1 is therefore likely to leave more room for competition (hence ++) than T2 (+). It would also preserve price competition between the operators.

b) Industry revenues and costs

Option	T0	T1	T2
Impacts	0	0	-

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: Mandatory ticketing systems may hamper the possibility of open access operators to control the distribution costs. T1 is therefore likely to leave more room for operational efficiency than T2 which would have a negative impact on operational efficiency (hence –).

[120] Experience in UK, where it has been required that certain types of through-tickets must be available has demonstrated that mandatory provision of through-fares may result in additional complexity which may be of little or no value to passengers, particularly if the through-fares are more expensive than the sum of the fares for each part of the journey. (Steer Davies Gleave (2012)

[121] A prospective open access operator in Germany told us that they intended to circumvent DB's resistance to selling tickets for their services in DB's offices by offering internet-based and on-board ticket sales.

c) Transport demand, multinational rail activities

It is impossible to determine whether T1 or T2 generates more transport demand and multinational rail activities. Both options will therefore be assumed to have a neutral effect.

Option	T0	T1	T2
Impacts	0	0	0

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

d) Administrative costs for public authorities

Option	T0	T1	T2
Impacts	0	0	-

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: T2 has higher enforcement costs as it requires transposition and monitoring of national legislation (hence –). T1 with an enabling clause leaves national authorities more room of manoeuvre (there are no enforcement costs, hence 0).

Risks: (none)

e) Innovation

Option	T0	T1	T2
Impacts	0	+	0

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: T1 gives more flexibility to Member States to allow their operators to develop their own retail strategies and therefore develop innovative marketing solutions.

Risks: With a gradual transition from traditional station ticket offices and on-train ticket sellers to other sales channels such as travel agents, the internet and smartphone Apps, legislation may be required to ensure that access to all information and sales channels is on a non-discriminatory basis[122].

6.3.2. Social impacts

a) Passenger fares

Option	T0	T1	T2
Impacts	0	0/+	0/-

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

[122] It might also be necessary to require that one operator's smartphone app list trains provided by all operators serving the same route or the same station-to-station journey. For example, the Austrian regulator Schienen-Control required the incumbent ÖBB to include the trains of competitor WESTbahn in its timetables.

Scope of potential impacts: It could be assumed that mandatory integrated ticketing systems might hamper the possibility for price differentiation. T1 is therefore likely to leave more room for the decrease of passenger fares than T2. Any ticketing options will have almost no impact on PSC market, because in many instances fares are laid down by the competent authority on contractual basis.

Risks: (none).

b) Service quality:

Option	T0	T1	T2
Impacts	0	+	0/+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: T1 gives more flexibility to allow operators to develop their own business strategies in terms of service (hence T1 scores +). For instance, the Italian new entrant NTV has a varied set of classes which do not necessarily match with the approach of its competitor Trenitalia. Therefore, NTV has a parallel ticketing system. However, from the passenger viewpoint co-existence of different ticketing systems can create inconvenience compared to one integrated system (hence T2 scores 0/+).

Table 12 – Impact of ticketing options

	T0 Baseline scenario	T1 Voluntary integration	T2 Mandatory integration
Economic impacts			
Competition and other competition-driven impacts	0	++	+
Industry revenues and costs	0	0	-
Transport demand, multinational rail activities	0	0	0
Administrative costs for public authorities	0	0	-
Innovation	0	+	0
Social impacts			
Passenger fares	0	0/+	0/-
Service quality	0	+	0/+

6.3.3. Comparison of the ticketing options

The following table compares how the different ticketing options perform in terms of effectiveness, efficiency and coherence. The approach is the same as for the market opening options above.

Table 13 – Comparison of ticketing options

	Effectiveness		Efficiency			Coherence	Motivation
	SO1: Intensify competitive pressure in domestic rail markets	SO2: Create more uniform business conditions	Operational efficiency of RUs	Passenger fares	Administrative burdens for public authorities	Service quality	
T0 Baseline scenario	0	0	0	0	0	0	Implementation of the Passenger Rights Regulation and the Recast would mean marginal improvement within the dynamics of the baseline.
T1 Voluntary integration	++	0	+	0/+	0	+/-	T1 leaves more room for competition. From the passengers' viewpoint a voluntary option would maintain a more fragmented market and thus would not allow for the 'seamless travel' that could be provided by T2.
T2 Mandatory integration	+	0	0	0/-	-	0/+	Mandatory ticketing systems would allow the passengers a 'seamless travel' but could also reduce impacts of price competition and related decrease of passenger fares. Furthermore, this option may hamper the possibility of open access operators to develop their own business strategies. For some Member States, establishment of mandatory integrated ticketing systems could result in disproportional cost.

The analysis demonstrates that option T1 Voluntary integration performs best. This option will be included in the preferred policy scenario analysed in section 7.

6.4. Analysis of impacts of rolling stock policy measures

This section analyses a set of options for another important framework condition – access to rolling stock. None of the pre-selected options actually can draw from experiences in Member States.

Finally, it should be mentioned that there are no substantial issues with access to rolling stock in Sweden and UK as rolling stock leasing companies (ROSCOs) are active in those Member States.

6.4.1. Overall impact

6.4.1.1 – Impact on rail market segment

It is also important to underline that the rolling stock options target primarily the problems of access to rolling stock in case of competitive tenders for PSCs, which is part of the measures in market opening options 3 to 5. The facilitation of access to rolling stock by new entrants in commercial, open access services is addressed through the ERA initiative (cf. Annex 1). It should be also noted that in case of competitive tenders the bidding undertaking is required to have the rolling stock available at a certain point in time, while open access operators do not face such time-bound limitations.

Options on rolling stock will primarily impact the market of suburban and regional services rolling stock as these are always covered by PSCs. Railway undertakings tend to use electrical multiple-units (EMUs- cf. glossary) or light rail in these services. As explained in Annex 8 (page 10), for a predetermined number of train-kilometres to be performed within a PSC, more rolling stock will be necessary in suburban services than on regional services. In this context, RS3 and RS4 will be more used when suburban services will be put for tender (compared to tenders for regional services). As shown in Annex 8, if more than 10 million train-kilometres of suburban services are put for tender in Ireland, Greece, Portugal, Slovenia, Finland and Sweden, the new entrant needs to find in the rolling stock market more than 10% of the currently existing domestic rolling to be able to respond to the tender.

Options RS3 and RS4 could also affect the market of long-distance rolling stock (coaches, diesel multiple-units, locomotives) as in those Member States 100% of passenger-km are under PSCs. High-speed trains are not concerned by these options as they are almost completely operated as part of commercial services, either under open access or exclusive rights.

As explained, there are reasonable grounds to believe that leasing markets for rolling stock will develop throughout Europe – in particular as institutional investors have entered or are entering the market[123] -, except probably in Member States whose network is "isolated" or almost "isolated" like Finland, Greece, Ireland, Lithuania, Latvia, Estonia (and in North Ireland) – possibly also Bulgaria and Romania -, which are all the Member States where up to now there appears to be no rolling stock leasing operator[124]. These countries are covered by 100% of PSO (except Finland and Bulgaria): RS3 and RS4 will impact therefore both the EMU and coaches markets in all these Member States (in Finland, some long-distance services appear to fall under PSO).

The rolling stock options RS3 and RS4 aim therefore to solve (1) the transition to complete and functioning leasing rolling stock markets and (2) possible problems in "isolated" Member States (which only represent some 3% of all train-kilometres). Yet, exogenous factors such as the reduction of the time-to-market further to the ERA initiative may reduce overall the need for rolling stock measures.

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123 Some of the leasing companies are backed up by groups like Nomura or the Royal Bank of Scotland; the Australian group Macquarie has also indicated that it would enter in the EU rolling stock leasing market

124 EPTTOLA website, the members are: Alpha Trains, Andel Trains, Ascendos, Beacon, CBrail, Eversholt and Porterbrooke

6.4.1.2 – Impact on the rolling stock market

RS3 (**Mandatory selling/leasing by previous beneficiary to the new one**): This option would create level playing field because the new entrant does not need to bring its own rolling stock. However, this initiative would not allow new entrants to use rolling stock as part of their bidding strategy. In the Netherlands, one of the main effects of competitive tendering has been the introduction by new entrants of light rail. Finally, this could have the adverse effect of maintaining old rolling stock and give no incentives to railway undertakings to retrofit the rolling stock.

RS4 (Obligation for the competent authority to take the financial risk of the residual value of rolling stock) : This option would create level playing field because all railway undertakings need to take any residual value, but they could raise a perverse incentive to competent authorities to specify rolling stock with low residual value (i.e. old rolling stock).

6.4.2. Economic impacts

a) Competition and other competition-driven impacts

Option	RS0	RS3	RS4
Impacts	0	+	++

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: Access to rolling stock is the determining factor in whether a new entrant can participate in competitive tendering procedures. Both non-baseline options provide for equal level playing field[125] for rolling stock, increasing therefore the potential number of bidders. However, it is likely that the number of bidders will be greater in RS4 (hence ++), as financial risk related to the residual value is taken over by the competent authority while under option RS 3 (+) risk and administrative costs of takeover are carried by operators.

Finally, as explained previously, in the long run, RS3 and RS4 will help sustain competition until proper leasing markets will be in place and might be confined in the long run only to "isolated" Member States (representing only 3% of EU train-kilometres)

Risks: Overall, some new entrants that base their strategy on rolling stock innovation will ignore competitive tender with RS3 or RS4 possibilities.

b) Public funding

Option	RS0	RS3	RS4
Impacts	0	-	--

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

[125] Level playing field goes in two directions: (1) access to the existing rolling stock market if it illiquid because it is completely owned by the incumbent and (2) it reduces the natural advantage of the incumbent which can relocate more easily its rolling stock if it fails to get a tender (it is therefore less risky for the incumbent to participate in a bid).

Scope of potential impacts:

According to UNIFE-Roland Berger[126], the market for coaches and EMUs would represent annually some 700 million EUR and 5 billion EUR[127]. If we consider that the PSO market in the EU would represent some 75% of all train-kilometres[128], then the annual new rolling stock that could be covered by the options would be worth 3.75 billion EUR (some 0.2% of the EU public expenditure on goods and services). However, if we extrapolate this amount to the train-kilometres of the "isolated" (Finland, Greece, Ireland, Lithuania, Latvia and Estonia) options RS3 and RS4 would cover only some 100 million EUR worth of rolling stock (0.005% of EU public expenditure on goods and services).

Option RS3 reduces the possibility for bidders of PSCs to explore efficiencies through innovative rolling stock like in Dutch tenders with light rail units, therefore reducing the savings resulting from competitive tendering.

Option RS4 puts the burden of the financial risk of residual value on public authorities, which have to provide guarantees as to the residual value of rolling stock. There are disincentives to the competent authority to terminate a poorly-performing contract and there are principal-agent problems (the railway undertaking has no incentives to maintain the rolling stock in good condition). Contracting may also lack the expertise to estimate the value of rolling stock.

Option RS4 also affects the public budget of local authorities, and ultimately Member States, as it may require competent authorities to dispose the whole book value of the trains – as the contract might be called off at any moment by the operator. However, it is important to underline that the procurement of rolling stock is currently part of public expenditure (and is covered by public procurement rules).

Overall, competent authorities might attempt to minimise these difficulties by guaranteeing only a low residual value, limiting the effect of the policy. Hence the '- -'.

Risks: As long as rolling stock markets is not functioning, the guarantee of residual value will have to be based on the market value of trains, which in conditions of illiquid markets cannot be easily determined and therefore remains subject to negotiations. Moreover, public authorities may lack the expertise and skills to properly evaluate rolling stock.

c) Multinational rail activities

Option	RS0	RS3	RS4
Impacts	0	+	+

* Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: Both RS3 and RS4 present sufficiently consistent features to facilitate the predictability of business conditions throughout the EU and contribute to the development of business activities. They are both scored +.

Risks: In RS4, multinational rail activities risk being oriented towards rich countries rather than those with problems of regularity of their compensation payments.

126 UNIFE/Roland Berger - World Market Rail Study (2012 to 2017), pp.38-39

127 This range is confirmed by UIC figures where in 2008, some 3.4 billion EUR were invested in rolling stock in the EU

128 Public service obligations in train-km (estimations): Portugal (91%), Poland (85%), Italy (79%), Germany (75%), Spain (70%) and France (70%).

d) Property rights

Option	RS0	RS3	RS4
Impacts	0	-	0

Scope of potential impacts: RS3 involves the withdrawal of property of rolling stock from existing incumbents and putting it in the hands of a third body; therefore affecting the latter's property rights. This option may therefore create issues with fundamental rights and enforcement.

Risks: Both options RS3 and RS4 contain litigation risks. In RS3, the previous owner of the rolling stock has a better knowledge of its real technical conditions compared to the new owner or leaser. In RS4, there might need to be negotiations on the value of the financial guarantee.

e) Industry revenues and costs

Option	RS0	RS3	RS4
Impacts	0	0	+

*Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: RS4 puts the burden of the financial risk related to the residual value on public authorities, diminishing costs for railway undertakings, whereas in RS3 there is no impact.

Risks: Option RS4 might ultimately slightly reduce competent authorities' capacity to purchase additional public service obligations.

f) Innovation

Option	RS0	RS3	RS4
Impacts	0	0/-	0/-

Here and afterwards, comparison tables compare the relative impacts within a row but not the relative importance of different rows

Scope of potential impacts: In both RS3 and RS4, the impact on innovation is rather negative as railway undertakings have incentives to use old rolling stock.

6.4.3. Social impacts

a) Safety

no impact

6.4.4. *Summary table*

Table 14 – Summary table rolling stock options

	RS1 Baseline scenario	RS3 Mandatory transfer	RS4 Risk for contracting entity
Economic impacts			
Competition and other competition-driven impacts	0	+	++
Public funding	0	-	--
Multinational rail activities	0	+	+
Property rights	0	-	0
Industry revenues and costs	0	0	+
Innovation	0	0/-	0/-
Social impacts			
Safety	0	0	0

6.4.5. *Comparison of the rolling stock options*

The following table compares how the different rolling stock options perform in terms of effectiveness, efficiency and coherence. The approach is the same as for the market opening and ticketing options above.

Table 15 – Comparison of rolling stock options

	Effectiveness		Efficiency		Coherence			Motivation
	SO1: Intensify competitive pressure in domestic rail markets	SO2: Create more uniform business conditions	Operational efficiency of RUs	Public Funding	Safety	Property rights	Innovation	
RS0 Baseline scenario	0	0	0	0	0	0	0	Access to rolling stock remains a major barrier in many Member States, hindering competition in the domestic rail market.
RS3 Mandatory transfer	+	+	0/-	-	0	-	0/-	RS3 and RS4 both provide for equal level playing field as regards access to rolling stock, increasing therefore the potential number of bidders and harmonising business conditions throughout EU. Option RS3 involves the withdrawal of property of rolling stock from existing incumbents and may therefore create conflicts with property rights. In both RS3 and RS4, the impact on innovation is rather negative as railway undertakings have incentives to specify old rolling stock.
RS4 Risk for contracting entity	++	+	0/-	--	0	0	0/-	This option would ease access to rolling stock more effectively than RS3, however, given that financial risks related to the residual value are taken by public authorities, there could be more slightly higher pressure on public funds. To minimise costs, competent authorities might prefer using old rolling stock to minimise the residual value and this hinders innovation and operational efficiency. RS4 puts a burden on financial risk of residual value on public authorities.

The analysis demonstrates that the choice between options RS3 and RS4 is not straightforward. Both options would be very effective in ensuring non-discriminatory access to rolling stock and hence foster competition for public service contracts. While RS4 could potentially be more effective, it increases demand for scarce public funds. Option RS3 has potential to improve the situation in a more cost-efficient manner, however may create issues with implementation due to contentious property right issues. Therefore both options will be considered in the context of the preferred policy scenario.

6.5. Summary of assessment

The assessment of the impact of the market opening, ticketing and rolling-stock options indicates that the options that score best in terms of effectiveness, efficiency and coherence are:

– **Option 4** Market opening based on broad 'open access' and competitive tendering of PSCs

– **T1** voluntary national integrated ticketing systems

– **RS3** Mandatory transfer of rolling stock or **RS4** Obligation for the competent authority to take the rolling stock related financial risks

As explained throughout this report, there is a certain degree of uncertainty in the assessment of impacts of some options, as evidence for instance on is fairly recent (competition in the market in open access services) and sometimes ambiguous (evidence is provided only by specific stakeholders). In this context, the choice to move forward with the aforementioned combination remains a political choice.

7. PREFERRED POLICY SCENARIO

7.1. Overall impact of the preferred policy scenario

The assessment underlying the choice of policy options has been conducted mostly on qualitative basis[129]. As explained in Section 6.1, reasons for that were the high uncertainties linked to calculations of aggregated impacts. These include:

– limited liberalisation experience (UK, SE, to some extent DE, CZ, IT, AT) on which to base evidence;

– other principal uncertainties in the baseline developments and exogenous factors affecting the passenger rail demand;

– any effects are dependent on baseline situations in Member States.

While the objective of the EU policy is to create market structures which support competition and internal market, final outcome at national level depends to a great extent on how the policy will be implemented and executed. For instance, how the relation between the PSO and open access markets will be established, how the PSC will be defined and tendered, what is the approach to subsidisation and how rolling stock availability ensured.

The uncertainties linked to assumptions as well as a wide range of possible national policy choices have not allowed for quantifications which would have been robust enough to underpin choice of policy options.

However, within the IA support study the consultant, in cooperation with the Commission, has prepared scenario analysis reflecting the potential outcome of the preferred market opening option 4 ('broad' open access and competitive PSC tendering). The analysis is based on the most credible information available to date and covers a variety of measures and indicators, such as public savings, industry revenues, new entrant market share and additional p-km. The effects of the other elements of the preferred policy scenario – the voluntary integrated ticketing (option T1) and taking financial risks related to acquisition of rolling stock (options RS3 or RS4) – are not quantified, as it would be very difficult to attach any reliable cost figure to these measures[130]. Ticketing and rolling stock measures are considered being important 'enablers' of the effectiveness of market opening.

The scenario analysis presented in this Chapter (and accompanied with sensitivity tests) enables however to exhibit the potential outcomes of the policy in different situations. In principle, the policy choices at national level ultimately determine the values of input assumptions as provided in Table 16.

The scenario analysis

The calculations[131] distinguish between the two different outcome scenarios depending on how the potential savings on PSC contracts will be treated by competent authorities:

– **Scenario 1 - Focus on cost savings –** assumes that competent authorities would aim to maximise the financial savings from compulsory competitive tendering, with no reinvestment in capacity or quality.

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129 However the one directly measurable indicator - the achievable scope of market opening - has been quantified for each option are quantified – c.f. Table 7.

130 Quantifying the impacts of potential rolling stock and ticketing measures would require assessment the costs at operational or contractual level depending on actual situation in each Member State.

131 Detailed information on the assessment methodology can be found in Annex 9 of the IA and in Appendix I of the IA support study.

– **Scenario 2 - Reinvestment -** assumes that, on average, competent authorities would take 50% of the potential savings of competitive tendering out of the rail industry and "reinvest" the remaining 50% in capacity and/or quality. Investments are in calculations considered as outflow of funds and thus reduce the benefit in terms of NPV. However, non-financial benefits appear in terms of additional passenger km-s.

Table 16 – Assumptions

Open access effects		
Sectors	High speed, long distance, medium/regional, international	
Effects	New entrant's open access train-kilometres as a proportion of current "commercial" train-kilometres	2%
	Share of incumbents' "commercial" services in this sector converted to PSC as a result of open access competition	20%
	New entrant's fares as a proportion of the incumbent's	95%
	Share of new entrant's passengers taken from incumbents	70%
	New entrants operating costs per train-kilometre as a proportion of incumbent's	80%
	Potential reduction in incumbent's operating costs (A)	20%
	Proportion of incumbent's services stimulated to higher efficiency by new entry (B)	15%
	(AxB) Resulting average reduction in incumbent's costs in this sector stimulated by competition from open access	3%
Compulsory competitive tendering effects		
Sectors	All PSCs, including commercial services becoming PSCs because of open access	
Effects	Reduction in incumbent's share of PSC train-kilometres	10%
	Potential reduction in PSC service operating costs (C)	15%
	Proportion of PSCs subject to effective competition (D)	75%
	(CxD) Resulting average reduction in PSC costs	11.25%
	Share of PSC cost savings invested rather than retained: **Scenario 1 - Focus on cost savings** **Scenario 2 - Reinvestment**	 0% 50%
	Quality-related rise: train-kilometres and capital expenditure	0.5%
	Quality-related rise: passenger-kilometres and revenue	0.5%
Timescales and discounting		
Start	Implementation of Package, creation of open access rights and award of first competitive tenders for PSCs	2019
End	Last existing PSC contracts replaced in competitive tendering	2025
	Base year for discounting purposes	2019

The results are summarised by market sector in the table below.

Table 17 Scenario assessment by market sector

CAVEAT: All changes are illustrative estimates Ranges of uncertainty are ±50%	Unit	Total	High speed	Long distance	Medium/ regional	Urban/ suburban	International
SCENARIO 1 – FOCUS ON SAVING							
NPVs to 2035, discounted at 4% to 2019							
Profits to incumbents and/or savings to public authorities	€ billion	29.84	3.28	8.29	10.43	7.83	0.00
Profits to new entrants	€ billion	0.01	0.01	0.00	0.00	0.00	0.00
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.02	-0.10	-0.18	-0.12	0.00
Total NPV	**€ billion**	**29.43**	**3.27**	**8.19**	**10.25**	**7.71**	**0.00**
Key indicators in medium term, indicatively to 2035							
Increase in annual passenger revenue	€ billion	0.3	0.2	0.1	0.0	0.0	0.0
Increase in annual capex	€ billion	0.03	0.02	0.01	0.00	0.00	0.00
Increase in p-km by 2035	**billion**	**2.0**	**1.3**	**0.7**	**0.0**	**0.0**	**0.0**
From road	billion	0.5	0.3	0.3	0.0	0.0	0.0
From air	billion	0.5	0.4	0.1	0.0	0.0	0.0
New entry annual PSC train-km	million	179	4	55	72	48	0
New entry annual open access train-km	million	14	9	5	0	0	0
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Option 4 by 2035	%	23.1%	8.6%	20.9%	34.4%	27.1%	8.4%
Change	%	3.8%	1.4%	4.3%	4.9%	5.0%	0.0%
Reduction in CO_2 annual emissions	m tonnes	-0.1	0.0	0.0	0.0	0.0	0.0
SCENARIO 2 - REINVESTMENT							
NPVs to 2035, discounted at 4% to 2019							
Profits to incumbents and/or savings to public authorities	€ billion	21.45	3.12	6.03	6.98	5.32	0.00
Profits to new entrants	€ billion	0.01	0.01	0.00	0.00	0.00	0.00
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.02	-0.10	-0.18	-0.12	0.00
Total NPV	**€ billion**	**21.04**	**3.11**	**5.93**	**6.80**	**5.20**	**0.00**
Key indicators in medium term, indicatively to 2035							
Increase in annual passenger revenue	€ billion	0.9	0.2	0.2	0.2	0.2	0.0
Increase in annual capex	€ billion	0.13	0.02	0.04	0.04	0.03	0.00
Increase in p-km by 2035	**billion**	8.4	1.5	2.4	2.7	1.8	0.0
From road	billion	3.5	0.3	0.9	1.3	0.9	0.0
From air	billion	0.7	0.4	0.3	0.0	0.0	0.0
New entry annual PSC train-km	million	186	4	57	76	50	0
New entry annual open access train-km	million	14	9	5	0	0	0
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Option 4 by 2035	%	23.0%	8.6%	20.8%	34.0%	26.8%	8.4%
Change	%	3.7%	1.4%	4.2%	4.6%	4.8%	0.0%
Reduction in CO_2 annual emissions	m-tonnes	-0.6	-0.1	-0.3	0.0	-0.1	-0.1

Under Scenario 1 – Focus on saving - competent authorities would aim to minimise expenditure on the railways maximising NPV in terms of public savings. Main source for that is the savings achieved via the competitive tendering of PSCs. However, with no reinvestment in capacity or quality of rail there will be modest improvement in service offer (in total only 2 bn p-km), and almost no mode shift or reduction in greenhouse gases.

Under Scenario 2 – Reinvestment – the financial savings expressed in terms NPV are lower (21 billion EUR compared to 29 billion EUR under Scenario 1), but benefits appear in terms of service offer – estimated increase in passenger-km is 8.4 billion, of which almost 4 billion p-km will be abstracted from other modes, resulting in mode split improvement and six times higher CO_2 reduction. In reality this means that there may be capacity issues at infrastructure bottlenecks. Thus, part of the savings of public money should go into infrastructure enhancements in order to render the increase in transport performance sustainable over the time horizon considered (this has not been factored into the calculations).

Results by the clusters of Member States

Given that the policy outcome is heavily dependent on the baseline situation (market and segment structures) in Member States, analysis was also conducted based on the 'clusters' of Member States. The two key dimensions for grouping[132] were (a) the level of market liberalisation and (b) separation between the infrastructure manager and rail operators. Assumptions and scenario approach is the same as above. The results are summarised in Table 18.

[132] The clustering approach here served calculations for two 4th Package IAs – Market Opening and Infrastructure Governance. Therefore it reflects two dimensions – liberalisation and separation – though the latter is mostly relevant to the infrastructure Governance

Table 18 Scenario assessment by cluster

CAVEAT: All changes are illustrative estimates			Vertically integrated		Vertically separated		
			Partially liberalised	Not liberalised	Liberalised	Partially liberalised	Not liberalised
	Unit	Total	AT DE IT	BE, EE FR, HU IE, LT LU, LV PL, SI	GB SE	CZ DK NL	BU, EL ES, FI PO, RO SK
SCENARIO 2 - – FOCUS ON SAVING							
NPVs to 2035, discounted at 4% to 2019							
Profits to incumbents and/or savings to public authorities	€ billion	29.84	5.87	14.90	0.20	4.25	4.61
Profits to new entrants	€ billion	0.01	0.00	0.12	0.00	0.00	-0.11
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.07	-0.15	-0.04	-0.02	-0.14
Total NPV	**€ billion**	**29.43**	**5.79**	**14.88**	**0.17**	**4.23**	**4.35**
Key indicators in medium term, indicatively to 2035							
Increase in annual passenger revenue	€ billion	0.3	0.0	0.2	0.0	0.0	0.0
Increase in annual capex	€ billion	0.03	0.00	0.02	0.00	0.00	0.01
Increase in p-km by 2035	**billion**	2.0	0.0	1.6	0.0	0.2	0.3
From road	billion	0.5	Not identified by cluster				
From air	billion	0.5					
New entry annual PSC train-km	million	179	36	61	3	33	46
New entry annual open access train-km	million	14	0	10	0	2	3
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Option 4 by 2035	%	23.1%	10.8%	7.7%	87.4%	7.0%	8.2%
Change	%	3.8%	2.1%	5.6%	0.3%	6.6%	7.6%
Reduction in CO_2 annual emissions	m- tonnes	-0.1	0.0	-0.1	0.0	0.0	0.0
SCENARIO 2 - REINVESTMENT							
NPVs to 2035, discounted at 4% to 2019							
Profits to incumbents and/or savings to public authorities	€ billion	21.45	4.24	11.06	0.15	2.95	3.04
Profits to new entrants	€ billion	0.01	0.00	0.12	0.00	0.00	-0.11
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.07	-0.15	-0.04	-0.02	-0.14
Total NPV	**€ billion**	**21.04**	**4.16**	**11.04**	**0.11**	**2.93**	**2.79**
Key indicators in medium term, indicatively to 2035							
Increase in annual passenger revenue	€ billion	0.9	0.2	0.5	0.0	0.1	0.1
Increase in annual capex	€ billion	0.13	0.02	0.05	0.00	0.01	0.05
Increase in p-km by 2035	**billion**	8.4	1.7	4.1	0.1	0.9	1.7
From road	billion	3.5	Not identified by cluster				
From air	billion	0.7					
New entry annual PSC train-km	million	186	38	64	3	34	47
New entry annual open access train-km	million	14	0	10	0	2	3
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Option 4 by 2035	%	23.0%	10.8%	7.8%	87.4%	7.1%	8.3%
Change	%	3.7%	2.2%	5.7%	0.3%	6.7%	7.7%
Reduction in CO_2 annual emissions	m-tonnes	-0.6	-0.1	-0.3	0.0	-0.1	-0.1

The table shows that there is little scope to increase new entrant market share in the cluster which is already liberalised and vertically separated (e.g. in the UK the new entrant market share is already effectively 100%). Elsewhere, option 4 can contribute to increases in market share through:

– open access, in high speed, long distance and medium/regional sectors;

– compulsory competitive tendering, in all market sectors.

Combining open access and compulsory competitive tendering effects in option 4 results in a greater effect that either of the two opening policies alone, primarily due to the assumption that even if open access would push a proportion of "commercial" services under PSCs arrangements, these services would become subject to compulsory competitive tendering.

Sensitivity tests

Given the limited empirical evidence, on which the assumptions in Table16 were based, a number of sensitivity tests were carried out to investigate the effects of more optimistic or pessimistic inputs.

The underlying considerations and results are summarised in the table below.

Table 19 Sensitivity tests

Issues	Test	Assumption	Core assumption	Alternative assumption
Incumbent response	Fewer "commercial" services survive open access	70% of "commercial" services become unviable and subject to PSCs once open access develops.	20% of commercial services becomes PSC	70% of commercial services becomes PSC
Open access fares	Lower fares offered by open access operators	Open access operator fares 20% below incumbent and pro rata increase in extra demand. No check that open access would remain viable or have sufficient capacity.	New entry fares are 95% of incumbent's	New entry fares are 80% of incumbent's
Efficiency gains	Higher potential efficiency gains	"Commercial" and open access operators and PSCs effectively open for competition become 25% more efficient.	Opex per train-km falls by 11.25%	Opex per train-km falls by 20%
	Lower potential efficiency gains	"Commercial" and open access operators and PSCs effectively open for competition become 10% more efficient.	Opex per train-km falls by 11.25%	Opex per train-km falls by 5%

The table below shows the results of these sensitivity tests.

Table 20 Results of sensitivity tests (one by one)

All changes are illustrative estimates	Financial benefits (NPV, € bn)	Increase in annual revenue (€ bn)	Increase in annual CAPEX (€ bn)	Increase in passenger km (bn)	Increase in new entry market share (% points)
Scenario 1 –Focus on saving					
Higher potential efficiency gains	50.4	0.3	0.03	2.0	3.8%
Fewer "commercial" services survive open access	30.1	0.2	0.03	1.9	3.9%
Core assumptions	**29.4**	**0.3**	**0.03**	**2.0**	**3.8%**
Lower fares offered by open access operators	29.3	0.2	0.03	2.2	3.8%
Lower potential efficiency gains	13.6	0.3	0.03	2.0	3.8%
Scenario 2 – Reinvestment					
Higher potential efficiency gains	35.5	1.3	0.21	13.3	3.6%
Fewer "commercial" services survive open access	21.5	0.9	0.13	8.5	3.8%
Core assumptions	**21.0**	**0.9**	**0.13**	**8.4**	**3.7%**
Lower fares offered by open access operators	20.9	0.8	0.13	8.5	3.7%
Lower potential efficiency gains	10.0	0.5	0.08	4.9	3.8%

It appears that results are most sensitive towards the possible efficiency gains to be achieved as a result of more competitive open access services and PSC tenders. Subject to the assumptions made, it can be concluded that a credible estimate of the NPV of the financial impact of option 4 is around €30 billion for 'Saving' scenario and €21 billion for 'Reinvestment' scenario, the latter offering at the same time potential for additional 8.4 billion passenger km.

7.2. Combined impacts of the 4th rail package initiatives

The liberalisation benefits will be magnified by introducing full institutional separation of infrastructure managers from rail operators, which is the conclusion of the IA supporting another proposal of the 4th Railway package on Infrastructure Governance[133]. In particular, institutional separation, as envisaged under policy Scenario 3 in that IA, is an important precursor to the delivery of the full benefits of market opening, and that without it effective competition is likely to develop more slowly. The IA support study estimates accordingly, that in the Member States which have not yet institutionally separated infrastructure managers and rail operators, additional scope for entry and/or lower costs for new entrants arising from non-discriminatory access to infrastructure, could result in significant additional benefits.[134]

133 Impact Assessment on governance of railway infrastructure in the Single European Railway Area

134 Assumptions underpinning the calculations of combined impacts are presented in Annex 9

Table 21 Combined impacts of market opening and infrastructure governance policies

All changes are illustrative estimates	Financial benefirs (NPV*, € bn)	Increase in annual revenue (€ bn)	Increase in annual CAPEX (€ bn)	Additional passenger-km (bln by 2035)	Increase in new entry market share (% points)
Scenario 1 –Focus on saving					
Vertical separation alone[135]	6.6	0.1	0.01	0.8	0.5%
Market Opening alone	29.4	0.3	0.03	2.0	3.8%
Combination of market opening and vertical separation	43.4	0.5	0.1	3.8	6.4%
Scenario 2 – Reinvestment					
Vertical separation alone	4.4	0.1	0.01	1.1	0.5%
Market Opening alone	21.0	0.9	0.13	8.4	3.7%
Combination of market opening and vertical separation	33.8	1.7	0.2	16.4	6.2%

* NPVs to 2035, discounted at 4% to 2019, the benefits encompass mainly savings for competent authorities, but also profits of operators.

The results for both scenarios demonstrate existence of significant synergies between the separation and market access measures as proposed in the 4th package. 16 billion additional passenger-km potentially made available by implementing market opening and separation polices, while re-investing half of efficiency savings back to railways, would result in 6% increase of passenger-km on top of the baseline developments. In addition, more level playing field in access to infrastructure, as provided by vertical separation measures, would enable to increase the market share of new entrants from 19% in the baseline to 25%.

Further boost will be given by quicker time and cost to market for rail undertakings, as proposed by the revised scope of the European Railway Agency[136], being also the part of the 4th Package.

7.3. Implementing provisions

7.3.1. Transfer of staff, social standards and social dialogue

There is very large support among stakeholders (95%) for clear conditions on the transfer of staff during the change of operators of rail service contracts. The instruments for protection of staff currently provided through Directive 2001/23/EC[137] safeguarding employees' rights in the event of transfer of undertakings and through the provisions of Regulation 1370/2007 giving competent authorities the possibility to either prescribe a transfer of staff or defining social standards in public service contracts are potentially of considerable effectiveness. Implementing these instruments

135 As foreseen by Scenario 3 of IA Governance IA.

136 Impact assessment on elimination of remaining administrative and technical barriers in the field of interoperability and safety on the EU railway market

137 Directive 2001/23 applies to the railway sector as much as to other sectors; Regulation 1370/2007 allows applying Directive 2001/23/EC even in such cases that would otherwise not fall within the definition of "transfer" within the meaning of Directive 2001/23

could ease social cost generated by the award of a PSC to a new operator and make competitive tendering socially more acceptable. The application of a transfer of staff could also be of significant value for enhancing competition for public service contracts, when due to the contract volume it would be difficult for new entrants to obtain the appropriate number of trained staff for providing the transport services. In order to avoid a situation where new entrant operators could not participate in the tender procedure due to lack of staff a transfer of staff, could be helpful under certain conditions.

The existing applicable instruments would not leave any other possible policy measure but to make the transfer of staff and the setting of social standards mandatory. However, this could be problematic from the point of view of subsidiarity. Decisions on the appropriateness of a transfer of staff and social standards can best be taken at Member State level as the conditions on the labour markets vary considerably across Member States. Moreover, as labour costs represent some 30% of all operational costs of railway undertakings[138], imposing mandatory staff transfers or mandatory social standards could compromise the potential efficiency savings through competition for PSCs. Therefore existing provisions are considered as largely sufficient.

To soften any eventual negative effects in terms of employment or working conditions, it is proposed to maximise the usage of existing social safeguards like the European Social Fund that provides support for the retraining of staff or dialogue channels (in particular, for instance, railway new entrants should be encouraged to join the works of the Railway Social Sectoral Dialogue Committee).

7.3.2. Excluding the direct award of rail PSC based on the internal operator provision

Regulation 1370/2007 provides for the possibility that competent local authorities organising integrated transport services directly award PSC to an internal operator, i.e. a transport operator that they effectively control (e.g. the urban transport operator being a part of the city administration). This provision is not geared to the award of PSC beyond the territory of an urban agglomeration and its immediate surroundings, for instance covering a whole region (which could be a very large territory in some Member States) or even the entirety of the national territory as ~~it~~ this would undermine achieving the internal market objectives of the Regulation.

It is therefore necessary to clarify the current text of the Regulation so that it would limit the possibility of direct award to an internal operator to the case of integrated public passenger transport services of an urban agglomeration and its immediate surroundings to avoid that, for instance, regional competent authorities set up their own railway undertakings and continue to directly award PSC. This practice would lead to a further fragmentation of national rail transport markets and undermine the expected positive effects of domestic rail market opening.

7.3.3. Ensuring continuity of service in the event of a failure of a railway undertaking

The IA support study has identified the risk that bankruptcies or disputes could put to the continuity of a service. There has been diverging practice in this matter in those Member States that have already taken steps to open their domestic passenger rail markets to competition. In Sweden, railway undertakings have been allowed to fail to avoid overbidding (i.e. bidders that provide for bids that are not realistic from an economic point of view). Taking measures at EU level to address this problem seems disproportionate in terms of subsidiarity, therefore it will be left up to the Member State to design and implement relevant safeguard measures.

[138] Labour is one the main costs factors together with capital use (e.g. of rolling stock) that are responsive to competitive pressure within the railway costs structure. Track access charges are largely predetermined and are thus not compressible under competitive pressure. The costs of procured goods and services are also compressible – they fall under the coverage of public procurement directives

7.3.4. Levelling the playing field in tenders

As explained in section 6, one of the problems in competitive tenders is that incumbents have access to historical data on costs and revenues and can therefore calibrate much better their offers compared to new entrants, which must proceed by estimations. To level the playing field, it is therefore necessary to ensure that competent authorities make available to interested parties (upon their request) complete information on passenger demand, fares and revenues, in order to allow them to prepare competitive bids.

8. MONITORING AND EVALUATION

The Commission will monitor and evaluate the implementation and effectiveness of this legislation through a set of indicators.

In order for these indicators to be consistent throughout the EU legislation and not to increase the administrative costs, these indicators are in most cases aligned with those defined in the State Aid Scoreboard, Regulation 1370/2007 and Rail Market Monitoring System[139]. The latter requires the Commission to report every two years to the Council and the European Parliament on:

– the evolution of the internal market in rail services and services to be supplied to railway undertakings, as referred to in Annex II;
– the framework conditions referred to in paragraph 3, including for public passenger transport services by rail;
– the state of the Union railway network;
– the utilisation of access rights;
– barriers to more effective rail services;
– infrastructure limitations;

Combined with other sources, the full set of indicators, linked to the specific objectives, is the following:

Table 11 – Monitoring indicators

Specific objective	Indicator
SO1: Intensify competitive pressure in domestic rail markets	• Market share of new entrants* (relates to operational objective OO1, OO3) • Rail services covered by PSCs* (relates to OO3 and OO4) • Utilisation of access rights*(relates to OO1, OO2, OO3) • Barriers to more effective rail* (relates to all operational objectives) • Licensing* (relates to OO1, OO2)
SO2: Create more uniform business conditions	• Rail services covered by PSCs* • Utilisation of access rights* • Barriers to more effective rail*
Other parameters	
Working conditions	• Dynamics of employment* (e.g. increase of decrease in employment) • Social conditions* (e.g. wages, gender balance, median age and, if feasible and possible, transfer of staff and its impact on the protection of employees…)

* As foreseen in Article 15 of the Recast of the 1st Railway Package

[139] As reviewed by the Recast of the 1st Railway Package

8.1. Monitoring and evaluation arrangements

Directive 2012/34/EC already foresees a mechanism for monitoring, including active involvement of representatives of Member States, regulatory bodies, social partners, the European Railway Agency, users and also local and regional authorities representatives through the Rail Market Monitoring System and its existing working group. Regarding evaluation, it is planned that five years after the end of the transition period of its legislative proposals the Commission will evaluate whether the objectives of the initiative have been achieved.

GLOSSARY

The following definitions do not have any legal value and only aim to provide a simplified explanation of the concepts used in the impact assessment and its annexes. The definitions only serve for the impact assessment.

Cabotage: domestic railway service provided by a railway undertaking from another Member State (or a third country) within a rail route originating in a third country

EMU: Electrical Multiple-unit: An electric multiple unit or EMU is a multiple unit train with self-propelled carriages, using electricity as the motive power and that does not require any separate locomotive, as electric traction motors are incorporated within one or a number of the carriages. EMUs are often used in regional and suburban commuter services. An EMU is usually formed of two or more semi-permanently coupled carriages, but electrically powered single-unit railcars are also generally classed as EMUs.

GATS: General Agreement on Trade in Services: Multi-lateral treaty of the World Trade Organisation (WTO) on the opening of trade of services. The GATS covers four service provision modes: mode 1 (cross-border service provision), mode 2 (consumption abroad), mode 3 (commercial presence) and mode 4 (presence of a natural person).

Infrastructure – see railway infrastructure

Infrastructure manager: body or firm responsible in particular for establishing, managing and maintaining railway infrastructure, including traffic management and control-command and signalling; the functions of the infrastructure manager on a network or part of a network may be allocated to different bodies or firms;

Intermodal transport: Transport involving connections between different modes (air-train or train-bus).

Internal operator or 'in-house' operator: railway undertaking controlled by a local authority. The local authority controls the railway undertaking as its own department.

Large-sized Member States: Member States with a large area (above some 80.000 km2) – includes countries with a small population like Portugal or Sweden

Licence – see railway licence

Open access (in domestic rail services):

Public service obligations: Requirement determined by a competent authority in order to ensure public passenger transport services in the general interest that an operator, if it were considering its own commercial interest, would not assume or would not assume to the same extent or under the same conditions without reward.

Public service contract: Rail service contract to perform a public service obligation**.** In a public service contract, the railway undertaking is entrusted with the operation and the operation of the rail services covered by the public service obligation.

Railway infrastructure: Area comprising railway ground area, tracks and track bed (including *inter alia* embankments, goods platforms, passenger platforms, crossings), engineering structures (covering inter alia bridges, tunnels, underpasses), level crossings, superstructure (covering *inter alia* rails sleepers, traversers), access ways for passengers and goods), safety installations, signalling installations, telecommunication installations, lighting installations, catenaries, contact wires and buildings used by the infrastructure department.

Railway licence: Authorisation issued by a licensing authority to an undertaking, by which its ability to provide rail transport services as a railway undertaking is recognised; this ability may be limited to the provision of specific types of services.

Railway operator – see railway undertaking

Railway undertaking (RU): any public or private undertaking holding a railway licence to transport goods (freight RU) or persons (by extension a RU)

Rolling stock: All vehicles that run on a railway such as locomotives, carriages, wagons, or other vehicles used on a railway

Through ticket - ticket or tickets representing a transport contract for successive railway services operated by one or several railway undertakings

Ticket vendor: any retailer of rail transport services concluding transport contracts and selling tickets on behalf of a railway undertaking or for its own account;

Transport contract: contract of carriage for reward or free of charge between a railway undertaking or a ticket vendor and the passenger for the provision of one or more transport services;

List of acronyms

ARAF	Autorité de Régulation des Activités Ferroviaires
ARF	Association des Régions de France (French Regions' Association)
CEF	Connecting Europe Facility
CER	Community of European Railway and Infrastructure Companies
CLECAT	European association for forwarding, transport, logistics and customs services
DB	Deutsche Bahn AG (German railways)
DG CLIMA	Directorate-General for Climate Action
DG COMP	Directorate-General for Competition
DG ECFIN	Directorate-General for Economic and Financial Affairs
DG ELARG	Directorate General for Enlargement
DG EMPL	Directorate-General for Employment, Social Affairs & Inclusion
DG ENER	Directorate-General for Energy
DG ENTR	Directorate-General for Enterprise and Industry
DG ENV	Directorate-General for Environment
DG MARKT	Directorate-General for Internal Market
DG MOVE	Directorate-General for Mobility and Transport
DG REGIO	Directorate-General for Regional Policy
DG SANCO	Directorate General for Health & Consumers
DG TRADE	Directorate General for Trade
DGCCRF	Direction Générale de la Concurrence, de la Consommation et de la Répression des Fraudes
GDP	Gross Domestic Product
ECJ	European Court of Justice
EEAS	European External Action Service
EEIG	European Economic Interest Grouping
EIM	European Rail Infrastructure Managers
EPF	European Passenger's Federation
EPTO	European Passenger Transport Operators
EPTTOLA	European Passenger Train & Traction Operating Lessors' Association
ERA	European Railway Agency
ERFA	European Rail Freight Association
ERTMS	European Rail Traffic Management System
ESF	European Social Fund
ETCS	European Train Control System

ETF	European Transport Workers' Federation
EU	European Union
BAG-SPNV	Bundesarbeitsgemeinschaft der Aufgabenträger des SPNV e.V.
FIF	Fédération des Industries Ferroviaires
FNAUT	Fédération Nationale des Associations d'Usagers des Transports
FS	Ferrovie dello Stato
GHG	Greenhouse gas
IA	Impact Assessment
PWD	Directive 96/71/EC of the European Parliament and of the Council of 16 December 1996 concerning the posting of workers in the framework of the provision of services
Posted Workers Directive	
IAB	Impact Assessment Board
IASG	Impact Assessment Steering Group
ICA	Italian Competition Authority
IM	Infrastructure manager
LS	Legal Service
NMBS	Belgian railways
NS	Nederlandse Spoorwegen (Dutch Railways)
NSA	National Safety Authority
NTV	Nuovo Trasporto Viaggiatori
OBB	Austran railways
OECD	Organisation for Economic Co-operation and Development
PPP	Public-Private Partnership
PSC	Public service contract
PSO	Public service obligation
PZB	Punktförmige Zugbeeinflussung
RFF	Réseau Ferré de France (French Railway Network)
RFI	Rete Ferroviaria Italiana
RMMS	Rail Market Monitoring Scheme
RNE	RailNetEurope
ROSCOs	Rolling stock leasing companies
NPV	Net Present Value
RS	Rolling Stock
RU	Railway undertaking
SG	General Secretariat
SJ	Statens Jernväger (Swedish railways)

SMEs	Small and medium enterprises
SNCB	Belgian railways
SNCF	Société Nationale des Chemins de fer Français (National Community of French Railways)
TAP-TSI	Telematics Applications for Passenger Services Technical Specifications for Interoperability
TEN-T	Trans-European Transport Network
TFEU	Treaty on the Functioning of the European Union
UIC	International Union of Railways
UITP	International Association of Public Transport
UK	United Kingdom
ITF	International Transport Forum