Office of Rail and Road

# Impact Assessment of the CMA's Options for Increasing On-Rail Competition

Final Report

Issue | 31 December 2015



Job number 245186

**Ove Arup & Partners Ltd**
4 Pierhead Street
Capital Waterside
Cardiff CF10 4QP
United Kingdom
www.arup.com

oxera compelling economics
ARUP

# Contents

## Appendices

# Executive Summary

The current structure of the passenger rail industry in Great Britain can be described as competition 'for the market' with limited competition 'in the market'.

Competition amongst operators to secure a franchise is 'intense' with each procurement attracting a number of credible bidders. The franchising system has provided powerful incentives on bidders to maximise revenue and to reduce costs as far as possible, within the constraints of the franchise agreement and other features of the industry (such as revenue allocation). This has resulted in the proportion of the funding of the rail industry that comes from Government (rather than from passengers and other sources) falling from 49% in 2006/7 to 29% in 2013/14[1]. This increase in premium/reduction in subsidy has been used by funders to pay for a wide range of initiatives, including financial support of services that would not otherwise be commercially viable but that meet social objectives.

By specifying franchises, the Department for Transport (DfT) (and other funders) have a high degree of influence, specifying minimum timetable patterns and co-ordinating between train operators and Network Rail to deliver large enhancement projects. Significantly, the basis for awarding franchises to particular companies has historically been on the basis of which bidder offered the largest premium (or smallest subsidy) for running the franchise. While recent franchise competitions have placed more emphasis on the quality offered to passengers and the financial sustainability of bidder projections than has been the case historically, the premium (subsidy) offered is still a significant part of the appraisal of which bidder is awarded the franchise.

Between franchise bids operators face very limited competition. Franchise operators rarely compete with one another whilst the presence of Open Access Operators (OAOs) has, to date, been restricted to particular parts of the network. The degree of competition between rail and other modes of transport is likely to vary greatly across different routes (and, as such, our analysis does not capture this effect). As in any market, where there are limits to competition there will be a reduction in consumer welfare.

In January 2015, the Competition and Markets Authority (CMA) announced a decision to undertake a review to examine the extent to which competition has contributed to rail's recent success story and the scope for increasing competition in passenger rail services in Great Britain to further benefit passengers, the rail industry and the country more broadly. The CMA published a discussion document for consultation on the 17 July 2015. Within their review[2], the CMA has put forward the following four options for reform:

- Option 1 – Increased role of OAOs, alongside franchises.
- Option 2 – Having two successful bidders for each franchise.

[1] Realising the Potential of GB Rail: Final Independent Report of the Rail Value for Money Study, and GB rail industry financial information 2013-14 (ORR)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/4203/realising-the-potential-of-gb-rail-summary.pdf

[2] Competition in passenger rail services in Great Britain (A discussion document for consultation). CMA (17th July 2015).
https://www.gov.uk/government/consultations/competition-in-passenger-rail-services-in-great-britain

- Option 3 – More overlapping franchises.
- Option 4 – Having multiple operators with licences on each route.

Arup, in partnership with Oxera, was commissioned by the Office of Rail and Road (ORR) to conduct an impact assessment of these four options. Given the inherent uncertainties in predicting how commercial operators, regulators and Government will react in different market structures, the quantitative results in this impact assessment should be seen as indicative and providing broad orders of magnitude only.

## Option 1 – Increased Role for OAOs

There are already a small number of OAOs on the network – mostly on the East Coast Main Line, but with new operations due to begin on the West Coast Main Line also.

Significantly expanding these operations without reform of the charging structure of the rail network would be likely to affect funders' ability to use profits from franchises (in the form of high net premium payments) to pay for improved services elsewhere, as OAOs do not currently pay for the fixed costs of the network (paying only their variable costs) and do not compensate funders for any passengers they abstract from the franchised operator.

Therefore, for there to be a significant expansion of OAOs, it is assumed under this option that OAOs will make a proportionate contribution to the fixed costs of the network and pay a Public Service Obligation (PSO) levy – the purpose of which is to compensate funders for the loss of any franchise premiums arising from the OAOs activities. Furthermore, funders would need to specify fewer paths within the franchise specifications to give the OAOs space on the network in order to realise a substantial increase in OAO activity.

There are potential legal implications of the PSO Levy that may require further review before the feasibility of Option 1, in its current form, can be determined. In addition, an expansion of open access activity will increase the number of operators on the network, which will result in an increase in complexity and, potentially, some adverse performance impacts. Any adverse impacts are considered to be manageable but would nonetheless need to be considered alongside the benefits of competition.

The increased presence of OAOs would be likely to create competitive pressure, leading to OAO and franchised operators competing on price and service quality, resulting in a reduction in fares and/or improvements in services for passengers at the market level. Given the very different incentives on OAOs to franchised operators, it seems likely that this option would see a range of new business models being developed to better match consumers preferences with the product offering and potentially significant reductions in fares (both from the OAOs and, as a competitive response, from the franchise operators).

In addition, it seems likely that the efficiency of the network would improve as OAOs develop new business models, and franchise operators copy some of those improvements (subject to the constraints of their franchise agreements and any

historic contractual arrangements such as pensions). However, as the quantitative analysis demonstrates a more efficient outcome is not guaranteed.

In this option, the overall risk to funders may increase as the uncertainty inherent in a more competitive market could make it more likely that funders would have to step in as operators of last resort (if there were sufficient policy reasons to do so), if an OAO ceased to trade. Given the scale of OAOs (both now and under Option 1), the implications of such an occurrence would likely be less severe than for the loss of a franchise, as has occurred in the past.

The headline results of the indicative quantitative analysis for Option 1 are given in the table below. Results are given in present value terms (in 2010 prices in accordance with transport appraisal guidance (WebTAG) for a 20 year appraisal period assuming implementation from 2023. Results are given for low, central and high scenarios, reflecting the degree of uncertainty with respect to many of the key assumptions employed, and all scenarios are assessed against the 'do minimum' scenario which reflects industry status quo. It should also be noted that the analysis excludes a range of potential impacts (such as impacts on service quality, capacity and reliability) that are assessed qualitatively and are not captured in the economic appraisal of the options.

Of all the options assessed, Option 1 is likely to deliver the highest level of benefits – primarily through lower fares for passengers but also as a result of improved efficiency – although the net effect of Option 1 is not positive in all scenarios. The modelling demonstrates that the impact of this option will depend on the amount of capacity that is allocated to OAOs. The benefits to passengers of lower fares are likely to be larger if OAOs are given a larger share of the market.

**Option 1 Quantitative Analysis: Net Present Value (£m 2010 prices and values)**

| Scenario | Low | Central | High |
|---|---|---|---|
| East Coast Main Line | -£17m | £489m | £975m |
| West Coast Main Line | £66m | £915m | £1,720m |
| Great Western Main Line | -£250m | £262m | £758m |

## Option 2: Two franchisees for each franchise

The CMA's second option is to appoint two franchisees for each franchise rather than one. If this were designed in the right way, it would introduce competition across a substantial proportion of the franchise. There are a number of ways in which this option could be implemented, including splitting the franchise approximately in half; or by dividing the franchise into a profitable part and a socially necessary but unprofitable part.

Option 2 is considered to be relatively straightforward to implement as it represents only a franchise remapping exercise which has been undertaken routinely in the past. Option 2 will have minor adverse implications for operational control and performance as a result of having additional operators but it can be delivered within current industry structures and practices.

This option would be expected to deliver some fare reductions and quality improvements as the franchised operators would need to compete with each other for passengers. This competition would be likely to be on both price and product offering to some extent. Under Option 2, both operators would be franchised such that funders would have the same ability to provide minimum levels of service to deliver economic and social benefits as they would in the current situation.

The extent of competition is likely to be less than under Option 1 because both franchises would be subject to franchise agreements, which would be likely to limit their responses. However, the quantitative analysis demonstrates that it is possible to configure Option 2 to create widespread competition across a route. In this case, Option 2 could deliver benefits to passengers of a similar magnitude to Option 1.

As for Option 1, the indicative quantitative analysis illustrates that the impact of Option 2 on overall industry efficiency may be positive or negative. A loss of economies of density that results from sub-dividing a larger operator into two smaller operations will have a negative impact on efficiency. This may or may not be offset by the efficiency gains that result from greater competition, although the magnitude of both these effects is difficult to predict with accuracy.

Option 2 is likely to result in lower franchise premiums overall, primarily as a result of price competition. The extent of the reduction in franchise premium will depend on the extent to which direct competition between operators is created through this option. Under Option 2, although the operators may share some of the pain, the loss of profitability of the franchise would be largely passed on to funders through lower premiums, without the offsetting effect of a PSO levy. Therefore the impact on Government funds of Option 2 could be higher than for Option 1. Importantly, to a much greater extent than for Option 1, Government would be able to control the outcome in the way that service are divided between operators.

The risk to funders from this option would increase slightly because of the introduction of competition, but to a limited extent as the funders would control the specification of the franchise and so could limit the degree of freedom available to the franchise operators to control that risk.

As for Option 1, this option is expected to deliver significant net benefits overall when compared with the 'do minimum' case. However, where less optimistic assumptions are employed with respect to possible efficiency gains from competition (relative to the loss of efficiency that may result from dividing a franchise into two separate operators), the appraisal results become negative.

**Option 2 Quantitative Analysis: Net Present Value (£m 2010 prices and values)**

| Scenario | Low | Central | High |
|---|---|---|---|
| East Coast Main Line (Asymmetric competition) | -£157m | £236m | £622m |
| East Coast Main Line (Symmetric competition) | -£237m | £95m | £420m |
| West Coast Main Line (Asymmetric competition) | -£195m | £151m | £492m |
| West Coast Main Line (Symmetric competition) | £4m | £166m | £505m |

## Option 3: Increase the overlap between franchises

The CMA's third option is to increase the overlap between franchises. There is therefore a degree of similarity between this option and Option 2. As for Option 2, there are no significant operational or legal issues to prevent this option being pursued.

The impact of Option 3 is very much dependent on the extent of direct competition that is created through the redrawing of the franchise map. In general, it is expected that competition created through overlapping franchises will be more limited in extent than the competition created by splitting franchises into two. This is both because the overlaps may be limited in geographic extent but also because it is more likely to be the case that the franchises will serve differentiated markets. This is reflected in the quantitative analysis which shows the benefits of lower fares and increased rail demand to be less significant for Option 3 than for Option 2.

In a similar way to Option 2, the introduction of more intense on-rail competition would strengthen operators' incentives to improve efficiency, although franchise operators will have limited flexibility to reduce costs. It is presumed that the creation of overlapping routes is likely to result in an overall fragmentation of the franchise map and a loss of economies of density. Therefore, the net effect of this option on industry efficiency may be positive or negative.

As for Option 2 it would be reasonable to expect that the loss of franchise profitability will, at least in the long run, be passed on to Government in lower premium payments. As above, the magnitude of the impact on Government funds will be proportional to the extent of competition created through franchise remapping, as would the benefits to passengers from increased competition.

The quantitative analysis suggests that, on balance, Option 3 is likely to deliver positive economic benefits although the outcome will depend on the level of competition which is created as well as the impact on operating costs of a redrawing of the franchise map.

**Option 3 Quantitative Analysis: Net Present Value (£m 2010 prices and values)**

| Scenario | Low | Central | High |
|---|---|---|---|
| Great Western Main Line | -£118m | £56m | £228m |

## Option 4: Licence multiple operators, subject to conditions

The CMA's fourth option is the most radical departure from the current industry structure and would require the licensing, through either an administrative procedure or an auction process, of multiple operators. This option could be implemented in a large number of ways, and the requirements to maintain access to particular parts of the network which may not be commercially attractive could also be handled in many ways.

Creating a system of licensing poses significant challenges in terms of ensuring socially valuable services continue to be provided without undermining the objective of encouraging innovation. These challenges are not considered to be

insurmountable although, at present, there is limited information on how Option 4 would work in practice.

There would be significant legal and operational challenges to overcome in implementing this option, including the design of an auction or administrative allocation process. Nevertheless, such auctions have been run before and lessons from, for example, the 3G and 4G spectrum auctions in telecoms markets could be drawn on. Option 4 also has more significant operational implications than the other options proposed by the CMA. Option 4 will result in increased operational complexity. A system of licences could significantly increase the complexity of timetable change and delivery of major projects. Further work would be required to establish the legal and operational implications of this option.

Depending on how Option 4 is implemented, the precise effects could vary substantially: for example, licensing operators by an administrative process would provide different incentives and therefore lead to different outcomes to licensing operators through an auction. Therefore we have not been able, within the constraints of this project, to provide a quantification of the likely impacts of this option. However, as explained below, this option has the potential to offer significant benefits to consumers and therefore we recommend that the CMA develops it to the point where a quantified impact assessment can be completed on the same basis as the other options.

Under this option, a range of operators would be free to compete with each other, with only minimal restrictions from their licence conditions. This competition would be expected to result in a range of different business models emerging, including operators targeting different markets–focussing on different price points and quality offerings. This would, therefore, be expected to result in an improved match between consumer preferences and the product offered by the operators.

In addition, this option may drive significant improvements in the efficiency of the network, both through the efficiency of the operators (who have a strong incentive to reduce costs, and would be less constrained in doing so than a franchise operator) and Network Rail (as the operators would, we assume, be exposed to changes in Network Rail's access charges and therefore have a strong incentive to engage with Network Rail to reduce its costs).

Under Option 4 there is likely to be an increased risk to funders which would depend on the form that competition takes. Should an auction process be used, funding for the network would come in large, but infrequent, instalments rather than the continuous flow of the current market arrangements, although this would be subject to the specific features of the system put in place.

# 1 Introduction

## 1.1 Background

In January 2015, the Competition and Markets Authority (CMA) announced a decision to undertake a review to examine the extent to which competition has contributed to rail's broad recent success story and the scope for increasing competition in passenger rail services in Great Britain to further benefit passengers, the rail industry and the country more broadly. The CMA published a discussion document for consultation on the 17 July 2015. Within their review[3], the CMA has put forward the following four options for reform:

- Option 1 – Increased role of open access operators (OAOs), alongside franchises.
- Option 2 – Having two successful bidders for each franchise.
- Option 3 – More overlapping franchises.
- Option 4 – Having multiple operators with licences on each route.

The Office of Rail and Road (ORR) has commissioned Arup, in partnership with Oxera, to undertake an Impact Assessment (IA) of the CMA's options to increase competition.

## 1.2 Scope and Objectives

The ORR requires an IA for each of the options for increasing rail competition proposed by the CMA. The approach to the IAs for each of the CMA's options is in line with the 'Better Regulation Framework Manual' (Department for Business, Innovation and Skills, March 2015), as well as WebTAG guidance.

The IA is focussed on three main areas: the legal and operational feasibility of each of the CMAs options, the impacts on market outcomes and the benefits and costs for passengers, and the impact on Government funding of the railway.

Where it has been considered feasible to do so, a quantitative IA has been undertaken to demonstrate how each option will impact on passengers, operators and on funders. However, it should be noted that the study is concerned with high level policy options that would not be implemented until 2023 at the earliest. Therefore, the purpose of the quantitative IA is to provide an indication of the direction and order of magnitude of these impacts, highlighting the sensitivities and risks in relation to this analysis.

The quantitative IA has been based on scenarios or case studies constructed to simulate the effect of increased competition on each of the three mainline routes only: Great Western Mainline, East Coast Mainline and West Coast Mainline.

[3] Competition in passenger rail services in Great Britain (A discussion document for consultation). CMA (17th July 2015).

All options are compared to a baseline 'do minimum' scenario representing the continuation of the existing arrangements for rail franchising and on-rail competition.

## 1.3 Approach

This report sets out the findings of the following tasks undertaken to inform the IA:

- a review of current arrangements and their implications for competition in the rail industry and consideration of how this might evolve over time;
- the development of a conceptual framework for assessing competition impacts which has underpinned the development of the study;
- a review of the evidence of the impact of competition drawing on both rail and non-rail evidence;
- an assessment of the legal and operational feasibility of each of the CMAs options for increasing on-rail competition;
- a quantitative assessment and economic appraisal of selected options based on illustrative scenarios for their implementation; and
- an overall assessment of the impact of the options on passenger, operators, funders and regulators.

## 1.4 Report Structure

The remainder of this report is structured as follows:

- Chapter 2 – Current Arrangements and Competition
- Chapter 3 – Interpretation of the CMAs Options
- Chapter 4 – Conceptual Framework
- Chapter 5 – Review of Evidence
- Chapter 6 – Legal and Operational Assessment
- Chapter 7 – Quantitative Assessment – Approach and Assumptions
- Chapter 8 – Quantitative Assessment – Results
- Chapter 9 – Overall Impact Assessment.

# 2 Current Arrangements and Competition

## 2.1 Introduction

This Chapter describes and reviews the current arrangements for competition for passenger rail services covering the existing franchising regime, considering how developments in policy may affect the impact of the current arrangements.

## 2.2 Current Arrangements

The following section provide a brief summary of the strengths and weaknesses of the current market structure, whereby the Department for Transport (DfT) and other funders specify franchises, and private sector operators bid to provide those franchises subject to some (fairly limited) open access competition. This system provides competition 'for the market' and limited competition 'in the market' i.e. on-rail.

### 2.2.1 Advantages of the Current Arrangements

The system of franchising that has developed in the UK since privatisation creates **strong competition 'for the market'**. The CMA note that competition for the market is 'intense' and that each franchise competition attracts a number of credible bidders[4]. Historically, successful bids will typically be those which maximise the premium paid to funders for the franchise or minimise funder's subsidy requirement. However, in more recent franchise competitions there has been a greater focus on the quality of service that the winning bidder would provide for passengers.

The bidding process incentivises operators to maximise revenue and minimise operating costs to maximise premium (or equivalently, minimise subsidy). Therefore, the current model provides strong incentives for operators to **extract economic rents** from passengers and provide this rent to the funder in the form of **increasing levels of premium**. Although fares are regulated which limits operator's ability to increase price and provides a means through which Government can set the balance of rail funding between taxpayers and passengers.

The effects of these incentives can be seen in the changes in total rail passenger revenue, which has increased in real terms in every year since privatisation. The ORR's analysis of financial data for 2013/14 shows that franchise premiums paid by operators are now broadly equivalent (at £1.9bn) to the grant or subsidy payments to operators (£2.0bn) such that, in aggregate, operators obtain as much in premium as they do in subsidy[5]. This compares with net payments to operators (franchise grants less premiums) of over £2.0bn in 2006/7[6].

Another important aspect of the current system is that the system of payments between Network Rail, DfT and operators provides **a degree of stability and**

[4] CMA 2015
[5] GB rail industry financial information 2013/14 (ORR)
[6] Brown Review (Page 78) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/49453/cm-8526.pdf

**predictability with respect to income streams** to all participants within the rail industry, particularly within franchise periods. Given constraints on revenue funding from HM Treasury, which would otherwise be set annually, the fact that franchising offers clear sight of costs or income to funders offers considerable benefits in the post-privatisation world. Current arrangements are not without risk to franchise revenue. Notably, the entry of an OAO results in abstraction of revenue from the franchise operator although the application process is designed to limit the degree of abstraction.

Franchised services allow Government to **specify franchised services in detail**. Service levels are consulted on before the franchise bids are started, providing clarity to all stakeholders over what this minimum level is. It provides a means by which Government can provide socially desirable but unprofitable services. However, it is unclear in the current setup which elements would be delivered commercially and which need to be specified as part of a Public Service Obligation (PSO).

Similarly, the **Government uses the franchise specification to improve quality, manage capacity and to assist in the delivery of major investments**. Government can require operators to deliver improvements in the quality of services, to incentivise improvements in performance and reliability, provide certain levels of capacity or to require of operators minimum standards of customer service. These requirements reflect what government believes are socially desirable, but which may not otherwise have been delivered by operators if there is no financial case to do so, or if the financial return on investment is beyond the franchise period.

The franchising system affords Government **a degree of control** which allows the DfT (via Network Rail) to deliver major projects[7]. Importantly, a geographically organised system of franchises means that a limited number of operators will tend to be affected by a project, making co-ordination easier.

There are also some potential efficiency gains associated with a relatively small number of large franchises operating on specific routes. This system creates and preserves **economies of density for operators** who face low marginal costs for increasing capacity and service frequency[8].

The existing arrangements do, to some degree, **encourage enhancements to the overall product** offered to customers over and above the requirements of a franchise specification. This is particularly the case on the more commercial franchises. During bidding, bidders are incentivised to look for improvements to enhance their bid. These improvements are driven by commercial business cases but have led to improvements in capacity and frequency on many rail corridors. These improvements tend then to become 'hard wired' into future franchise specifications.

[7] Albeit requiring DfT to compensate operators through Schedule 4 of their Track Access Agreements or through franchise payments

[8] The empirical evidence suggests that economies of density are likely to be more important than economies of scale at the size of the current franchised operators.

### 2.2.2 Disadvantages of the Current Arrangements

From the perspective of maximising the benefits to consumers of competition, the primary disadvantage of the current franchise based system is that, whilst the franchise bidding process is competitive, **operators face very limited competition between franchise bids**. Despite the provision for on-rail competition, the CMA notes that OAOs play a very minor role in passenger rail service provision in overall terms[9]. The only significant and sustained open access competitors have emerged on the East Coast Main Line.

Furthermore the CMA also note that the degree of overlap between franchises has reduced since privatisation as franchises have been consolidated into larger groups (for example, the amalgamation of two franchises and parts of a third franchise to form Greater Anglia in 2003, or combination of large parts of the Southern and Thameslink franchises into the new Thameslink, Southern and Great Northern (TSGN) franchise)[10]. The number of operators under separate ownership on the Brighton Main Line has fallen from five to one in the last decade.

The degree of competition between rail and other modes of transport (particularly car, but also coach and aviation) will vary greatly across different routes and flows. Where competition with other modes and operators on the same line is limited, once the franchise is let the operator has an effective monopoly for the duration of the franchise.

This **lack of competition permits a degree of monopoly pricing (as noted above, the monopoly rents that emerge from this pricing are passed back to funders in the form of increased premium or reduced subsidy payments) by operators.** As Chapter 4 highlights there is evidence that on routes where there is direct competition, operator's fares are lower than on similar routes without direct competition. This suggests that fares are above the competitive level elsewhere on the network, **creating allocative inefficiency, which is exacerbated by prescriptive franchise specifications that are fixed over time**.

There are significant barriers to entry for potential OAOs and new entrants to the franchising market. Currently, **open access applications are time consuming and expensive and the arrangements do not provide a level playing field for franchised** operators, primarily because OAOs do not pay the Fixed Track Access Charge (FTAC) element of the track access charges levied by Network Rail. To avoid entry by OAOs adversely affecting the funding of the industry to too great an extent, the open access application process is designed to avoid OAOs running services where the main aim of those services is extracting revenue from franchised operators (which would undermine both that operator's ability to pay FTAC and the franchise premium to funders). This is achieved by the ORR requiring operators to demonstrate that their services will not be 'Not Primarily Abstractive' (the NPA test). Thus open access competition has tended to only emerge on routes where there is a destination poorly served by the franchised operators; for example, Hull served by First Hull Trains.

[9] CMA 2015
[10] CMA 2015

The emphasis on the franchise competition has resulted in an expensive and complex bidding process, which creates some barriers to entry for new entrants to the franchised market. Even on profitable networks, franchises tend to have a large degree of prescription, for example, on timetable, requirements around staffing at stations, potentially on the type of rolling stock to be used and so on. **Prescriptive franchise specifications can limit the scope for operators to innovate** to maximise revenue or to reduce costs. Whilst operators have an incentive to maximise revenue and minimise costs to secure the franchise and then to 'beat' the franchise agreement, the arrangements create **limited incentives for operators to respond to change mid-franchise where the benefits of that change will be felt outside the franchise period**. However, it should also be noted that prescription provides some protection to passengers too; examples include ensuring peak capacity is provided (by targeting operators using metrics such as Passengers In Excess of Capacity), running early and late train services and serving less busy stations at regular intervals.

Whilst the bidding process encourages bidders to offer investments or improvements in service quality to maximise their quality score, once the franchise has been won, **franchise operators are incentivised only to make investments that deliver a return within the period of the franchise**. The temporal nature of the franchises results in operators taking a short or medium term outlook (for the majority of franchises of 7 to 10 years in length). It is noted, however, that Government does have mechanisms at its disposal to, at least in part, overcome such issues. For example, one of the recommendations of the Brown Review was that the Government should use residual value mechanisms more actively to encourage franchisee investments in projects which have a commercial return beyond the franchise term.

Also, as discussed above, while there are mechanisms through which the franchise model can require operators to deliver particular levels of service or to invest in certain improvements, the **reliance on a franchise specification that is fixed for the duration of the franchise will not only result in allocative inefficiency, but also dynamic inefficiency caused by limited incentives for innovation.** The result is that resources will be allocated to meet the specification rather than in response to market forces, and this diversion deteriorates over time. It arises for two reasons: 1) the optimal allocation of resources may change over the course of the franchise, but because of the difficulty in changing the Franchise Agreement, this optimal allocation may change; and 2) because the knowledge available to those involved in producing the franchise specification is imperfect, resulting in a franchise specification that is likely to be less efficient than a market outcome (although this may be counterbalanced by enabling government to achieve other policy objectives).

The existing system insulates franchised operators from changes in Network Rail's access charges, meaning they have **limited incentive to bear down on infrastructure costs** than would otherwise be the case. In contrast, freight and open-access operators are fully exposed to changes in variable track access charges and, as such, have strong incentives to get the best deal from the infrastructure manager, and engage with the ORR's charge-setting process. By not exposing Network Rail to commercial pressure on its prices from franchised

TOCs, there is a missed opportunity to enable market forces to apply to Network Rail's costs and behaviour.

Finally, the existing system, with limited numbers of operators, may also **limit Network Rail's incentives to maximise the realisation of capacity** on the network. There is evidence (detailed in Chapter 4 of this report) that OAOs have placed pressure on Network Rail to make further train paths available. An example of this was Grand Central's original track access application forcing a review of capacity on the East Coast Main Line which challenged Network Rail's original view that capacity did not exist for this new Open Access Operator service. While this won't always be the case, OAOs clearly have an incentive to challenge Network Rail in this manner.

### 2.2.3 Summary of Current Arrangements

The advantages and disadvantages of the current arrangements are summarised in Table 1. Where a disadvantage has been identified, this should not be interpreted as meaning that it will necessarily be overcome by the options assessed in this study, although many of the advantages and disadvantages listed in Table 1 are relevant to the assessment of the CMA's proposals.

**Table 1 - Advantages and Disadvantages of the Current Arrangements**

| Advantages | Disadvantages |
|---|---|
| The system of franchising creates strong competition 'for the market'. | Operators face limited competition between franchise bids. |
| Provides strong incentives for operators to extract economic rents from passengers and to increase levels of premium paid to Government. | The franchise system is designed to deliver monopoly pricing, with monopoly rents passed back to funders in the form of increased premium or reduced subsidy payments. |
| System provides a degree of stability and predictability with respect to income streams to all participants. | Lack of competition limits incentives on operators to deliver improvements in efficiency (where the benefits of that efficiency would accrue outside the franchise period). |
| Franchised services allows Government to ensure minimum service levels are provided by the rail industry. | Current open access arrangements do not provide a level playing field for franchised operators. |
| Government uses the franchise specification to improve quality, manage capacity and to assist in the delivery of major investments. | Prescriptive franchise specifications can limit the scope for operators to innovate to maximise revenue or to reduce costs. |
| System creates and preserves economies of scale and density for operators. | Franchise arrangements create limited incentives for operators to make investments or respond to change, where the benefits of that change will be felt outside the franchise period, creating dynamic inefficiency. |
| Limited numbers of operators makes it easier for Network Rail to co-ordinate timetables and introduce timetable changes. | Reliance on a franchise specification that is fixed for the duration of the franchise, combined with monopoly pricing, results in allocative inefficiency. |
| Existing arrangements encourage operators to deliver enhancements over and above the requirements of a franchise specification. | Franchised operators have limited incentive to improve Network Rail's efficiency. |

## 2.3 Evolution of the Current Arrangements

To provide context for the appraisal and in constructing the baseline ('do minimum'), it is important to consider how the rail industry may change over time as a result of recent changes in franchising or other rail policy commitments as this may change the balance of advantages and disadvantages of the current system of franchising.

**Franchising Policy**

The franchising schedule published by the DfT sets out a programme of franchise competitions to 2021[11]. Of the main intercity routes, the East Coast franchise has been awarded to Virgin Trains East Coast for a minimum 8 year period, the West Coast franchise is due to be re-let in 2017, and Great Western franchise in 2018. Therefore, the approach to franchising currently being taken by the Government sets the context until the mid-2020s.

The Government's approach to rail franchising is set out in its response to the Brown Review recommendations[12]. Within this approach there are a number of changes that have the potential to increase the competitiveness of the franchising process by simplifying the bidding process and reducing bidding costs. The current franchising schedule is designed to provide a greater degree of transparency for bidders and ensure that franchise competitions are phased to maximise bidder interest. Changes such as the Pre-Qualification Passport[13] will serve to reduce bidding costs which may encourage new entrants to the franchising market.

Other relevant changes in policy or emphasis include:

- Development of a tailored set of objectives for each franchise which reflect its requirements. This could encourage bidders to offer improvements more closely aligned to passenger needs;
- Changes to commercial arrangements including a GDP indexation mechanism intended to provide operators with protection against exogenous revenue risk, while mitigating some of the adverse incentives with previous risk-sharing mechanisms;
- A desire for a greater use of output based specifications resulting in less specificity and greater flexibility for operators to determine the best way of delivering such outputs ; and
- The Government has suggested that it will improve flexibility and build change mechanisms into franchises which may result in the industry being more responsive to change between franchise competitions.

In aggregate, the above policies represent incremental changes that will reinforce the benefits of the existing arrangements rather than a departure from the current

[11] https://www.gov.uk/government/publications/rail-franchise-schedule
[12] Government response to the Brown review of the rail franchising programme. Department for Transport (11 July 2015)
[13] The Passport System has been designed to streamline the pre-qualification process for rail franchise competitions. The pre-qualification process enables the Authority to assess Applicants' ability to deliver (or secure the delivery of) rail franchising services. Applicants will be able to pre-qualify for all DfT rail franchises and will no longer be required to pre-quality for each franchise competition.

system. However, these changes, if implemented, will go some way towards mitigating some of the disadvantages identified with the current system, but the fundamental structure of (and nature of competition in) the industry will remain unchanged.

### Open Access Competition

There is increased interest amongst operators for open access operations. This is evidenced by the recent open access bids received for East Coast Main Line (ECML) train paths. On the West Coast Main Line (WCML), the ORR has recently granted access rights to Alliance Rail to operate six services per day between London and Blackpool. These developments suggest that the scale and geographic scope of open access operations will increase in the short and medium term under current structures. However, it should be noted that – even with the Alliance Rail West Coast services and any potential new East Coast open access services – OAOs will continue to make a relatively small contribution to UK rail services.

### Capacity

Increased capacity could, in theory, enable a greater level of open access competition within the current arrangements without the requirement for Government to specify fewer train paths for the franchised operator.

A review of planned enhancements on the mainline routes has been undertaken. On the Great Western Main Line (GWML), the Great Western Programme will deliver electrification that will result in some increases in capacity although frequencies on the main long distance routes will be similar to today. Improvements in capacity at Reading, in combination with Crossrail, will result in a significant increase in peak time capacity into London. However, capacity constraints at Paddington are such that these changes are unlikely to result in spare capacity for OAOs to compete directly with the Great Western Franchise. Similarly, on the WCML and ECML, limited capacity at the London termini is likely to continue to act as a constraint on capacity on the more attractive routes for OAOs.

In conclusion, in the short and medium term, for the mainline routes assessed as part of this study, it is considered that a major increase in open access competition is likely to require Government to pursue a deliberate strategy to specify fewer franchised paths.

In the longer term, CMA note that ERTMS (European Railway Traffic Management System) may deliver capacity enhancements. However, as noted by the CMA, ERTMS will not itself solve bottlenecks at junctions and stations, which remain the ruling constraints on capacity[14]. Furthermore, where signalling has already been optimised, the scope for improvements in capacity may be limited. Overall, the primary benefit of ERTMS is likely to be improvement in performance rather than capacity. In addition, the timescale for delivery of ERTMS and any associated benefits is uncertain: there is not a committed or funded plan for ERTMS roll out.

[14] CMA 2015

Another long term development is Phase 1 of HS2 between London and Birmingham. This will change the nature of the WCML. After Phase 1 of HS2 opens, the WCML will have fewer long distance services and capacity may be used by more stopping services (and freight) than today. This may provide an opportunity for a less specified approach to service delivery on the WCML as well as providing competition between conventional and high speed rail. Phase 2 to the North of England, if implemented, may release further capacity on the ECML and Midland Main Line (MML), again potentially creating further opportunities for OAOs.

**Access Charging Review**

Changes to access charging arrangements have the potential to better align the incentives of operators and Network Rail which, in theory, could result in an improvement in allocative efficiency.

The most obvious planned change in access charges is re-routing a higher proportion of Network Rail's funding via access charges paid by operators, rather than through the Network Grant. This will increase the proportion of Network Rail's costs met by operators. Two potential effects of this change have been identified. Firstly, this may have the effect of making Network Rail more answerable to the demands of operators who, in effect, become Network Rail's primary customers, although it is difficult to predict how this would affect Network Rail's incentives and behaviours in practice.

Secondly, an increase in track access charges could alter the balance between premium and subsidy for the passenger franchises. In 2013/14, total access charges paid by franchise operators to Network Rail amounted to £2.1bn. This compares with £3.8bn of Government grant paid to Network Rail. Depending on the extent to which Network Rail's costs are met by operators, this could significantly reduce the profitability of the rail franchises. Under the current arrangements this would not affect OAOs given that they are exempt from the fixed track access charge, although it would have implications for the CMA's options which are discussed later in this report.

A review of access charges has recently been completed by the Rail Delivery Group (RDG)[15]. The key findings of the review are summarised below:

- [the 'ideal' charging regime] should result in: Network Rail accountability; non-arbitrary allocation of costs; optimal traffic growth; the alignment of industry incentives; and value for money for funders, taxpayers and users.
- The purpose of each element of the charges and incentives regime should be clear;
- The charges and incentives regime should reflect the reality of the GB rail industry and we should not assume that changes impact all parties in the same way;
- The charges and incentives regime should align with other industry arrangements;

[15] http://www.raildeliverygroup.com/files/Publications/2015-11_rdg_roc_summary.pdf

- The next periodic review (PR18) should prioritise areas of the regime that are most in need of reform.

The ORR has recently published its first consultation on the Structure of Charges for CP6 (2019-2024) and beyond. ORR is consulting on proposals to focus future work on understanding what drives Network Rail's costs, considering if this information should be reflected in charges, and improving the existing set of charges. Further detail of proposals can be found in the consultation document[16]

**Network Rail Structure and Role**

The review by Nicola Shaw, the Chief Executive of High Speed 1, will provide recommendation on the longer term future shape and financing of Network Rail. It is not due to report until the spring of 2016[17], although a scoping document was recently published[18].

## 2.4 The 'Do Minimum' Scenario

In summary, Government policy on franchising is expected to reinforce the benefits of the existing arrangements, but does not represent a fundamental change in industry structure, and is unlikely to deliver increased on-rail competition. Similarly, no committed changes to the regulatory environment, or network capacity have been identified that will fundamentally alter the balance of advantages and disadvantages set out in section 2.2. Future changes in access charging arrangements and the structure and funding of Network Rail could have more significant implications although it is unclear, at this stage, what proposals will emerge from the review processes which are underway.

Based on these conclusions, a number of simplifying assumptions have been made to aid the quantitative analysis. The decision has been taken to base the quantitative analysis on the current franchise map and timetable. The 'do minimum' scenario assumes, as its starting point, average fares levels as of the base year (2013/14)[19]. Franchise revenues and premium/subsidy levels are based on an extrapolation of current levels of demand with no adjustment for changes in franchise commercial terms. Charges are assumed to remain at Control Period 5 levels, whilst other industry costs, in real terms, are assumed to remain at 2013/14 levels.

In the timescales available for this study, this is considered to be a proportionate approach given that the primary purpose of the assessment is to consider the incremental benefits of the CMA's options.

[16] Network Charges - a consultation on how charges can improve efficiency' http://orr.gov.uk/consultations/policy-consultations/open-consultations/network-charges-a-consultation-on-how-charges-can-improve-efficiency
[17] https://www.gov.uk/government/publications/shaw-report-terms-of-reference/shaw-report-on-the-longer-term-future-shape-and-financing-of-network-rail-terms-of-reference
[18] The future shape and financing of Network Rail: The Scope (November 2015)
[19] 2013/14 is the most current available published version of ORR's GB Rail Industry Financial Information statistical bulletin.

# 3 Interpretation of the CMA's Options

This Chapter sets out the key features of the CMA's proposed options for increasing on-rail competition in the UK rail industry. A more detailed review of the incentives and behaviours of actors under each of the options – undertaken at the outset of this assessment – has been included in Appendix B.

## 3.1 Option 1 – Increased Role for OAOs

Option 1 proposes a significantly increased role for OAOs. The current system of franchising would be retained although, as noted above, the capacity required for an increase in OAOs is likely to require the Government to specify fewer train paths for franchised operators.

Two further important changes to the current OAO arrangements have been proposed by the CMA to create a level playing field between OAOs and franchised operators. Firstly, the OAOs would be required to pay an appropriate share of the costs of network infrastructure. For the purposes of this assessment, this has been interpreted as OAOs paying a contribution to FTAC at the same per train kilometre rate as the franchise operator.

Secondly, the CMA has suggested that OAOs would be required to contribute to the funding of unprofitable, socially desirable services through a universal service levy, or Public Service Obligation (PSO) levy[20]. The CMA further note that 'a levy may be required to fund the provision of unprofitable but socially valuable services in a way that minimises any funding shortfall to the government'.

Following the publication of the CMA's report, further high level work has been undertaken by the ORR to consider how the PSO could be constructed in practice. The outcomes of this work will be applied in the modelling of Option 1.

As is the case at present, a mechanism or application process would be required to allocate open access rights where there is more than one applicant. However, given the 'level playing field' created by the changes to access charge arrangements for OAOs and the PSO levy, we have been informed by the ORR that it is unlikely that OAOs would be subject to an NPA test in the form that they are today. This would enable the OAO to design a service to maximise revenue and compete on more of the key flows, subject to capacity being available and the PSO levy being set at a level which does not make entry unprofitable.

It is unclear whether the franchise operator would also be free to apply for open access rights although, given that this situation would fail to achieve the increase in competition envisaged by this option, it is assumed for this study that the OAO is separate from the franchise.

[20] CMA 2015

## 3.2 Option 2 – Two Operators for Each Franchise

Under Option 2, franchises would be tendered such that there would be two operators for each franchise. It is assumed that the two franchises would be tendered simultaneously such that operators are aware of the specification of the competing franchise at bid stage. This distinguishes Option 2 from Option 3 (overlapping franchises).

It is assumed that operators would be free to bid for either franchise, but would be prevented from winning both franchises to ensure a competitive outcome.

The CMA has outlined three variants of this option: one in which the franchises are broadly equal in terms of frequency of services and the number of profitable/unprofitable routes or services; another option under which the franchises would be let on an asymmetric basis (with, for example, a 60:40 split of services); and a third option in which there is one anchor franchise responsible for operating the vast majority of unprofitable services and another franchise operating profitable services.

## 3.3 Option 3 – More Overlapping Franchises

Option 3 bears similarities to Option 2 in that the competing operators are both franchise operators and would therefore be subject to the constraints of a franchise specification. The purpose of Option 3 is to consider the impact of moving to a more fragmented franchise map which results in more overlapping services. This option would therefore require no other changes in the franchising system beyond re-mapping.

The degree of competition that would result is likely to depend on the degree to which the overlaps create a direct form of competition which franchises operating services of a similar nature, as opposed to stopping services competing with express services for example. As noted by the CMA, the degree of specificity in franchise agreements will also have a determining influence on the impact of this option.

## 3.4 Option 4 – Licensing

This option would involve multiple operators delivering services under a licensing regime for access to the network, which would include a number of obligations, for example to operate a certain number of unprofitable but socially valuable services. The CMA proposes two options for how unprofitable services could be allocated under a licensing regime:

- each licence would include a number of unprofitable services that the operator would operate;
- the operator would have to pick a certain ‘number’ of unprofitable services from a ‘list’, which is produced by a central authority. Unprofitable services can be traded between operators in the second sub-option.

For both sub-options, a list of the unprofitable services would need to be produced by DfT. The paths that the operators choose and/or are allocated (for example through some form of auction mechanism) will be one of the key factors that determines the outcomes of the market, including the revenue accruing to the government. Under this option, the licences could be designed and allocated in a way to ensure that were would be competition on all or the majority of flows. Thus the level of competition could be more widespread than for Option 1.

# 4 Conceptual Framework

## 4.1 Overview

An overarching conceptual framework has been developed to guide the assessment of the competition impacts of each of the CMAs options for increasing on-rail competition. The conceptual framework provides a guide to the types of impact that might arise from greater on-rail competition, including a brief exposition of the mechanisms that could lead to these impacts.

The conceptual framework is based on a review of the literature on the economic effects of competition and is structured around three main mechanisms through which competition impacts can occur:

- entrants competing on price, but offering a similar product;
- efficiency gains from new entry; and/or
- entry on the basis of a differentiated product.

When completing a competition assessment such as this, it is often helpful to define at the start of the process the relevant product and geographic market(s) that would be affected by the entry. For example, if we are assessing increased on-rail competition on a route where there is significant cross-modal competition, then based on a market that includes non-rail modes of transport, the effect of the additional on-rail competition impact may be limited.

Practically, modelling the degree of cross-modal competition is difficult (particularly within the time frame of this study). However, any appraisal of the effects of increased on-rail competition should be considered in the context of the degree of cross-modal competition, which will affect the extent of benefits under each option.

In addition, the market should also be defined from a temporal perspective, for example to determine any benefits that accrue to passengers from being able to travel with an alternative operator at a different time of day. By way of a further example, the temporal market definition will also help to correctly determine the benefits from increased competition. If the market were defined as the 16.02 from Retford (because yield management systems can price per train, and only with respect to nearby trains on the timetable), or the whole franchise (because of inter-relationships in models such as MOIRA), then this would lead to very different potential benefits from increasing competition.

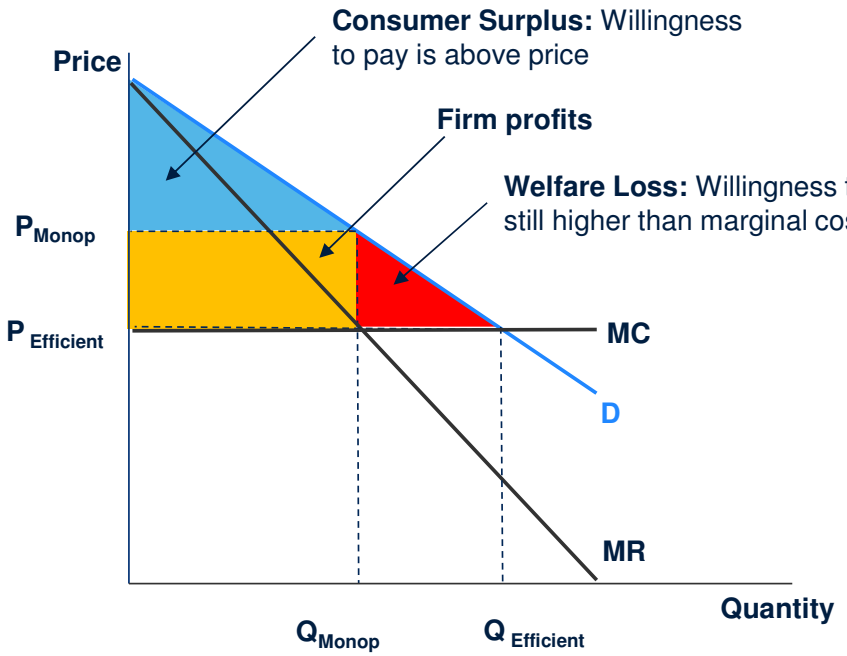
Finally, an increase in competition and reduction in specification of services by government may improve allocative efficiency as operators have greater ability to respond to changing market dynamics during the course of a franchise.

## 4.2 Competition Impacts

### 4.2.1 No Competition: The (monopoly) base case

When the market is served by a monopoly, the firm maximizes its profits by equating marginal revenue (the extra-revenue from selling one more unit) to the marginal cost (the extra-cost from producing one more unit). Compared with a competitive market, this leads to a loss of consumer welfare because prices will be higher and quantity sold will be lower.

**Figure 1 - Monopoly market**




Note: for illustration, this diagram assumes a constant marginal cost and a profit making franchise. Some of the firm profits will be paid to the Department for Transport as premium. This diagram is represents the market for passenger journeys. The conclusions remain broadly unchanged if an upward-sloping supply-curve is used instead of a horizontal supply curve. A vertical supply curve is less realistic in the long-term given the options available to operators to increase capacity on the rolling stock, even if the number of paths on the network is considered fixed.

Source: Oxera analysis.

As can be seen from Figure 1, a change from a monopoly supplier to a competitive market results in an increase in output ($Q_{Monop}$ to $Q_{Efficient}$) and a reduction in price ($P_{Monop}$ to $P_{Efficient}$), which leads to a loss of firm profits, and a reduction in welfare loss. The increase in consumer surplus is equal to the loss of firm profits and the reduction in welfare loss. However, in the figure above, the monopoly does not price discriminate. In reality, train operators (particularly intercity train operators) have sophisticated yield management systems enabling them to price discriminate by offering different tickets at varying price levels. This means that the gain in welfare when moving from a monopoly to a competitive market could be lower than illustrated in the figure above (as the red triangle in Figure 2 may be captured as firm profit).

Fares regulation imposes a cap on certain fares, which we assume is unchanged between the 'do minimum' and any of the Options. Given the existence of price discrimination among lower priced tickets (particularly among Advance Purchase tickets), a move from a price-discriminating monopoly may result in a redistribution of welfare from producers to consumers, but potentially not an overall increase in welfare. In reality, the degree of price discrimination is limited by a range of factors including fares regulation and lack of information on passengers' willingness to pay.

### 4.2.2 Price competition from new entry

If firms enter a market that previously had only one provider, this can lead to the firms competing on price, resulting in a lower price and greater output than under a monopoly provider. In particular, price is more likely to be the main dimension of competition if there is limited scope to compete on frequency and/or quality of service.

In the presence of cross-modal competition, price competition can lead to increased modal share for the rail sector, as price reductions may attract customers who were previously using road or air transport.

**Geographical scope**

In considering the magnitude of this mechanism, it will be important to determine the geographic spread of any effect: for example, is this effect limited to the service group, flow route, neighbouring routes, or would it impact the whole franchise?

**Separation of impacts**

The impact of a reduction in price due to increased competition is a reduction in price and increase in the quantity demanded/supplied. It is important to distinguish this 'pure price' effect from the price effects due to increased efficiency (see below). If such effects cannot be separately identified from the literature then care must be taken to ensure that no impacts are double-counted.

### 4.2.3 Efficiency Gains from New Entry

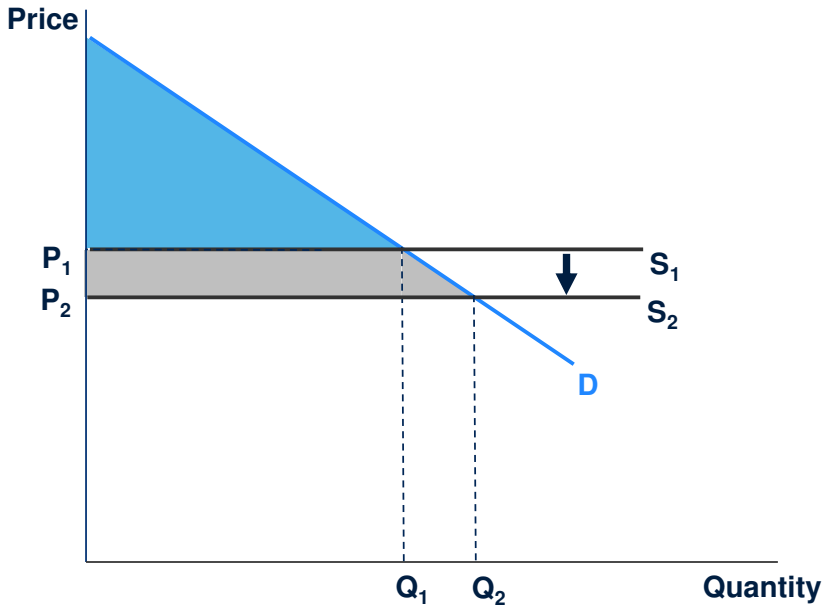
Additional competition can lead to efficiency gains and cost reductions in the overall market through a number of channels:

- an overall reduction in costs due to the new entrant (e.g. an open access operator) having lower input costs. There are a number of reasons why OAOs may have lower costs than franchise operators, such as the ability to recruit their own staff (rather than inherit staff from the previous franchise under TUPE – Transfer of Undertakings [Protection of Employment] arrangements);
- greater competition leading to lower costs as the new entrant and incumbent operator compete on prices (which in turn will drive down costs);

- additional competitive pressure resulting in additional capacity made available by an upstream supplier, for example by incentivising greater engagement with the regulatory process i.e. a further reduction in the capacity constraint.

Graphically, this mechanism is shown by a downward shift in the supply curve as the efficiency gains lead.

**Figure 2 – Efficiency gains and cost reductions**[21]




Source: Oxera.

Figure 2 shows that the efficiency gain leads to operators having a lower unit cost, represented in the supply curve shifting downwards from $S_1$ to $S_2$. This results in either a lower price charged to passengers and a greater quantity demanded, or an increase in operator profits depending on the extent to which that saving is passed through to passengers. In the diagram above, it is assumed that the saving is completely passed through to passengers in the form of a reduction in price. However, if the efficiency gain is not passed through then this increase in efficiency still represents a welfare gain as the producer surplus increases (by the grey area). This may result in increased premiums being paid to the Department for Transport or other client bodies. Through this mechanism we would expect to observe price reductions and an increase in the quantity demanded/supplied.

The efficiency gain can therefore also have an effect on the prices charged in the market highlighting how it is possible to double-count the two effects (price reductions arising purely from increased competition, and price effects arising from increased efficiency). It is therefore important to distinguish between the 'pure price' effect and the price effects due to increased efficiency. In addition,

[21] For illustration, a constant average unit is assumed, which is equal to the marginal cost (i.e. there are no economies of scale)—this is represented by the horizontal supply curve. This is separate (and conceptually additional to) to the 'pure price effects' outlined above. It is also assumed that the quantity demanded does not exceed any capacity constraints. .

there is anecdotal evidence that entry may also have an efficiency impact on Network Rail in terms of improvements regarding capacity utilisation and costs.

It should also be noted in the context of rail, additional competition could result in a loss of efficiency due to a loss of economies of density and/or scale. The extent to which this is an issue depends on the importance of economies of density and/or scale, which is considered further in the literature review.

**Geographical scope**

The geographic scope of this effect is likely to vary. For example, if there is a reduction in costs due to lower input costs across the franchise or a more efficient business model[22], this may affect the whole of the franchise (and potentially beyond). The effect on any expenditure by Network Rail will be felt across the network given the current structure of access charges (although this could change with a move to greater devolution of control to routes). For example, given the way Network Rail's regulation functions: with a total revenue requirement determined and charges set on a network wide basis to cover that revenue requirement, cost savings on one route reduce the charges across the network equally. Clearly the increase in any capacity would be felt only on the flows which made use of that additional capacity.

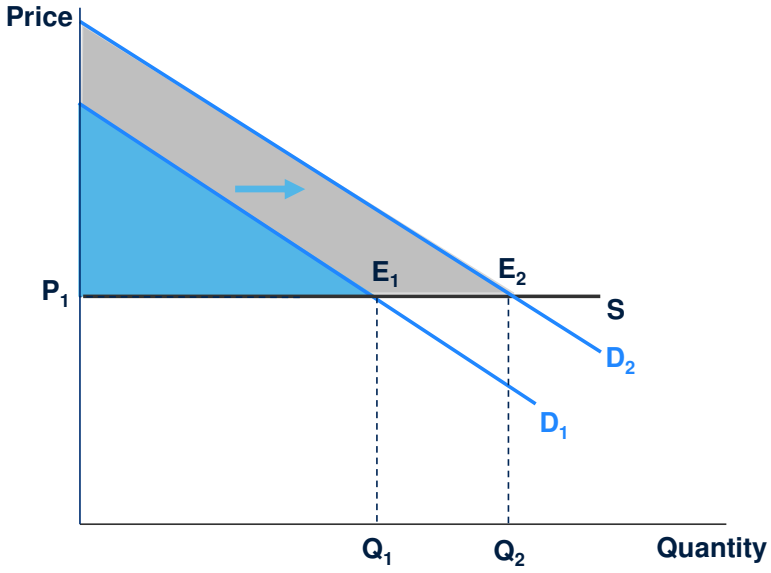
The effect of cost reductions due to greater on-rail competition on particular routes may lead to impacts beyond the routes that are affected as the efficiency gains may be implemented across the entire operator's business.

### 4.2.4 Change in Product Offering

The final mechanism through which increased competition can affect market outcomes is a change in the product offering, which leads to the product being offered that better matches consumer preferences. Figure 4 shows that a change in product offering to better meet customer needs would lead to an outward shift in the demand curve and an increase in the quantity demanded at any given price.

[22] For example the business model adopted by an OAO is likely to differ from a franchisee's business model. Differences could include: the way staff are recruited (i.e. OAOs do not inherit staff from previous franchisees); staff allocation and; flexibility of working practices. Such differences may lead to the OAO being able to achieve cost reductions relative to the franchise operator.

**Figure 3 – Product Differentiation**




Source: Oxera

In Figure 3 the price remains unchanged (if we assume constant marginal costs) but the following impacts could be observed:

- changes in the quality of service (e.g. free wi-fi);
- changes in frequency of services;
- changes in the diversity of services (e.g. greater product differentiation through operating services at different times of day or to different destinations or using different rolling stock).

### Geographical scope

The geographic scope of these effects will vary depending on the type of effect, which is considered further in the literature review, However, it is difficult to generalise across these examples.

### Potential risk with changes to product offering

There may however be some risks associated with changes to the product offering. For example, as the product offering becomes increasingly differentiated (for example, in terms of the mix of types of rolling stock used) this may require operators to increase the level of co-ordination between each other (or through Network Rail playing an increased system operator role across the network). If this is not done sufficiently, elements of the service could become worse for passengers (e.g. timetable patterns, inter-available tickets). This effect may therefore not be restricted to the routes where the change occurred.

### Innovation

In addition to the change in price, efficiency and product offering, increased competition may also result in an increase in innovation, which may affect the speed at which these benefits are realised (for example, how quickly new pricing structures are introduced).

# 5 Review of Evidence on the Impact of Competition

## 5.1 Overview

As set out in the conceptual framework, the introduction of competition is expected to have a number of consequences for consumer welfare, such as changes in prices, product differentiation, and efficiency. As part of this study, a literature review was conducted to assess the evidence for such effects.

The literature review identifies evidence from the rail sector in the UK and Europe but, given the relative scarcity of on-rail competition, it also draws up experience from other sectors. When assessing evidence in other sectors, careful consideration has been taken to account for differences between these sectors and the rail sector. In particular, it is important to consider the structure of the market including the degree of government intervention, extent of network effects, and cost structure when drawing inferences from other sectors about the experience of those sectors and the implications that has for the rail sector. The other sectors that we have reviewed include:

- **The bus industry**: Long distance coach services were deregulated in 1980, followed by local bus services in 1986. Outside London, operators decide which services to provide commercially and Local Authorities then create tenders for socially desirable but commercially loss making services.
- **Competition between airports and airlines:** For many years before and after its privatisation, the British Airports Authority (BAA) was initially in charge of London Heathrow, Gatwick and Stansted airports, as well as Glasgow International, Edinburgh, Southampton and Aberdeen airports. The UK Competition Commission announced in 2009 that BAA would need to sell three of its airports because of its monopoly situation in London and Scotland. BAA sold Gatwick, Stansted and Edinburgh. Other airports in the country were already competing and the Competition Commission evaluated the effect of their competition to assess the desirability of splitting BAA. The entry in the 1990s of Low-Cost Carriers (LCCs) strengthened competition between airlines for passengers and the competition between airports for attracting airlines and passengers.
- **Telecommunications:** In the fixed telephony market, there are two types of competition: infrastructure-based competition, which consists in the development of cable or Fibre to the Home (FTTH), and access-based competition, which mainly takes the form of Local Loop Unbundling (LLU). The UK is mostly characterised by access-based competition from cable across around half of the country. In the mobile market, consumer outcomes appear to be mainly driven by demand and cost factors. Liberalisation of this market has not led to significant welfare impacts. Hence, we have not considered the mobile market further.
- **On-rail competition in other European countries:** Other European countries liberalised their rail markets, especially Austria, Czech Republic,

Germany, Italy and Sweden. Details of each market structures are provided in the table below. Liberalisation was the first introduction of any form of competition in this sector, which may mean that the impacts observed in these examples could be an upper bound on the impact of changing the type of competition in the GB rail sector. The number of OAOs and the incumbents' respective market shares reflect the degree of deregulation. In Germany, OAOs represent a smaller share of their relevant segments than in other countries. It is important to note that the market situation in other European countries is very different to that in the UK, for example, with differences in how new entrants can access revenue from 'any operator' products – or indeed whether those products exist at all.

**Table 2 – Main market characteristics in each country in 2015**

| Country | Main OAOs | Service | Entry date | Market share (%) | |
|---|---|---|---|---|---|
| | | | | OAO in relevant segments/route | Incumbent overall |
| | | | | | |
| Austria | Westbahn | Long Distance | 2011 | 20-25[23] | 88 |
| Czech Republic | RegioJet<br>Leo Express | Long Distance | 2011<br>2012 | 40-50[24] | 95 |
| Germany | HKX | Long Distance | 2012 | 5-10[25] | 88 |
| Italy | NTV | High Speed | 2012 | 20-25[26] | 83 |
| Sweden | Veolia/Skand-Jern/TAG<br>MTR | Long Distance | 2010-11-13<br>2015 | N/A | 68 |

Source: CMA 2015

## 5.2 Price Competition

### 5.2.1 UK OAOs

Evidence from the UK rail industry with respect to price competition is based primarily on the experience of OAO competition. It is relevant to consider both the degree to which OAOs have introduced lower fares in comparison to the franchise operators, but also the effect of competition on the overall average yield, taking into account any competitive response from an incumbent operator to the entry of the OAO.

Tables 3 and 4 show a recent (Autumn 2015) comparison of the fares charged by First Hull Trains and Grand Central Rail and the equivalent 'inter-available' ticket price, or in the case of advance tickets, the franchise operator's fare. The tables

[23] Market share estimate on the Vienna-Salzburg route.
[24] OAO's cumulative market share estimate relating to the Prague-Ostrava route.
[25] Market share estimate relating to the Hamburg-Cologne route.
[26] Market share estimate on the overall national high-speed services market.

show the OAO fares as a percentage of the inter-available or franchise fare such that a negative number indicates a lower price.

When drawing inferences from the fares data it is important to consider that the OAOs operate a primarily off-peak service. Therefore, off-peak and super-off peak fares provide a more direct comparison than 'anytime' fares. Secondly, it should be noted that a particular service will have passengers on a mix of ticket types. Therefore, comparing the price of specific tickets will not accurately reflect the overall yield (revenue per passenger or per passenger kilometre) to the operators.

If off-peak fares are considered in isolation, the most recent data suggests that First Hull Trains offers fares that are around 12% to 15% lower, on average, than the equivalent inter-available fare. The picture on Advance fares is more mixed with Virgin Trains East Coast offering the lowest price fares.

**Table 3 – First Hull Trains (Percentage difference between FHT fares and Inter-available or Franchise Fare)**

| | Hull | Doncaster | Retford | Grantham | Average |
|---|---|---|---|---|---|
| Anytime Return | -5% | -14% | -13% | -17% | -12% |
| Off-peak return | -14% | -16% | -13% | -11% | -14% |
| Super-off peak return | -9% | -17% | -18% | -13% | -14% |
| Anytime single | 0% | -11% | -11% | -14% | -9% |
| Off peak single | - | - | - | - | - |
| Super-off peak return | -18% | -4% | -26% | 0% | -12% |
| Advance (Most Expensive) | -3% | -18% | -17% | -23% | -15% |
| Advance (Cheapest) | -7% | 11% | 11% | 11% | 6% |

For Grand Central Rail, the availability of different products makes like-for-like comparison between the OAO and the franchise operator difficult, although it is notable that the OAO undercuts the franchise operator across a range of ticket types.

**Table 4 – Grand Central Rail (Percentage difference between GCR fares and Inter-available or Franchise Fare)**

| | Bradford | Doncaster | Sunderland | York | Average |
|---|---|---|---|---|---|
| Anytime Return | -42% | -35% | -48% | -41% | -42% |
| Off-peak return | -54% | -49% | -52% | -41% | -54% |
| Super-off peak return | - | - | - | - | - |
| Anytime single | -27% | -17% | -37% | -26% | -27% |
| Off peak single (compared with 'Super Off Peak Single) | -44% | -39% | -49% | -43% | -44% |
| Super-off peak return | - | - | - | - | - |
| Advance (Most Expensive) | -42% | -33% | -41% | -32% | -37% |
| Advance (Cheapest) | -16% | -9% | -11% | -23% | -15% |

The above analysis of the most recently available ticket types is broadly in line the evidence on fares presented in the CMA's discussion document, as well as a study undertaken by Arup for the ORR into on-rail competition undertaken in 2009[27].

The evidence from OAOs in the UK supports the general hypothesis that an OAO entering the market will seek to compete with the franchise on price. However, it is not possible to *directly* apply this experience to our representation of Option 1. Firstly, it should be noted that the fares data given in Table 2 is broadly reflective of a long run equilibrium position after the franchise operator has had chance to respond to the prices offered by the OAO and vice versa. It does not provide a comparison of fares before and after entry of the OAO to the market. The response of franchise operators to competition is considered later in this Chapter.

Secondly, it is important to note that the form of OAO competition which is reflected in the fares data in Tables 2 and 3 differs in a number of respects from the form of competition envisaged under Option 1. The fares data reflects a situation in which OAOs are not subject to the same access charges as franchise operators and are operating primarily off-peak service, using shorter formation trains, on routes that are likely to be of marginal commercial value. Under Option 1 OAOs would be subject to FTAC and, according to our interpretation of the option, would be operating frequent services (including peak time trains) between major stations on the franchise route.

### 5.2.2 Incumbent Response to Open Access Competition

With respect to both Grand Central Rail and First Hull Trains there is evidence that demonstrates that franchise operators have responded to price competition on the flow in question. This response is evidenced by fares promotions and changes in average yield. For example, it is notable that the franchise operator responded to competition from First Hull Trains by offering its own carnet product, whilst GNER increased the number of advance tickets available.

Analysis of yields on competed flows (Table 5) suggests that competition keeps yield growth low. As a result, flows with competition experienced higher growth than flows without competition in terms of journeys (42% compared to 27%) and revenue (57% compared to 47%). It should be noted, however, that analysis of yield growth does not control for other factors (for example demographics, economic performance, changes in timetable) which could also have had an influence on yields.

Another indication of the interaction between OAOs and franchise operators is the change in market shares that have occurred over time. For example, First Hull Trains achieved a market share of over 70% on the Hull to London route by 2006/07 (at the end of the ramp up phase in the First Hull Trains service, 6-7 years after entering the market). However, in the following year First Hull Trains share of the market was reduced to 50-60%[28]. Tentatively, this might suggest that the franchise operator has taken action to win back market share from the OAO.

[27] Ove Arup & Partners Ltd (December 2009), On Rail Competition Analysis Key Findings
[28] Arup 2009

The yield data does not provide a direct indication of the existence of a halo effect (a route wide fare response not limited to specific flows with competition).

**Table 5 – Franchise Operator Response to OAO Competition: Overall Average Yield Growth**

| Source | Evidence of Average Yield Growth | |
|---|---|---|
| | Flows with Competition | Flows without Competition |
| | 11% increase<br>(Peterborough, Grantham, Retford, Doncaster, Wakefield, York, Northallerton. All to London) | 17% increase<br>(Newark, Leeds, Darlington, Durham, Newcastle, Berwick, Edinburgh. All to London) |
| East Coast Main Line (2007/8 to 2009/10)<br>*Arup (2009)* | 14% increase<br>(Northallerton-London)<br>11% increase<br>(York to London) | 19% increase<br>(Darlington-London)<br>31% increase<br>(Newcastle to London) |

### 5.2.3 Overlapping Franchises in the UK

Competition between franchises has been limited because of a tendency to remove overlaps between franchises in order to improve operational performance and increase the price paid by bidders who were granted greater monopoly rights[29]. In and of itself, this is likely to have caused losses of passenger benefits, transferring these to taxpayers in the form of reduced subsidies.

Evidence primarily comes from examples of where competition has been removed from a route as a result of franchise consolidation. For example, average yields from Colchester and Ipswich to London have increased by 35% and 25% respectively between 2004 and 2009 following the merger of Anglia Railways and First Great Eastern to form part of the Greater Anglia franchise in 2004. This compares to a 10-20% increase on a comparator flow (Norwich and Stowmarket to London). The yield has grown despite a worsening of services to Colchester and Ipswich in terms of both frequency and journey times. Further examples are provided in Table 6.

[29] Realising the potential of GB rail: Report of the Rail Value for Money Study (May 2011)

**Table 6 – Price Competition on Overlapping Routes**

| Route / Source | Evidence of Average Yield Growth |
|---|---|
| Birmingham to London (Arup 2009) | From 2002 to 2009 average yields from Birmingham to London (three competing franchises) increased by around 20%. This was similar to the change in yield from Stafford to London (no competition). Yields from Leicester to London (no competition) increased by 45% over the same period.<br>The yield growth is in part due to the creation of additional spare capacity following timetable changes. Both Birmingham and Stafford have benefited from this to the extent that yields fell on both flows from 2006 to 2009. Looking at the period 2002 to 2006 only, Birmingham yields had increased more than Stafford of Leicester. |
| Peterborough to London (Arup 2009) | From 2002 to 2009, average yields from Peterborough to London increased by around 45% compared to 50-55% from Hitchin and Huntingdon. |
| Cambridge to London (Arup 2009) | Yields from Cambridge have increased by around 30% between 2004 and 2009, compared to around 37% from Audley End and Bishop's Stortford. |
| Luton/Bedford to London (CMA 2015) | East Midlands Trains offers an advance from London to Bedford that is 51% cheaper than the interavailable off-peak single.<br>East Midlands Trains offers an advance from London to Luton that is 6% cheaper than the interavailable off-peak single. |
| *Removal of Competition:* Ipswich and Colchester to London (Arup 2009) | Average yields from Colchester and Ipswich have increased by 35% and 25% respectively between 2004 and 2009 following the removal of competition. Yields from Norwich and Stowmarket have increased at 10-20%. |

### 5.2.4 European On-Rail Competition

The opening of rail to competition in several European countries has led to intense price competition between the OAOs and the incumbent in Austria, Czech Republic, Italy and Sweden. In the table below is a list of competitive reactions. Price-related reactions include: undercutting the competitor's fare, offering special prices or discounts, waiving reservations fees and legal action. While the structure of access charges varies across countries, the experience of examples of on-rail competition from outside Britain are still relevant for assessing how greater on-rail competition could affect prices as the examples illustrate the impact of entry by OAOs.

**Table 7 - European on-rail competition impact on prices[30]**

| Country | Reaction |
|---|---|
| Austria | Intense price competition between OAO and incumbent: the OAO undercut the incumbent's fare by offering discounted fares for regular travellers and the incumbent introduced special offers. |
| Czech Republic | After market liberalisation, the first OAO entering offered fares that were 25% lower than the incumbent's for a slightly slower service. The incumbent retaliated by lowering its price by 30%, waiving its reservation fees and offering special discounts on the line Prague-Ostrava. The first entrant filed a complaint to the Czech competition office for predatory pricing by the incumbent. When the second OAO entered, competition on the line Prague-Ostrava became even more intense. |
| Italy | OAO downward pressure resulted in fares for High-Speed services falling to similar levels as non-High-Speed services. |
| Sweden | The incumbent started selling discounted tickets because of expected OAO entry. |
| Germany | The no-frills operator HKX offered lower fares on route between Cologne, Dusseldorf and Hamburg, leading DB to freeze fares and introduce better rolling stock. |

Note: it is often not possible to be precise about the magnitude of the price reductions because of a lack of data.

Source: Oxera analysis, based on Competition and Markets Authority (2015), p88-95, OECD (2013), p70.

### 5.2.5 Price Competition in the UK Bus and Coach Travel Market

In spite of a general increase in fares in the UK bus and coach-travel market, a study by the Office of Fair Trading found that market liberalisation and competition have led to non-trivial decreases in average fares. After controlling for other factors (competition from car, local socio-demographics, service quality, costs and traffic density), fares are found to be significantly higher when there is only one provider than when there is competition from one or more providers, by approximately 12%. Each additional competitor is found to decrease prices by around 6%. But caution is needed for this last figure because entry leads to non-linear fares evolution: fares decrease more during the transition from a monopoly to a duopoly than with additional entry (the fourth entrant has almost no impact on fares).

The same study finds that 'limited competition between bus operators' results in higher prices, with a conservative estimate at 9% [31].

### 5.2.6 Airport Competition: Impact on Airport Charges (buyer power)

There is competition between airports to the extent that consumers and airlines can view them as substitutes. Airports attract new airlines and maintain their current contracts partly by offering a range of airport charges, potentially coupled

[30] Note that Oxera attempted to give numbers when these were available. When there was no such information, Oxera reported the analysis of its sources (such as 'intense price competition').

[31] Office of Fair Trading, 2010, paragraph 1.6.

with volume discounts such as lower marginal costs rates for per-passenger charges above a certain level[32]. These changes in charges can then be passed on to the consumer via changes in fares. It is important to note that competition in the UK has occurred mostly when airports have had spare capacity or could expand capacity at a modest cost[33].

### 5.2.7 Low-Cost Carriers (LCC) and Airline Competition

The emergence of the LCCs has contributed to overall growth in the air-travel market and changes in the Full Service Carriers' (FSC) business model, since they now compete with LCCs on certain routes. Increased competitive pressures can lead to airlines reducing prices across the market. This is a price reduction spill-over as many passengers are flexible on their destination.

From 2006 to 2012, the presence of an LCC on a specific airport-to-airport route in Europe reduced average fare on the route by around 36%[34]. If the competing LCC is on a V-route[35] or a parallel route[36], the estimate of the effect on consumer fares could be a drop in the average fare paid of around 50–60% compared to the same route served only by FSCs. A similar effect can be observed when we compare the introduction of a second FSC on the primary route (reduction in fares of 11%) versus the entry of a second FSC on a V-route (reduction in fares of 30%): the fares reduction is larger when the competitor places itself on a V-route (or on a parallel route). This difference is evidence of airport competition. These numbers show that the effect of competition between airlines and between airports have a cumulative effect on fares reduction.

Another paper[37] finds that when a market changes from a FSC monopoly to an asymmetric duopoly or oligopoly with LCCs, fares of the FSC decrease respectively by 11% and 16%, for both the business and the leisure segments. However, the results using the UK and London data are weaker, and in particular, many of the impacts of competition on direct routes and V-routes are not statistically significant[38].

### 5.2.8 Summary: Price Competition

Evidence from routes with open access competition consistently demonstrate the tendency for OAOs to significantly undercut franchise operator fares. However, whilst this supports the view that operators will compete on price, caution must be applied when transferring the experience of recent OAO to this analysis. In particular, under Option 1, OAOs will no longer have the same cost advantages (most notable in respect of FTAC) as they do today and will be responsible for

[32] Competition Commission (2009), 'BAA airports market investigation. A report on the supply of airport services by BAA in the UK', 19 March, p42
[33] Competition Commission (2009), p 46.

[34] InterVISTAS (2014)
[35] A V-route is defined as one where a competitor operates from a different but nearby airport to the origin of the Full Service Carrier but flies to the same destination airport.
[36] A parallel route is defined as one where a competitor operates from a different but nearby airport to another different but nearby airport to that of the Full Service Carrier.
[37] Aldreighi, M., Cento, A., Nijkamp, P. and Rietveld, P. (2004)
[38] InterVISTAS (2014)

operating more frequent services, in all probability, longer formation trains and on higher yield routes than they do today.

Importantly, there is also evidence of a franchisee response to competition which results in lower average yields on all services with competition. No evidence is available from rail in the UK to test the existence of a halo effect on fares on routes without direct competition.

Franchise-on-franchise competition also appears to result in lower fares although the magnitude of any reduction in yield appears to be an order of magnitude lower than for open access competition. This may be because the form of competition is less direct, or because franchise specifications place restrictions on the degree of competition.

Evidence from other sectors suggest that, when competition is first introduced, the incentives are very strong for the new entrant to undercut the incumbent to try to appropriate some of the market. The incumbent can also reduce its prices before the market in which it operates is opened to competition, as a preventive measure. This behaviour often marks the start of price competition between the incumbent and the new entrants. Over time, this price competition settles to a new market equilibrium.

One strong finding from the literature on competition economics is that price competition does not occur at the same rate when the market goes from one to two participants as when it goes from, for example, ten to eleven. In particular, most of the benefit is actually gained from the entry of the second and third firm in the market. With more entrants, price reduction continues, but at a smaller rate than when the market moves from monopoly to duopoly and then to triopoly. This effect is observed in the non-rail markets we consider.

## 5.3 Efficiency

### 5.3.1 Evidence from UK On-Rail Competition

As for price competition, quantitative evidence on the impact of competition on efficiency and cost is drawn primarily from comparison of OAOs and franchise operators. Econometric analysis of the efficiency gains from on-rail competition commissioned by the CMA[39] (Wheat and Smith 2015), which controls for differences in access charges, finds that OAOs are 37.7% cheaper than franchise operators when costs are measured per train hour and 8.6% cheaper than franchise operators when costs are measured per vehicle hour. The difference between per train and per vehicle mile cost comparisons occur because OAOs tend to run shorter trains than franchise operators.

That OAOs have cost advantages over franchise operators is supported by evidence presented by the CMA which reports that a company that operates both open access and franchised services suggests that costs, on a per vehicle mile

[39] Econometric analysis of efficiency gains from on-rail competition (Wheat and Smith, Leeds ITS, 2015)

basis, were 10% lower for its open access operations than for its franchised operation with similar characteristics[40].

Wheat and Smith (2015) have also compared the costs of OAOs and franchise operators when removing the effect of franchise operators being responsible for operating stations. Controlling for station operating costs they find that, OAOs are cheaper per train-hour by 22% than franchise operators but more expensive on a per train mile basis, but marginally more expensive on a per vehicle mile basis. They conclude that conclude that *'despite operating at small scale and density, open access operators' costs are broadly in line with those of franchised TOCs when the cost effect of running stations is stripped out'*.

There are a range of factors which may explain the lower costs faced by OAOs, even after differences in Network Rail charges are taken into account. The main factors are listed here:

- As highlighted by the CMA, OAOs are free from franchise specification which may limit the flexibility of franchise operators to control their costs. As a result, OAOs are able to adopt a more efficient business model.
- Whilst franchise operators are strongly incentivised to minimise operating costs to secure the franchise, once in place, profit sharing arrangements may limit operator's incentives to respond to new opportunities or changes in cost mid-way through the franchise term.
- OAOs are free from the costs that franchise operators face of bidding for the franchise;
- OAOs are free to recruit their own staff and are therefore not subject to TUPE arrangements. TUPE transfers staff under their existing terms and conditions making it hard for incoming operators to reduce costs. It also means that OAOs are not subject to historical pension liabilities in the same way that franchise operators are;
- OAOs are not subject to the costs of operating stations;
- By operating services primarily outside of peak times, OAOs do not face the costs of having employing resources to meet peak demand which are not fully employed outside of the peak;
- OAOs have the flexibility to operate lower cost rolling stock or to reduce costs by providing lower levels of on-board service;
- OAOs may be able to share the resources of a larger owning group;

As noted, OAOs are likely to face very different costs under Option 1 than they do today. Our interpretation of Option 1 is that OAOs would contribute to FTAC but would also face capacity charges at the same rate as the franchise operator. It is worth considering how the other factors listed above may change under Option 1:

- With an expansion of open access activity, OAOs may be subject to TUPE arrangements which would significantly limit the scope for OAOs to secure staff at lower unit costs;

[40] CMA 2015

- OAOs are likely to be responsible for operating peak services and will need to (or may be obligated to) provide sufficient capacity to cater for peak demand;
- With an expansion of OAO operations and fleets, OAOs may need to take on more fixed costs, such as depot costs;
- There may be less flexibility in the future for OAOs to secure rolling stock at lower cost, either because OAOs are operating larger fleets or because of specific operational constraints (the requirement to operate fast tilting trains on the West Coast Main Line is one example of this);
- With larger OAOs, operating more frequent services, OAOs are likely to benefit from economies of scale and density.

The remainder of this Chapter considers the quantitative evidence on the sources of OAO efficiency.

## Input Costs

A contributory factor to lower overall costs for OAOs is lower input costs. Wheat and Smith (2015) find that OAO unit labour costs (£ per employee) are on average 10.3% lower than those faced by intercity franchise operator. Similarly a 2011 study undertaken by MVA suggested that average salaries are between 6% and 18% lower for OAOs[41]. As noted, part of the difference in labour costs is likely explained by the fact that OAOs are not subject to the same TUPE arrangements as franchise operators when recruiting staff. Such cost savings are unlikely to be available to competing franchise operators (i.e. for Options 2 and 3) whilst it may also be doubtful whether this situation can be maintained under a scenario of greatly increased open access activity (Option 1).

There is also evidence of lower unit costs in other areas. Wheat and Smith (2015) find that non-labour unit costs (£ per vehicle) are on average 33.6% lower than those faced by intercity franchise operators. The study could not ascertain the cause of the price difference but reports that the 33.6% could include rolling stock costs, the effect of OAOs not operating stations, and costs relating to the scale and density of operations.

Employing lower cost rolling stock could result in a possible reduction in quality or longer journey times if the rolling stock used by the OAO is of a different type to that used by the franchise operator. However, OAOs have strong incentives to match their rolling stock to customer needs and preferences and so a reduction in quality would be expected to be associated with a 'low cost' product offering of low prices and lower quality, which would only be used by customers if it better matches their preferences than the franchise product offering. MVA, in their 2011 analysis of open access competition, assumed lower rolling stock costs for OAOs in comparison with the competing franchise operator[42].

[41] Modelling the Impacts of Increased On-Rail Competition Through Open Access Operation: Report for the Office of Rail Regulation, ORR (July 2011)
[42] MVA 2011

**Table 8 - Efficiencies in Input Costs for OAOs**

| | Source | Evidence |
|---|---|---|
| Labour Costs | | OAO unit labour costs (£ per employee) are on average 10.3% lower than those faced by intercity franchise operators. |
| | MVA (2011) | Average salaries of OAOs are 6-18% lower than those of the franchisee. A central estimate of 12% was considered reasonable for use in the study. |
| Non-Labour Costs | | OAO unit non-labour costs (£ per vehicle) are on average 33.6% lower than those faced by intercity franchise operators. |

## Operating Efficiency

Wheat and Smith attempt to disaggregate the difference in operating costs between OAOs and franchise operators. They find evidence for a 'business model' effect which reflects 'a more agile business model which permits [OAOs] to achieve lower costs than comparable franchise operators'. The econometric model employed finds that, all things being equal, OAOs are 62.6% cheaper than franchise operators although, as noted in the paper, there is uncertainty over the precise magnitude of this and other effects analysed.

Similarly, MVA (2011) find evidence for lower OAO operating costs. In their analysis, MVA assumed a range of 20-30% operating efficiencies (spread across staff, rolling stock and other costs) for OAOs when operating at the same scale and density as franchise operators. This is roughly in line with savings due to competitive tendering experienced in the Swedish and German rail industry (20-30%) and in other sectors. It is lower than savings achieved from bus and airline deregulation (40-50%).

## Returns to Scale and Density

There is conflicting evidence on the existence of returns to scale. MVA (2011) find no evidence for returns to scale for operators. Wheat and Smith (2015) suggest that there are strongly positive returns to scale for OAOs. However, they also find that decreasing returns to scale for franchise operators which suggests that franchise operators are operating at a sub-optimally large scale. On this basis, a reduction in scale would actually lead to a more efficient outcome. It is not clear what the optimum scale is for a franchise operator.

Both MVA and Wheat and Smith find evidence for increasing returns to density for both franchise and OAOs. For franchise operators, Wheat and Smith estimate

returns to density of 1.059 for franchise operators, suggesting that franchise operators are operating at close to optimum operational density. In their analysis, MVA assume an elasticity of cost to density of 0.8. However, they note that care should be taken when applying these elasticities to OAO costs because current OAOs lie far beyond the data range that was used to generate the elasticities.

Wheat and Smith have attempted to derive an elasticity specifically for OAOs. OAOs were found to have a return to density value of 3.026. This means that if the density of an OAO increases by 1%, costs increase by 0.32. This would indicate very large efficiencies from expanding OAO operations. Again, care should be taken when applying an elasticity of this magnitude given the limited evidence base and experience to verify these estimates.

**Table 9 – Returns to Scale and Density**

| | Source | Evidence |
|---|---|---|
| Returns to Scale | Wheat and Smith (2015) | OAOs were found to have a return to scale value of 3.699. This means that if the scale of an OAO increases by 1%, costs increase by 0.27% (1/3.699).<br>Intercity franchise operators were found to have a return to scale value of 0.822. This means that if the scale of a franchise operator increases by 1%, costs increase by 1.22% (1/0.822) |
| | MVA (2011) | This study cites three papers that found broadly constant returns to scale. |
| Returns to Density | Wheat and Smith (2015) | OAOs were found to have a return to density value of 3.026. This means that if the density of an OAO increases by 1%, costs increase by 0.32%.<br>Intercity Franchise operators were found to have a return to density value of 1.059 or 1.058. This means that if the density of a franchise operator increases by 1%, costs increase by 0.94-0.95%. |
| | | Cost elasticities with respect to train density of less than unity (0.75, 0.78, 0.89 or a mean of 0.80). |

**Impacts on Overall Industry Efficiency**

Wheat and Smith conclude that, for OAOs, the cost penalty from low density operation is outweighed by the 'open access business model' effect such that OAOs are not at a cost disadvantage despite operating a relatively infrequent service. Whilst they make clear in their paper that there is some uncertainty over magnitude of the various parameters in their model, they simulate the impact on industry costs of an expansion of OAO activity on three routes – the East Coast, West Coast and Cross Country. If OAOs are expanded (to 15% of the size of the franchise operator) without any change in the scale of the franchise operation, they find that average total costs would fall by 5.2% and 4.6% on the East and West Coast routes, but increase on Cross Country by 1.9%. Under an alternative scenario in which the expansion in the OAO is associated with an equivalent reduction in size of the franchise operator, they find that unit costs would fall on the East and West Coast but by a smaller amount (3% and 4% respectively) due to the loss of economies of density for the franchise operator. On Cross Country, the costs would rise by 5.5%.

### 5.3.2 Evidence from European On-Rail Competition

Competition in Europe has led to a number of efficiency improvements among train operators, particularly to decrease costs. There is little information on specific costs structure of other European rail operators. In Table 10, we summarise efficiency initiatives. Specific numbers are reported when available.

**Table 10 – Efficiency Improvements in European Rail**

| Country | Efficiency improvement |
|---|---|
| Austria | Austrian OAO has lower overheads and staff costs than the incumbent but less economies of scale. |
| Czech | Due to public tender for on-board catering services, the incumbent announced savings of 10M CZK. |
| Italy | When measured on a unit cost basis, productivity increased by 24% per train km between 2000 and 2009. The OAO also has a sophisticated yield management system. |
| Sweden | OAO has a sophisticated yield management system. |
| Germany | OAO has a sophisticated yield management system. |

Source: Oxera analysis based on Competition and Markets Authority (2015), p91, OECD (2013), p70 and Everis (2010), p154.

### 5.3.3 Evidence from the bus and coach travel market

After the introduction of competition, there was an overall fall of costs per bus km outside London. The increase during the second decade starts from a much lower base than in 1986 so costs are still lower than before the privatisation.

**Table 11 – Cost evolution in the bus- and coach travel market**

| Costs per bus km | Outside London |
|---|---|
| 1985/1986-1996/1997 | -46% |
| 1996/1997-2005/2006 | +2% |

Source: Office of Rail and Road (2011)

Another paper[43] found a decrease in costs by 45% by 1990/2000, an increase by 28% between 1999/2000 and 2006/2007 and an increase by 22% between 2004 and 2005, which corresponds to the broad pattern above (except that the recent cost increase is larger).

The initial cost reduction can be explained by reduced wages and working conditions,[44] reduced administrative and engineering staff, and productivity improvements such as using smaller vehicles and better vehicle utilisation[45]. The subsequent cost increase was caused by improvements of the salaries and working conditions, and external shocks.

### 5.3.4 Evidence from airlines' buyer power with respect to airports

Airlines pressure airports to lower their charges. The prices charged by airports form part of the costs of airlines. Hence, charge decreases translate into lower costs for airlines. Airlines and airport also collaborate through marketing synergies[46].

In 2005, the weighted average revenue yield per passenger for airport charges at the 14 biggest national airports in 2005 had fallen by 7% compared to the two previous years[47]. Some of this lower yield is likely to be due to the expansion of no-frills airlines, which lead to an increase in passenger numbers.

### 5.3.5 Evidence from the entry of Low-Cost Carriers in the air travel market

Low-Cost Carriers (LCCs) benefit from lower cost structures with lower wages, longer working hours and less unionisation than conventional airlines. They service cheaper airports and operate fast turnarounds. They sell their tickets and issue boarding passes mainly online, and do not provide free food and drinks on board. At the time they were set up, their costs were about half those of traditional airlines[48]. Since the entry of LCCs, traditional airlines have themselves cut costs and adopted some of the techniques described above.

[43] Preston, J. and Almutairi, J (2014)
[44] Office of Rail and Road (2011), section 2.3.6
[45] Preston, J. and Almutairi, J (2014)
[46] Competition Commission (2009), 'BAA airports market investigation. A report on the supply of airport services by BAA in the UK', 19 March, p42
[47] Competition Commission (2009), 'BAA airports market investigation. A report on the supply of airport services by BAA in the UK', 19 March, p42-43
[48] Office of Rail and Road (2011), paragraph 2.3.16.

### 5.3.6 Summary: Efficiency

Evidence of the impact of competition on operator efficiency in the UK rail sector is limited to comparison of OAOs and franchise operators. Research commissioned by CMA finds that, controlling for the fact that OAOs are not subject to the same access charges as franchise operators and are not required to operate stations, OAO costs are broadly in line with those of franchise operators, despite operating at a much smaller scale and density.

OAOs exhibit lower input costs than franchise operators although it is acknowledged that some of the advantages are a product of the current form of OAO competition in the UK. Should the role of OAOs be expanded, opportunities to secure staff and stock at lower unit costs are likely to be more limited. The analysis commissioned by the CMA finds strong evidence for a 'business model' effect for OAOs in addition to lower input costs. It should be noted that, whilst an attempt has been made to disaggregate the differences in costs between OAOs and franchise operators into various component parts, it is difficult to be precise about the magnitude of these differences.

Evidence from other transport sectors supports the hypothesis that competition promotes efficiency.

## 5.4 Product Differentiation

### 5.4.1 UK On-Rail Competition

**Frequency and Diversity of Services**

OAOs in the UK have added to the volume of services on particular routes whilst also offering new direct journeys which were not previously possible. The First Hull Trains and Grand Central Rail services currently provide direct services to London for journeys which generally required a change of train before their introduction. It is difficult, however, to draw direct conclusions from the behaviour of OAOs in the UK, given that their service offering is likely to be a product both of the application process (the requirement to pass the NPA test) and a desire to maximise revenue.

It is notable, however, that OAOs have expanded their service offering following initial introduction. First Hull Trains has gradually increased services from three trains per day in 2001 to seven trains by 2007.

**Service Quality**

There is also evidence that OAOs have sought to improve service quality and have brought a degree of innovation. There are also a number of instances which suggest the franchise operator has responded to competition with its own improvements. It should be noted, however, that it is difficult to establish with certainty whether such improvements would have otherwise have been delivered in the absence of competition. The following examples are cited:

- First Hull Trains started operations with Class 170 DMUs with a top speed of 100mph. These were replaced in May 2005 with higher specification Class 222 units, which had a top speed of 125mph (Arup, 2009). In 2009, capacity was increased with the introduction of 5-car Class 180 DMUs.
- Grand Central Rail was the first company to offer free wi-fi to all passengers. GNER responded by also providing wi-fi, but charged standard class passengers for this service (CMA 2015).
- First Hull Trains implemented an innovative passenger information system to provide real-time information on progress, expected arrival times, connecting services, and London Underground updates. It also introduced new rolling stock, free wi-fi for all passengers, and provided access to selection of ITV programmes (CMA 2015).

Experience with OAOs in the UK shows they generate some of the highest levels of customer satisfaction in the industry and perhaps help drive up customer service provision by the incumbent FO. The Spring 2015 National Rail Passenger Survey indicated a 94% satisfaction level for First Hull Trains, the joint highest across all operators alongside Grand Central Rail, Heathrow Express and Virgin East Coast, the incumbent franchise operator (CMA 2015, p71). The Which? Train Satisfaction Survey ranked Grand Central Rail as the best operator and First Hull Trains second best.

**Fare Products**

Product differentiation is also evidence in innovative approaches taken to fares and ticketing. Examples include:

- Early adoption of yield management systems
- Innovative, targeted fare products or promotions such as carnets
- Actions to minimise fare evasion

Where franchises compete against one another, the scope for competition is also restricted by the degree of specificity reflected in each franchise specification. For instance, the fare setting lead operator may not be able to offer dedicated anytime or off-peak fares (CMA 2015).

On shorter distance flows (for example, London to Cambridge and Peterborough), there is evidence of a franchisee competing against a 'lead operator' offering lower dedicated walk-up fares in competition with the lead operator's interavailable fare. This gives passengers a wider choice of fares and may constrain the lead operator's unregulated fares. Further product differentiation occurs where franchises can offer different journey times and serve different stations. On longer distance flows franchises tend to compete on the price of their dedicated advance tickets, benefiting passengers through lower fares (CMA 2015).

### 5.4.2 Evidence from European On-Rail Competition

#### Frequency and Diversity of Services

Competition also seems to have significantly improved frequency and/or journey time in the railway sector in Europe as is illustrated using three examples presented in Table 12.

**Table 12 – European On-Rail Competition Impact on Frequency and Journey Times**

| Country | Impact on frequency (train-km) or journey time |
|---|---|
| Germany | Frequency: +27.7% between 1994 and 2007 for regional services, -15% between 2000 and 2008 for long-distance rail services. |
| Italy | Frequency: +8.6% between 2000 and 2008.<br>The incumbent reacted to quality improvements by the OAO with higher service frequency. |
| Austria | OAO managed a 5-stop service for the same journey time as the incumbent's 3-stop service because of better rolling stock. |

Source: Oxera analysis, based on Everis (2010), p149-154 and Competition and Markets Authority (2015), p90.

#### Quality of Services

Another consumer benefit from more on-rail competition was the resulting improvement to the quality of services offered. Indeed, both the OAOs and the incumbents tried to differentiate their services to create competitive advantages.

**Table 13 – Main Service Improvements after Introduction of Competition**

| Country | Quality Evolution |
|---|---|
| Czech Republic | The incumbent modernised its trains: it bought new modern trains and reconstructed the current ones. |
| Italy | OAO introduced new rolling stock with better seating, more dining options. |
| Sweden | OAO introduced improved restaurant services. |

Source: Oxera analysis, based on Competition and Markets Authority (2015), p90, and OECD (2013), p70.

### 5.4.3 Evidence from the Bus and Coach Travel Market

#### Frequency and Diversity of Services

In the bus- and coach-travel market, competition translated into lower fares as compared to a scenario with one national operator only. But the main impact of competition was higher frequency[49] and longer distances being covered.[50]

#### Quality of Services

Studies show that, once controlled for a number of factors, the bus fleet tends to be more recent when there is competition between several operators. A higher

[49] Preston, J. and Almutairi, J. (2014)
[50] Office of Rail and Road (2011)

percentage of the buses are also equipped with disabled access, satellite navigation and CCTV.

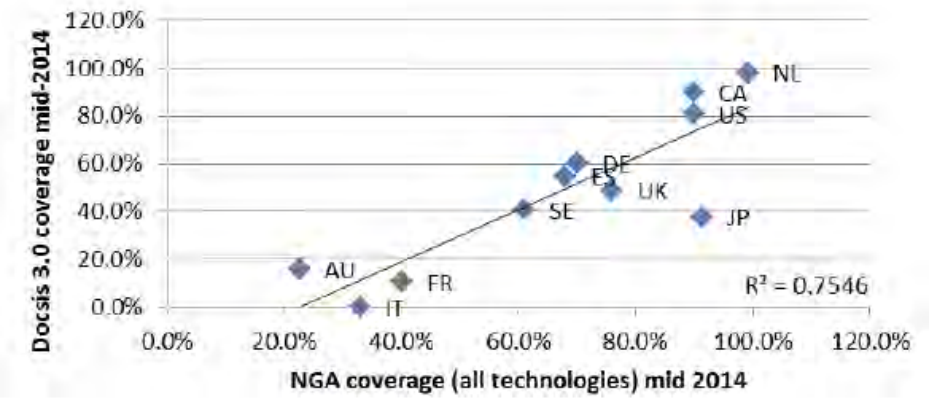
### 5.4.4 Evidence from the entry of Low-cost carriers (LCCs) in the air travel market

The entry of LCCs in local UK airports largely increased the number of international destinations served, but also the frequency of flights serving them (from essentially zero to several flights a day for many destinations). The Civil Aviation Authority (2003) clearly establishes a link between the evolution of the route network and the entry of 'no-frills' airlines.

### 5.4.5 Evidence from competition in the telecommunications market

In the fixed-line telecommunications market, infrastructure-based competition (mainly from cable) has increased Next Generation Access (NGA)[51] deployment by British Telecom (BT) and broadband performance[52]. Figure 4 shows the positive correlation between cable coverage and NGA deployment.

**Figure 4 - Impact of cable on NGA coverage in EU (infrastructure-based competition)**




Source: Wik Consult (2015), 'Competition and investment: An analysis of the drivers of superfast broadband', July, p18

Increased coverage of superfast broadband and increased speed of the service represent significant quality improvements for consumers. In July 2008, BT announced £1.5bn NGA investment to cover 40% of households by 2012. In May 2010, it invested an extra £1bn in fibre, extending roll-out to 66% premises. In January 2014, it deployed fibre to 400,000 further premises. Coverage reached 75% in mid-2014.

According to Wik Consult (2015), these announcements by BT seem to be following announcements by Virgin Media on the available speed on the cable

[51] NGA corresponds to an upgrade of the available broadband delivering faster and better quality services.
[52] Wik Consult (2015), 'Competition and investment: An analysis of the drivers of superfast broadband', July, p53-54, and Lemstra, W., van Gorp, N. and Voogt, B. (2014), p4 and p40-42.

network (see table 5.2 detailing competition on broadband speed). This suggests that competitive responses between BT and Virgin Media has had positive impacts on superfast broadband coverage.

### 5.4.6 Innovation

In this section, we define innovation as aspects that are genuinely new (i.e. not incremental improvements of current services). Table 14 highlights some examples of innovative behaviour from OAOs drawn from the rail sector in Europe.

**Table 14 – Innovations in the rail sector**

| Country | Innovation |
|---|---|
| Austria | The OAO introduced free Wi-Fi, incumbent followed.<br>OAO developed ticketing innovations: online retailing, on-board ticketing, and discounted tickets at tobacco kiosks. |
| Czech Republic | OAO introduced Wi-Fi, lower-floor trains for good access, and complimentary taxi and parking services upon departure and arrival.<br>The incumbent established on-board steward services, with the offer of daily news, meals and beverages. |
| Italy | OAO introduced a cinema car. |
| Sweden | OAO MTR exploits synergies with the metro operations network. |

Source: Oxera analysis based on Competition & Markets Authority (2015) and OECD (2013)

There are also examples of competition driving innovation in other sectors, for example, the entry of Virgin Media in the telecoms market has increased the speed of broadband. After the separation[53] was announced, BT started by increasing its speed from 2 to 8Mbit/s in 2006. Within three years, Virgin Media was announcing the development of broadband with a capacity of 200Mbits/s. Competition between Virgin Media and BT has generated real consumer benefits in this market.

### 5.4.7 Summary: Product Differentiation

Evidence from OAOs in the UK suggests that, under competitive conditions, operators have sought to differentiate their product and deliver incremental improvements in service. There is also some evidence of incumbent operators responding to competition with their own improvements. Although it is difficult to draw firm conclusions, the introduction of wi-fi by OAOs suggests a level of innovation amongst competing operators. It could be argued that competition accelerated the roll out of wi-fi more broadly across the franchise as a whole.

Evidence from rail in Europe and other sectors supports the conclusion that competition results in a greater degree of product differentiation and improved quality.

[53] Separation refers to the physical separation of Operational Support Systems ('OSS') currently shared between Openreach and the rest of BT.

## 5.5 Impacts on Network Rail Incentives and Behaviour

Evidence from the rail industry highlights that new entrants have incentives to put pressure on Network Rail to use capacity more efficiently (i.e. to accommodate new entry and to control costs). For example, Grand Central Rail raised capacity questions that led to Network Rail identifying additional capacity, which led to Grand Central Rail launching its service from London to York.

In contrast, under the franchise system, the extent to which Network Rail is placed under pressure to deliver efficiency by operators depends on artificial mechanisms such as the route-level efficiency benefit sharing (REBS) incentives, or a limited range of access charges where all TOCs are fully on risk (primarily in relation to electric traction). As such, we would expect a shift in the balance towards open access to enhance efficiency and capacity utilisation incentives on Network Rail.

It is difficult to draw general conclusions from other sectors on the impact of competition on an infrastructure provider given the very specific regulatory and operational context within which Network Rail operates. Nevertheless, it may not be unreasonable to make some assumptions of the extent of benefits from capacity utilisation incentives, perhaps at the top end of a range of impacts.

# 6 Legal and Operational Assessment

## 6.1 Introduction

This Chapter sets out the findings of the legal and operational review of the CMA's proposed options for increasing on-rail competition in the UK rail industry. The review has been informed by separate assessments undertaken by the ORR's legal and operations teams.

The assessment presented here is informed by more detailed analysis contained in Appendix A**.** Each option has been reviewed with regard to the following:

- Timescales and complexity of implementation
- Impact on operational performance and network capacity
- Implications for the management of a multi-operator railway

A traffic light system has been applied to the legal and operational review based on the following assessment criteria:

**Table 15 – Legal and Operational Review Assessment Criteria**

| | |
|---|---|
| | Option results in no significant increase in risk or adverse effects |
| | Option likely to result in minor risks or adverse effects |
| | Option likely to result in moderate manageable risks or adverse effects. |
| | Option may require changes to current industry structures or practices. Warrants further work to establish feasibility. |
| | Significant risks or adverse effects identified. Option unlikely to be feasible. |

## 6.2 Option 1

### Timescales and Complexity of Implementation

Option 1 comprises a change to open access arrangements, but the existing system of franchising would remain largely unchanged although, as noted, a significant expansion of open access activity would require fewer franchised train paths to be specified. Clearly, such a change would need to be built into future franchise specifications at the time of renewal and this is likely to be the main determinant of the potential timescales for implementation. It should be noted that, under Option 1, it is likely that a number of OAOs will compete for the capacity (now released due to fewer franchise paths) and therefore a process would continue to be required to approve open access applications. The timing of this process would be important to ensure that there is continuity in the provision of services that would otherwise have been included in the franchise specification.

The main challenges identified to the implementation of Option 1 relate to the approach to the charging arrangements for OAOs, in particular the PSO levy. The CMA has proposed the levy as a means by which the OAOs would pay proportionately towards unprofitable but socially valuable services that are

currently funded by DfT through its revenue support for rail franchises. Given currently available data, it is difficult in practice to identify which services, or indeed stopping patterns, are profitable and which are not profitable. For this reason for modelling purposes in this study, as discussed in section 7.6.1, a simpler approach is adopted, which views the PSO levy as a means of offsetting the loss of franchise premium as a result of OAO entry[54]. Implicitly, the PSO levy calculated in this way would also achieve the goal of ensuring the OAO contribute to the cost of unprofitable services, although there would not be a direct linkage between the rate of the levy and the cost of unprofitable services.

Whist the introduction of a levy is clearly feasible, it is likely to be an imperfect instrument for offsetting the loss of premium and for providing suitable signals for entry and exit for OAOs. Careful design of the levy and regularly updated rates could reduce these risks although not eliminate them. These risks need to be put into context however. Firstly, it is important to consider that it is also the case that the financial outcomes of franchise competitions are also subject to a significant degree of uncertainty. Secondly, the PSO Levy would replace the current arrangements under which no mechanism exists to compensate funders for any reduction in revenue that occurs as a result of OAO entry, albeit open access activity is much more limited at present than would be envisaged under Option 1.

There are potential legal implications of the PSO Levy that may require further review before the feasibility of Option 1, in its current form, can be determined. An initial legal review has been undertaken by the ORR which is summarised here. The review concluded that a "universal levy" as envisaged by the CMA could not form part of the access charging scheme because it is not an access charge. Instead the PSO-levy would be a government imposed levy, distinct from the charges ORR establishes as part of the charging framework. It would therefore require primary legislation.

EU legislation (Article 12 of the Recast Directive) provides for member states to employ a levy to compensate for PSOs but its imposition is discretionary, and thus far the UK government has not included it within UK legislation. Article 12 states that the revenue raised from such a levy and paid as compensation must not exceed what is necessary to cover all or part of the cost incurred in the relevant PSOs. As the mechanism assumed here does not provide this function (it compensates funders for the loss of monopoly profits due to increased competition), it is not clear how the Levy fits with the 2012 Directive. Careful design of the levy and regularly updated rates would be required to ensure that the compensation would not exceed what is necessary to cover the cost of PSOs although the difficulty of calculating the cost of PSOs given current information relating to profitability of routes has already been noted. This may result in the PSO levy being set at a level that does not fully compensate funders for the loss of franchise revenue.

[54] In this context the phrase 'PSO Levy' becomes an imperfect descriptor for what the mechanism is doing, although we retain it given its use in the CMA report. As noted below, under European Directive 2012/34 the PSO Levy is considered to be needed to compensate operators for providing socially necessary services, as opposed to compensating funders for receiving less monopoly profits.

### Network Capacity and Operational performance

Option 1 would lead to an increase in the number of operators on the network. All things being equal, an increase in the number of operators will increase risks to performance. With larger operators it is possible to 'mix and match' within its overall resources to recover a service. This becomes more difficult with a larger number of smaller operators.

It is difficult to be precise about the significance of performance impacts that would result from Option 1 given that any impacts will be determined by the specific context (route) and service pattern in question. The interpretation of this option is that it would result in OAOs operating peak time services alongside the franchise operator, including peak time services into the main London termini. Clearly, however, there are already multiple operators in the UK and therefore the effect of Option 1 is likely to be an incremental increase performance risks, rather than to create new risks that are not currently experienced today.

As described elsewhere in this report, there may be circumstances in which Option 1, by encouraging greater OAO activity, results in an overall increase in service frequency particularly, but not limited to peak time frequency. As with any increase in service frequency, the benefits to passengers of increased frequency need to be traded off against the disbenefits of worsened reliability, to which passengers attach significant value.

In conclusion, it is considered that Option 1 is feasible from an operational point of view but would result in negative but manageable impacts on performance. Such impacts are difficult to quantify but would need to be considered alongside the benefits of competition.

### Management of a multi-operator railway

An increase in the number of operators will lead to some increase in complexity in the timetabling process. To date, accommodating OAOs has proved to be workable although a more significant role for OAOs may result in some increase in complexity. As identified by Network Rail however, increased competition from multiple operators may actually help performance and service recovery because OAOs are especially incentivised for their services to perform well, as they are seeking to attract new customers in new markets[55].

It is not considered that the introduction of Option 1 would require any major changes to the timetabling mechanisms already in place, although it may be the case that increased complexity is reflected in extended timescales for timetable creation.

A further issue to consider is how Option 1 would affect the delivery of strategic projects. Delivering projects may be more problematic where changes are required mid-way through an OAO's track access agreement which may also result in increased complexity. Government-led rolling stock renewals (such as IEP) may be difficult to roll out across both franchised and OAOs, although the rolling stock

[55] Network Rail response to CMA consultation.

market seems to be reverting to operator – and ROSCO - led procurement, which is more compatible with this option.

### Overall Assessment

The main barrier to the implementation of Option 1 is likely to be the legal implications of the PSO levy, although this is clearly only a barrier if it is deemed necessary to make this option acceptable to funders. An expansion of open access activity will increase the number of operators on the network, which will result in an increase in complexity and, potentially, some adverse performance impacts. Any adverse impacts are considered to be manageable but would nonetheless need to be considered alongside the benefits of competition.

**Table 16 – Legal and Operational Assessment: Option 1**

| Topic | | Assessment |
|---|---|---|
| Timescales and Complexity of Implementation | Implementation and Governance | |
| | Legal implications and requirements for legislation | |
| Network Capacity and Operational performance | Network Capacity | |
| | Operational control and performance | |
| | Rolling stock | |
| | Depots and stabling | |
| Management of a multi-operator railway | Managing timetable change | |
| | Managing network change and strategic projects | |
| | Station management | |

## 6.3 Option 2

### Timescales and Complexity of Implementation

Option 2 would require the DfT to undertake a franchise remapping exercise to generate competition whilst retaining operational integrity. This would be relatively straightforward to achieve but could only be implemented at the commencement of a new franchise. There are similar examples of this type of approach in the industry; for example, the parallel competitions for the Transpennine Express and Northern Rail franchises. It should be considered however, that sub-division of franchises would add a degree of complexity to the franchise procurement process, and may exacerbate workforce tensions. This could result in higher costs for DfT and higher overall costs for bidders given that two franchise competitions would be run concurrently, rather than a single bidding process.

It can therefore be concluded that this option could be delivered within the existing regulatory framework and no legal issues have been identified.

### Network Capacity and Operational performance

As noted above, an increase in the number of operators will increase risks to performance. Having two operators rather than one may make it more difficult to recover from perturbation. However, under Option 2 there would be more scope (relative to Option 1) to ensure that the subdivision of the franchise is operationally sensible and that operators are of a sufficient scale to avoid some of the issues associated with smaller operators. Therefore it is concluded that any adverse impacts on performance are expected to be relatively slight and could be managed by Network Rail through existing mechanisms.

### Management of a multi-operator railway

An increase in the number of operators will make co-ordination more complex although the implications of this option on the timescales and costs of timetable creation are likely to be relatively slight given that Network Rail already deals with a situation of having multiple operators

With respect to the delivery of strategic projects, franchised operators can be required by the DfT to accommodate network changes. Under this option, network change can continue to be managed in this way with limited implications for project delivery.

### Overall Assessment

Option 2 is considered to be relatively straightforward to implement as it represents only a franchise remapping exercise which has been undertaken routinely in the past. Option 2 will have minor adverse implications for operational control and performance as a result of having additional operators but it can be delivered within current industry structures and practices.

**Table 17 – Legal and Operational Assessment: Option 2**

| Topic | | Assessment |
|---|---|---|
| Timescales and Complexity of Implementation | Implementation and Governance | |
| | Legal implications and requirements for legislation | |
| Network Capacity and Operational performance | Network Capacity | |
| | Operational control and performance | |
| | Rolling stock | |
| | Depots and stabling | |
| Management of a multi-operator railway | Managing timetable change | |
| | Managing network change and strategic projects | |
| | Station management | |

## 6.4 Option 3

### Timescales and Complexity of Implementation

Implementing Option 3 is similar to Option 2 in that it can be delivered within existing regulatory frameworks, and would require DfT to undertake a franchise remapping exercise. However, implementing Option 3 is considered to be slightly more challenging than Option 2. This is because franchise periods are not necessarily aligned, requiring transfer of services mid-franchise, or a staged approach to reaching the final Option 3 state. It should be noted, however, that changes in franchise boundaries have been relatively commonplace since privatisation (for example, remapping of a number of Central England franchises in 2006 to create the New Cross Country, East Midlands Trains and the London Midland franchises (the latter reinforced a franchise overlap with Virgin Trains on the WCML).

### Network Capacity and Operational performance

As with Options 1 and 2, an increase in the number of operators on a specific section of the network may increase risks to performance although, similar to Option 2, any adverse impacts on performance are expected to be relatively slight and could be managed by Network Rail.

### Management of a multi-operator railway

The implications of Option 3 are similar to Option 2 in this regard. An increase in the number of operators will make co-ordination more complex although the implications of this option on the timescales and costs of timetable creation are likely to be minimal. Franchised operators can be required by the DfT to accommodate network changes. Under this option, network change can continue to be managed in this way.

### Overall Assessment

This option has minor adverse implications for operational control and performance but can be delivered within current industry structures and practices. As with Option 2, the unknown degree of franchise specification in future increases uncertainty surrounding our analysis.

**Table 18 – Legal and Operational Assessment: Option 3**

| Topic | | Assessment |
|---|---|---|
| Timescales and Complexity of Implementation | Implementation and Governance | |
| | Legal implications and requirements for legislation | |
| Network Capacity and Operational performance | Network Capacity | |
| | Operational control and performance | |
| | Rolling stock | |
| | Depots and stabling | |
| Management of a multi-operator railway | Managing timetable change | |
| | Managing network change and strategic projects | |
| | Station management | |

## 6.5 Option 4

### Timescales and Complexity of Implementation

Option 4 would require a radical overhaul to the current system by replacing franchises, on part of the UK network, with a system of licensing. Licenced routes would need to include socially valuable services and place some constraints on operators to ensure minimum acceptable levels of service continue to be provided. Balancing these needs with the objective of allowing market forces to optimise services would be challenging, although not impossible. For example, packages of capacity could be auctioned by Network Rail, including both PSO and non-PSO services.

A new system of auctioning may need to be devised to implement this option. Designing this is likely to be associated with a high degree of complexity and the specifics of the design will be crucial in determining the outcomes of Option 4. A particular issue would arise if subsidy is required for certain routes and it is unclear at this stage how such a subsidy would be set.

From a legal standpoint, this option may require an amendment to sections 6-8 of the 1993 Railways Act. This is because the CMA's option appears to create a distinction between Network Rail's role as a system operator and as a network operator. It may also invite comment about potential breaking up Network Rail.

Assuming the UK remains part of the EU after the planned referendum on membership, the EU operates a parallel system of train licensing. The Recast Directive has removed explicit permission for member states to have their own, additional, domestic system of licensing. A licensing system of the complexity set out in the CMA's Option 4 may raise concerns for the Commission and, whilst permission is not explicitly required for this change, it will be important the Option 4 proposal can be demonstrated to be non-discriminatory and also not create barriers to foreign operator entry.

### Network Capacity and Operational performance

Under Option 4, capacity would be allocated based on the auctioned paths which would need to have sufficient specificity to enable a timetable to be created and paths allocated to operators. As noted, the higher the degree of specificity, the lesser the autonomy of operators which would partly offset the benefits of this option.

As for Option 1, multiple operators may increase operators' incentives to maintain performance although clearly operators may have limited incentives to consider the impact of their performance on other operators. On balance, it is considered that, presuming that this option results in 'multiple-operators' on a single mainline route, the risks to performance are likely to be greater than for any of the other options. As well as the increased complexity associated with multiple operators, it would also result in more operators of a smaller scale which would lead to increased performance risks.

### Management of a multi-operator railway

Introducing timetable change midway through licence/path periods would be potentially complex and problematic, so it is likely that they would remain largely fixed for the period over which rights had been granted (e.g. 10 years). Timetables would need to be effectively co-ordinated by Network Rail given possibility of numerous operators. This may require a shift in emphasis on Network Rail's role as a system operator.

Any changes introduced midway through an operator's licence period may be subject to challenge and may be difficult to agree. All licenses would have to be reviewed simultaneously to permit co-ordination with major project change dates. Such a system would need to be designed with sufficient flexibility to deal with unanticipated changes in projects or project timescales. An increased role for Network Rail as a system operator would help to mitigate these issues.

### Overall Assessment

Option 4 requires a major overhaul and replacement of the current system of franchises. Creating a system of licensing poses significant challenges in terms of ensuring socially valuable services continue to be provided without undermining the objective of encouraging innovation. These challenges are not considered to be insurmountable although, at present, there is limited information on how Option 4 would work in practice. Potential legal challenges to the implementation of Option 4 have been identified and further work would be required to establish the feasibility of the option from a legal standpoint.

Option 4 also has more significant operational implications than the other options proposed by the CMA. Option 4 will result in increased operational complexity. Importantly, a system of licenses could significantly increase the complexity of timetable change and delivery of major projects.

**Table 19 – Legal and Operational Assessment: Option 4**

| Topic | | Assessment |
|---|---|---|
| Timescales and Complexity of Implementation | Implementation and Governance | |
| | Legal implications and requirements for legislation | |
| Network Capacity and Operational performance | Network Capacity | |
| | Operational control and performance | |
| | Rolling stock | |
| | Depots and stabling | |
| Management of a multi-operator railway | Managing timetable change | |
| | Managing network change and strategic projects | |
| | Station management | |

# 7 Quantitative Assessment – Approach and Assumptions

## 7.1 Introduction

A quantitative assessment and economic appraisal has been undertaken of the impact of Options 1 to 3. Option 4 has been less clearly defined by the CMA and is open to a greater degree of interpretation with respect to both the regulatory and operational implications of the option. Furthermore, Option 4 represents a fundamental departure from current arrangements and is therefore considerably more challenging to model with reasonable accuracy than Options 1, 2 and 3. Therefore it has not been feasible to produce useful estimates of the impact of this option within the scope and timescales of this study. However, this option is included in the qualitative assessment in Chapter 9.

The options have been tested by employing scenarios constructed for the three main line routes referred to in the CMA's consultation – the West Coast Main Line, East Coast Main Line and Great Western Main Line. These are some of the most significant revenue generating routes on the network and, as such, provide some of the greatest opportunities to realise the impacts of competition. Consideration has been given, in the overall Impact Assessment, of the potential for the options to be implemented (and for costs and benefits to be realised) on other parts of the rail network.

## 7.2 Purpose and Approach

As with any exercise of this type, a degree of judgement has been applied to synthesise the available evidence and arrive at a range of plausible assumptions. Wherever possible, we have endeavoured to make assumptions that are plausible and are consistent with the available evidence, where that evidence is sufficiently robust to be relied on. It is, of course, possible for different assumptions to be made which will affect the relative magnitudes of costs and benefits.

The purpose of the modelling is to consider the likely direction and broad magnitude of the impacts of the three options under a range of scenarios and assumptions. Accurately predicting the behaviour of operators in different commercial and regulatory environments is challenging. For example, it is difficult to predict the services that OAOs would apply for under Option 1, or the way in which government would approach the remapping of franchises under any of the options. Therefore, the scenarios are intended to be *indicative* of the type of service pattern and other impacts that could result under each of the options if plausible assumptions are made, rather than providing a precise prediction of the behaviours of operators, regulators and Government in the counterfactual.

Furthermore, a proportionate approach has been taken to the assessment which focuses on the primary effects of the options with respect to the product offered, the price charged and the efficiency of operators. As is evident from the literature, outlined in Chapter 5, the effects of competition are complex and varied. To

reflect the degree of uncertainty associated with an assessment of this nature, ranged values have been applied to many of the key variables employed.

### 7.2.1 Quantified Impacts

The following impacts of increased competition have been quantified:

**Impacts on users/non-users:**

- Changes in consumer surplus due to changes in average yields;
- Changes in generalised journey time due to timetable changes (applies to Option 1 only); and
- Changes in car use (resulting from a change in demand linked to the above impacts).

**Impacts on private operators (OAOs and franchised operators):**

- Impacts on passenger revenue as a result of changes in rail fares and timetable changes;
- Impacts on operating costs as a result of changes in:
  - Input costs (staff and rolling stock only);
  - Operator efficiency ('own costs' – excludes charges paid to Network Rail);
  - Economies of density (where density is measured as the number of train miles operated as a proportion of route miles);
  - Changes in the fixed track access charge due to changes in train mileage;
  - Changes in variable track access charges due to changes in train/vehicle mileage, and;
  - The costs of the PSO levy (applies to Option 1 only).
- Impacts on franchise premium payments (as a result of the changes in revenue and operating costs listed above).

**Impacts on Government / Taxpayer**

- Changes in franchise premium payments;
- Revenue from access charges and levies, and;
- Changes in indirect tax.

### 7.2.2 Exclusions and Limitations

A range of other potential impacts have not been quantified in this assessment. Such impacts are considered qualitatively as part of the overall impact assessment in Chapter 9.

In some cases, excluding an impact from the analysis reflects the fact that the impact in question is of second order significance. In other cases, qualitative

treatment reflects the lack of robust evidence which would enable the quantification of the magnitude of the impact. It should be noted, therefore, that the quantitative assessment necessarily excludes some of the potential costs and benefits of competition. Nevertheless, we have endeavoured to include relevant costs and benefits to avoid biasing the analysis in any particular direction.

A list of the non-quantified impacts, together with a note on the implications of their exclusion, is given in the table below.

**Table 20 – Non-Quantified Impacts**

| Impact | Rationale for Qualitative Treatment |
|---|---|
| Halo effects | Halo effects refers to effects (on product, price or efficiency) that occur on a wider scale, beyond the specific route or franchise in question. For example, where efficient practices have been shown to deliver benefits on one part of the network, over time, these may be adopted elsewhere. However, none of the literature considered in Chapter 5 specifically considered or identified the existence of halo effects. The early adoption of wi-fi by OAOs and its subsequent roll out on other parts of the network may provide an example of a halo effect.<br>In overview, it is difficult to draw general conclusions about the scope and magnitude of halo effects. Therefore impacts are modelled only on the service group experiencing a change in the level of competition.<br>To the extent that there are halo effects, their exclusion from the analysis would tend to understate the impacts of additional competition, thus reducing the impacts reported in Chapter 8 in absolute magnitude. |
| Capacity and crowding | The modelled demand responses do not take into account the effects of crowding. This is a simplifying assumption given the forward looking nature of this assessment and the absence of better information on future levels of demand and capacity. In practice, there are likely to be constraints on capacity on peak services, particularly on flows into London. The effect of this would be to 'crowd off' a proportion of any predicted increase in demand as a result of lower fares. This would weaken the incentives of operators to reduce fares and therefore may overstate the reductions in average yield associated with increased competition. To reflect this, and to mitigate the risk that this could bias the results of the analysis, conservative assumptions have been employed with respect to changes in fares as a result of competition. |
| Train formation | It is also important to consider how the options would affect the levels of capacity provided and hence the extent of crowding. Current OAOs in the UK operate shorter formation trains than the competing franchise operator. Under Option 1, it may be commercially attractive to OAOs to operate shorter trains than would be the case for a franchised operation.<br>Equally, current OAOs tend to operate more marginal services outside the high peak. Under Option 1, where OAOs are assumed to be operating peak services (in direct competition with the franchise operator) there is likely to be much greater incentive to operate longer formation trains. In this regard, it is notable that more recent open access applications involve longer trains[56].<br>Shorter formation trains may result in crowding which would represent a dis-benefit for users, although equally it should be considered that OAOs will determine supply of capacity in response to market forces and |

[56] http://www.alliancerail.co.uk/wp-content/themes/alliance/GNER%20Edinburgh%20Application/section%2017%20application/Alliance%20ECML%20Section%2017%20Application.pdf

| Impact | Rationale for Qualitative Treatment |
|---|---|
| | therefore this could also be interpreted as an improvement in allocative efficiency.<br>In summary, the effect of Option 1 on overall capacity is uncertain, whilst for options 2 and 3 no potential impacts on train length and capacity have been identified. Therefore, for the purposes of the analysis, no change in train lengths are assumed. It seems unlikely that this would materially affect the conclusion of the analysis. |
| Impacts on product offering and service quality | A range of evidence, both from the rail sector and other sectors, suggests that, under competitive conditions, operators have sought to differentiate their product and to improve service quality. However, there may be circumstances in which competition could lead to a reduction in quality. For example, in response to competition an operator may choose to drive down cost and price at the expense of quality. However, it is notable that OAOs have exhibited some of the highest customer satisfaction scores in the industry. Also, if an OAO did enter the market with a low quality product, it is likely that this would be associated with larger fare reductions than has been observed thus far. If this (the offer of a low-price, low quality product) was successful, this would enhance consumer welfare by better matching the product to consumers' preferences.<br>While this may have a substantial impact on passengers, operators and the government, the outcome is highly uncertain and no robust evidence has been identified that enables a definitive position to be taken. Therefore, it is assumed that there will be no impact on service quality from increased operations by an OAO. |
| Journey time reliability resulting from multiple operators | Impacts on performance and reliability have not been assessed. In practice, performance impacts could arise in two ways. Firstly (under Option 1) an increase in service frequency could have a negative impact on performance. Secondly, as set out in the legal and operational assessment, an increase in the number of operators could also increase risks to performance.<br>With regard to the first effect, the scenarios employed to test Option 1 involve relatively minor increases in frequency, primarily limited to off-peak services and extensions of existing services to new locations. Therefore, the scenarios employed are likely to have relatively minor implications for performance.<br>With regard to the effects of having multiple operators, whilst this has potential implications for performance which are discussed elsewhere in this report, no evidence has been identified which provides a quantitative relationship between the number of operators on a route and overall performance. Given these uncertainties such impacts have been excluded from the quantitative modelling.<br>However, it is expected that these factors would be relatively minor and would not materially affect the conclusions if they were included. |
| Economies of Scale | The quantitative assessment considers the inefficiencies that may result from a loss of *density* as measured by the number of train kilometres per kilometre of route over which the operator operates. Economies of density is intended to account for the efficiencies of having a single or dominant operator on a route (such as the benefits of being able to maintain a fleet of trains at a single depot by a single workforce). It is relevant to consider whether there are also economies of *scale* – benefits of operating at a larger scale, in addition to the benefits of operating at a higher density. |

| Impact | Rationale for Qualitative Treatment |
|---|---|
| | Wheat and Smith[57] find evidence of decreasing returns to scale for franchised operators but increasing returns to scale for OAOs. This suggests that current OAOs in the UK are operating at a sub-optimally small scale but that franchised operators are operating at sub-optimally large scale.<br>It is therefore unclear what the optimum scale for an operator would be and whether the changes introduced would lead to higher or lower efficiency. On this basis, economies of scale have been excluded from the analysis. |
| Cross modal competition | The degree of cross-modal competition on each route in question could have an important influence on the incremental effect of increased on rail competition. This is because, where cross-modal competition exists, operators will already be subject to competitive pressures to reduce prices, increase efficiency and differentiate their product. Equally, where competition exists, the impact of the options will not be necessarily limited to the rail sector.<br>Whilst the degree of cross-modal competition will vary across routes and flows, modelling these effects is highly challenging and is considered to be outside the practical scope of this exercise. It is also unlikely to be significantly affected by the intensity of competition in the rail network and would therefore 'net out' in any assessment of impacts. |
| Changes in approach to ticketing / inter-available tickets | The approach to modelling the effects of each option on fares, and ultimately demand and revenue, is to adjust overall average yields for each flow (station pairs) subject to competition. In practice, the way in which operators vary their fares in response to competition will be highly complex. Operators may use discounts and promotions and may vary the availability of different ticket types. In aggregate, these have the effect of changing average yields and therefore the adopted approach is a simplifying assumption.<br>The quantitative analysis also assumes that interavailable tickets continue to be made available, as is the case under the current open access arrangements. It seems unlikely that these assumptions bias the conclusions in one direction or another. |
| Improved efficiency of Network Rail as a result of increased pressure from operators | As noted in Chapter 5, it is considered that (under Option 1) an increase in OAO activity could place increased pressure on Network Rail to enhance efficiency. However, given that Network Rail does not operate under normal competitive conditions, it is difficult to predict how effective this pressure would be in practice. It is difficult to draw general conclusions from other sectors on the impact of competition on an infrastructure provider given the very specific regulatory and operational context within which Network Rail operates. Therefore, efficiency gains from Network Rail have been excluded from the quantitative analysis. To the extent that there may be an effect, its omission would understate the benefits from increased OAO activity |
| Administrative costs related to implementation or increased complexity and administrative burden post-implementation | Implementation of the options would impose some costs on government, the ORR and Network Rail. Once operational, Option 1 in particular will impose additional costs on Network Rail as a result of the increase in complexity of timetable change and operational control. Option 2, by creating additional franchises, may result in higher costs for government and the industry (as more franchise bids need to be resourced). However, many of these costs are difficult to quantify and are therefore excluded from the analysis. |

[57] Econometric analysis of efficiency gains from on-rail competition (Wheat and Smith, Leeds ITS, 2015)

## 7.3 Modelling Approach

### 7.3.1 Appraisal Period

As noted by the CMA, the options could not feasibly be introduced until 2023 and therefore this is taken as the first year of the appraisal. Typically, the appraisal of a revenue service would be undertaken over a 10 year appraisal period, reflecting the term of the track access agreement. However, for this assessment, a 20 year appraisal period is used. This is considered to be an appropriate appraisal period for a policy change of the nature of the CMA's options given that the changes would not be irreversible, but would be 'locked in' for at the very least the period of a franchise agreement or track access agreement.

Appraisal results have been reported on an average annual basis and in discounted terms over an appraisal period. In line with the requirements of WebTAG and HM Treasury's Green Book, financial flows are discounted at the social discount rate of 3.5% and discounted back to 2010. All monetary values used in the appraisal are in 2010 prices. The approaches used to value benefits and impacts are also in accordance with WebTAG guidance.

### 7.3.2 The 'Do Minimum' Scenario

As set out in Chapter 2, it is considered that Government policy on franchising is expected to reinforce the existing arrangements but confirmed policy changes will not represent a fundamental change in industry structure and therefore it is considered that the evolution of the current arrangements is unlikely to deliver increased on-rail competition. Similarly, no committed changes to the regulatory environment, access charges, or network capacity have been identified that will fundamentally alter the balance of advantages and disadvantages of the current arrangements.

In view of this, the modelling of options assumes, in the 'do minimum' scenario, no change to the current franchise and OAO timetables on each of the three routes in question. Similarly, the analysis takes, as its starting point, levels of demand and fares from the 2013/14 MOIRA model and franchise operating costs taken from the ORR's GB Rail Industry Financial Information for 2013/14.

Consideration has been given to a scenario in which the Network Grant is re-routed via franchise access charges given the Government's stated objective to meet more of Network Rail's costs through charges paid by operators.

The approach to the 'do minimum' scenario has particular implications for the analysis of the West Coast Main Line scenarios given the complex but important impacts of HS2 referred to in Chapter 2. The results of West Coast Main Line scenarios are presented in this analysis given that they provide an indication of the scale and nature of the impacts of the CMA's options for the UK rail industry in general, although we accept that the dynamics of competition on this particular network will be changed as a result of HS2.

## 7.4 Model Structure

The overall approach to modelling is illustrated in Figure 5. The approach follows the principles of the conceptual framework introduced in Chapter 4. In each scenario it is assumed that there are two competing operators (a franchised operator and an OAO). In Figure 5 this is characterised as a 'new entrant' and an 'incumbent' although it should be noted that this terminology applies only to Option 1.

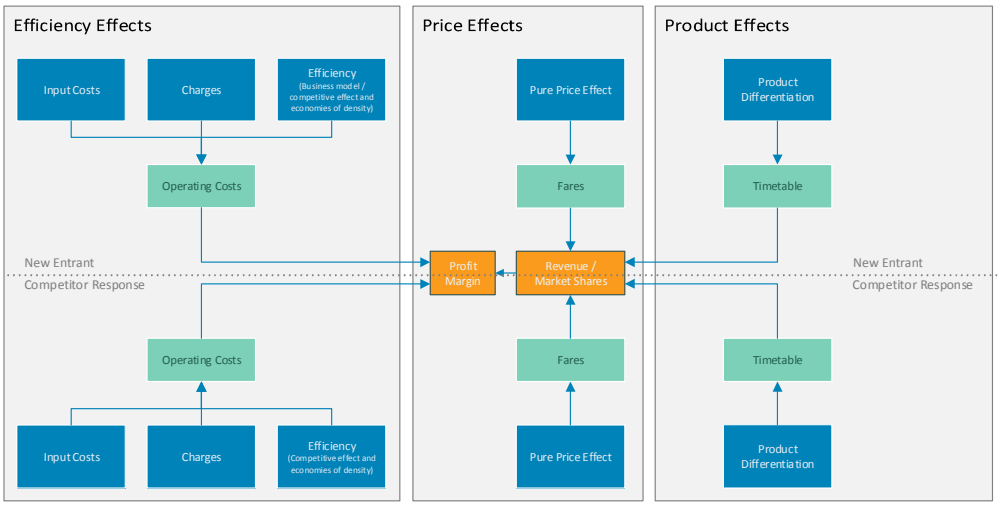
Assumptions in respect of product, price and efficiency have been determined separately for each operator. These assumptions are based on our interpretation of the options and the findings of the review of evidence provided in Chapter 5.

For each operator, the market share it achieves will be determined by the services pattern employed and the average yield for its services (relative to the average yield of the competing operator).

Importantly, the process diagram in Figure 5 illustrates the iterative approach to modelling that has been employed. Once an initial set of assumptions (in relation to product, price and efficiency) have been applied, the resultant operator profit has been calculated to ensure that the operator remains profitable under the scenarios and assumptions employed.

In reality (as noted in Chapter 4) the response to competition will be dynamic and the short and long run responses to competition will differ. However, for reasons of proportionality, dynamic effects are not included in the modelling. In effect it is therefore assumed that the long run response to competition occurs in year 1 of the appraisal.

**Figure 5 – Modelling Approach**



### 7.4.1 Model Structure

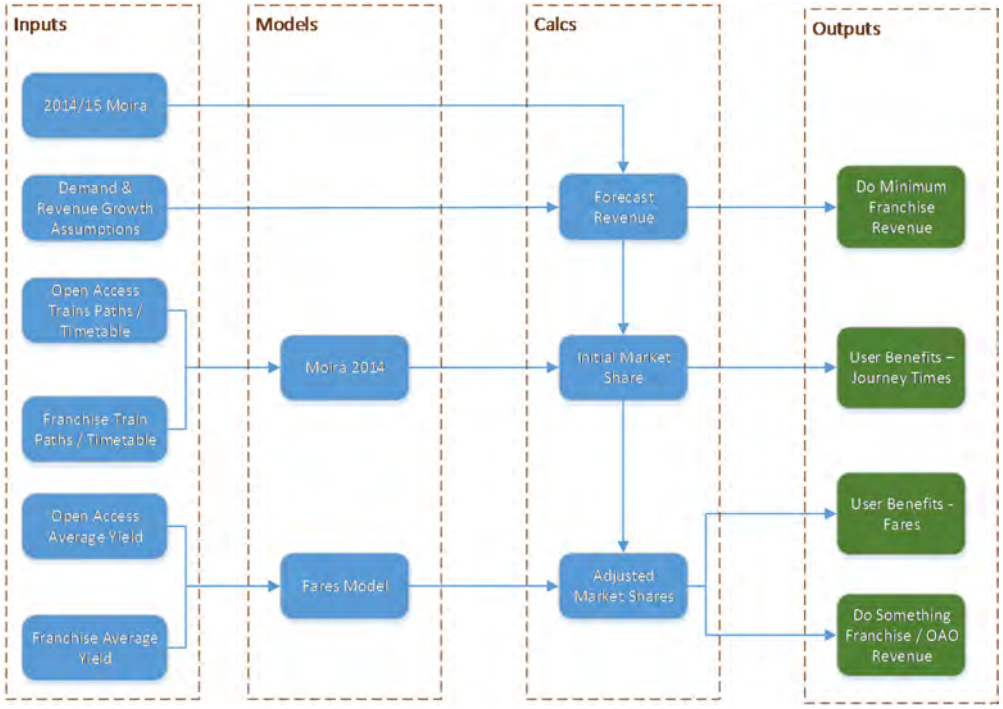
Our modelling approach has two components:

- a demand and revenue model: and
- an economic model.

The structure of the demand and revenue model and its relationship to the economic model is illustrated in Figure 6. Under the baseline 'do minimum' and the 'do something' scenarios for each option, the initial market shares for the alternative operator and franchiser operator are calculated using MOIRA, based on an assumed level of service for the competing operators.

The market shares will then be adjusted to reflect the fares strategies employed by the competing operators. The fares model employed is discussed later in this Chapter and is based on the Passenger Demand Forecasting Handbook (PDFH) principles. The model predicts the overall effect of lower fares on rail demand and the proportion of any increase in revenue that is generative or that is abstracted from the competing operator.

**Figure 6 – Demand and Revenue Model**



### 7.4.2 Modelling Fares Changes

Changes in fares are represented by changes in the average yield for each operator on each flow (station to station pair) where competition increases in the scenario in question. It is assumed that operators respond to competition only when their market share falls below 85% of the total market for a particular station to station pair. The approach to modelling the impact of changes in fares on demand and revenue is a two stage process. Step 1 is to assess the resultant change in the overall average yield and the level of demand generated by the change in yield. Step 2 assesses how the difference in average yields across the two operators affects their overall market share.

**Step 1 – Demand Effect**

The change in overall average yield is estimated by comparing 'do minimum' average yields and 'do something' average yields following the introduction of the competing services. The new average yield is weighted by the number of services operated by each operator.

The equation below summarises the impact:

$$Y_N = \frac{Y_A * S_A + Y_B * S_B}{S_A + S_B}$$

Where:
YN = New Yield
YA = Yield for Operator A
YB = Yield for Operator B
SA = Number of Services (Operator A)
SB = Number of Services (Operator B)

Using standard PDFH elasticities (for business, leisure and commuter user classes) the demand response to lower fares is calculated using the formula below.

$$D_n = \left(\frac{Y_n}{Y_c}\right)^{es}$$

Where;
$D_n$ = demand new;
$Y_n$ = yield new
$Y_c$ = Yield Current
es = elasticity

**Stage 2 – Market Shares**

Step 2 requires us to determine the share of the generated trips taken by each operator. The approach to the allocation of trips to each operator is based on the process recommended in a report for the ORR undertaken by MVA on the approach to modelling track access applications[58]. We have reviewed this approach and consider it applicable to the options under consideration.

The following formula is applied:

$$S_1 = \frac{1}{(1 + e^{pd}) * \frac{1}{S} - 1}$$

Where:
$S_1$ = New market Share
p = spread parameter
d = fare differential between Operator 1 and Operator 2
S = market share as per MOIRA

This determines the final market share based on a combination of the market shares predicted by MOIRA, and the fares levels set by each operator and the spread parameter, the value of which is also taken from MVA's paper referenced above.

### 7.4.3 Modelling Changes in Operating Costs

Operating costs have been split into staff costs, rolling stock costs, network rail charges (disaggregated into the various elements) and other costs. Operating cost have been disaggregated to a service group level. In practice, operating cost data is only available at a franchise level and therefore franchise costs have been apportioned to each service group based on a metric (per train km or per vehicle km).

Adjustments to costs to reflect changes in input costs, efficiency savings resulting from competition and economies of density are applied for the overall franchise. The exception to this is Option 3 which results in competition on a relatively small proportion of the Great Western franchise. To reflect this, adjustments to costs are applied to relevant service groups.

As noted, the 'do minimum' scenario assumes no change in franchises costs other than inflation (RPI), changes in fuel and energy costs changes in GDP per capita (as a proxy for wage growth)[59]. For the 'do something' scenario, adjustments are applied to unit costs to account for the impact of competition. Similarly, where a service group is wholly or partially transferred to an OAO, adjustments are made to the unit costs for that service group based on the characteristics of an OAO. The assumptions employed are given in detail in Tables 21 to 24.

[58] Making Better Decisions: Assessment of Aspirations for Track Access on the West Coast Main Line, Report for The Office of Rail Regulation (February 2011)
[59] Cost series are taken from the WebTAG Databook (Autumn 2014)

### 7.4.4 Impacts on Franchise Premium

The franchise premium is calculated as the difference between total franchise revenues and total franchise costs, less an operator profit margin. It is assumed that franchised operators maintain a consistent 5% profit margin which is broadly reflective of franchise operator profit margins. Therefore, changes in costs and revenues are fully passed on to Government. This is a simplifying assumption given that, in practice, any change that occurs midway through a franchise period will – subject to the terms of the franchise agreement – be absorbed by the franchise operator in higher or lower profit (subject to risk/profit sharing regimes). However, as the appraisal is one of the long-run effects of the changes in the level of competition, this is consistent with the overall approach taken to the appraisal.

## 7.5 Timetable Scenarios

This section sets out the timetable scenarios that have been developed to test each of the three options. The scenarios have been developed based on professional judgement, considering how each of the options might be implemented in practice and therefore they should be seen as indicative only. As far as possible different variants or sub-options of each option have been tested by varying the approach to timetabling across the routes in question. This enables an understanding of the sensitivity of the conclusions to the assumptions to be developed.

### 7.5.1 Option 1

Three timetable scenarios are used to assess the effects of Option 1. These are illustrated in the Figures 7 to 12.

**Approach**

It is assumed that the Government specifies fewer franchised paths on profitable routes into London. These services are then assumed to be taken up by the OAO.

A two stage process has been taken to the development of timetable assumptions for Option 1.

In the first stage selected peak train paths (hourly train services) ‘transfer’ from the franchised operator to an OAO. The change would occur at the commencement of a new franchise agreement. To reflect plausible commercial behaviour by the OAOs, it is assumed that paths on the most profitable routes (on a revenue per train mile basis) are taken by OAOs.

For two (West Coast and East Coast) of the three open access competition scenarios we have assumed no increase in total frequency of services into London. In the third scenario (Great Western) in addition to the transfer of a franchised service from Bristol Temple Meads to London, the OAO operates a two-hourly service from Gloucester/Cheltenham. This is in addition to a two-hourly service which operates today, resulting in an hourly pattern. In a subsequent check, we assess whether these services are likely to be profitable for an OAO after paying charges and the PSO levy.

The following routes have been selected on the basis that they are associated with high revenue per train mile:

- West Coast (3 paths) –Manchester to London / Glasgow to London
- East Coast (1 path) – Leeds to London
- Great Western (2 paths) – Bristol to London (via Bath Spa), Gloucester/Cheltenham to London

Secondly, it is assumed that the OAO takes the opportunity to expand their operation either by extending some of the services that they operate as this could provide incremental profit to the OAO.

The following adjustments have been made based on professional judgement on the possible behaviour of OAOs:

West Coast:

- Manchester to London: extension of the service to Blackpool.

East Coast:

- Leeds to London: services extended to Harrogate and Skipton.

No timetable response is assumed for the franchised operator.

**Capacity Utilisation**

As noted, in Chapter 6 the implementation of Option 1 would, in the majority of circumstances, require Government to specify fewer franchised train paths to provide the capacity to allow an expansion of OAOs.

Notwithstanding this conclusion, the experience of open access arrangements in the UK to date is that interest from OAOs can place pressure on Network Rail to allow more intensive use of capacity. There is clear evidence of this from Grand Central Rail's application to operate services on the East Coast Main Line. During this process, Grand Central Rail raised capacity questions that led to Network Rail identifying additional capacity, which led to Grand Central Rail launching its service from London to Sunderland.

In view of this experience, it is considered appropriate to analyse the consequences if Option 1 leads to increased capacity utilisation. This has been achieved by assuming an increase in service frequency for **one** of the three scenarios employed, namely the Great Western Main Line (services from Gloucester/Cheltenham to London Paddington). For the other two scenarios, peak capacity into London is assumed to be fixed and increases in frequency are assumed only during the off peak and on outer parts of the network.

With respect to capacity, two further points are of note. Firstly, in some circumstances there may be no opportunity to increase capacity utilisation. Such constraints are likely to be less severe on outer parts of the network away from London. An assessment of the availability of capacity is beyond the scope of this project and therefore the changes in frequency are only indicative of the change that might be expected.

## Timetable Scenarios – East Cost Main Line

**Figure 7 – ECML 'Do Minimum'**

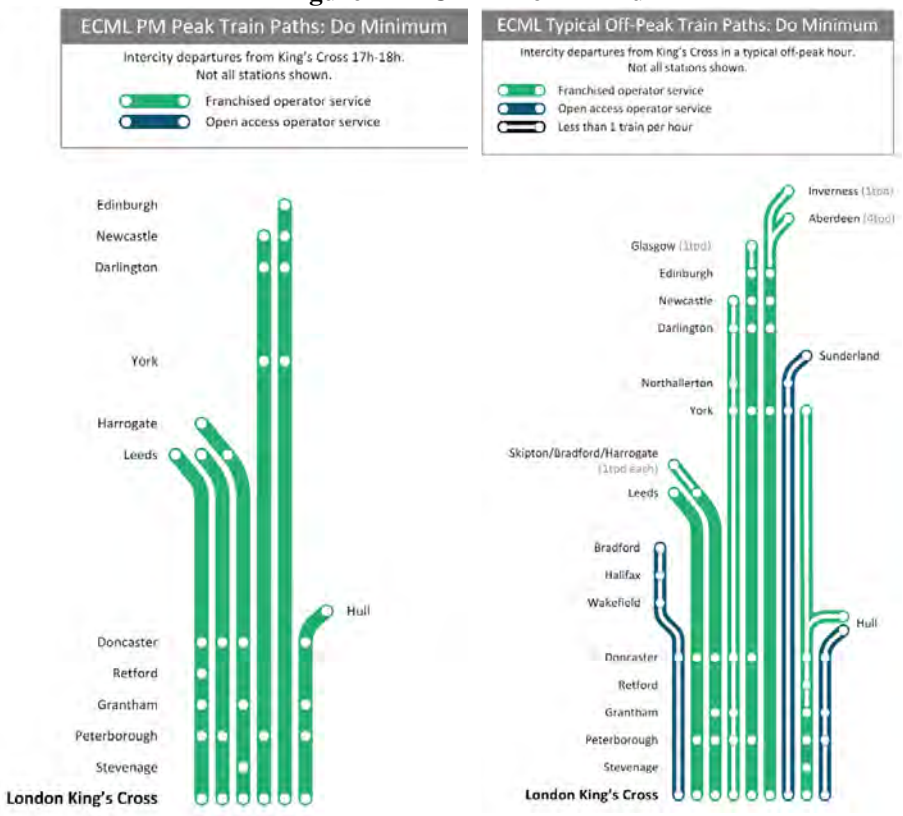
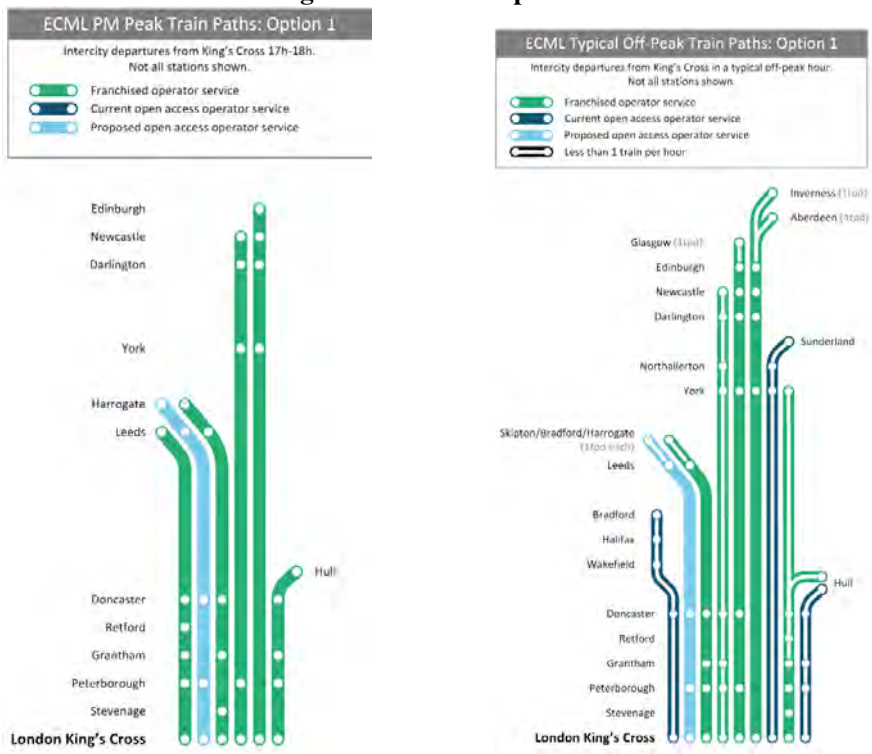
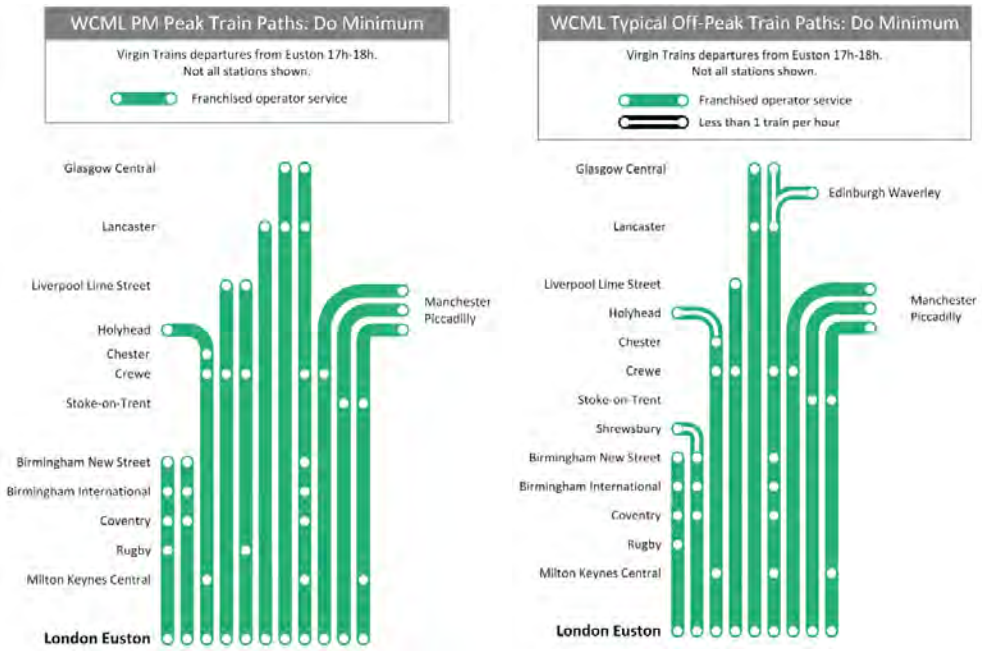



**Figure 8 – ECML Option 1**

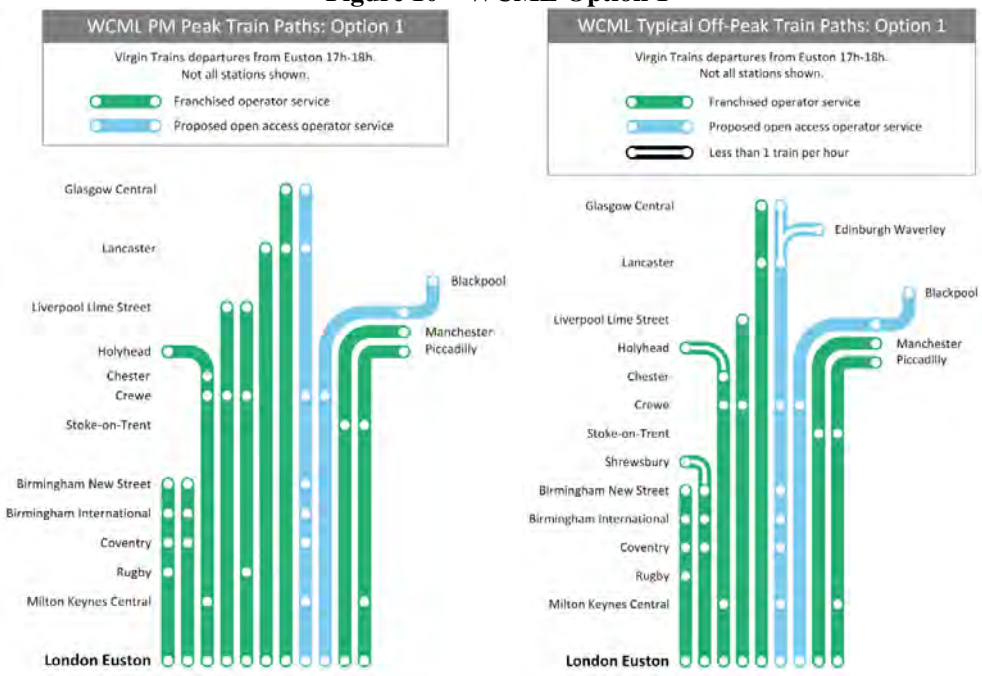


## Timetable Scenarios – West Coast Main Line

### Figure 9 – WCML 'Do Minimum'




### Figure 10 – WCML Option 1



## Timetable Scenarios – Great Western Main Line

**Figure 11 – GWML 'Do Minimum'**

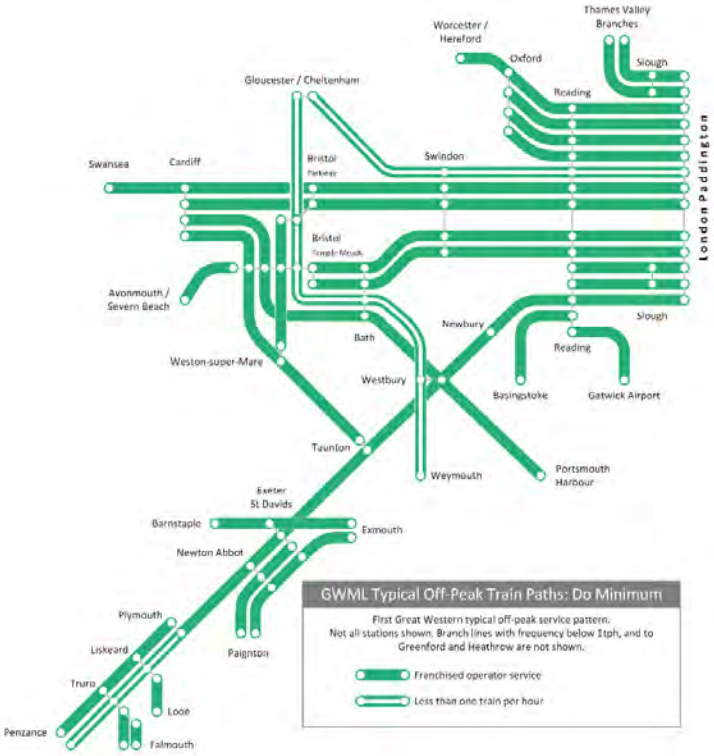
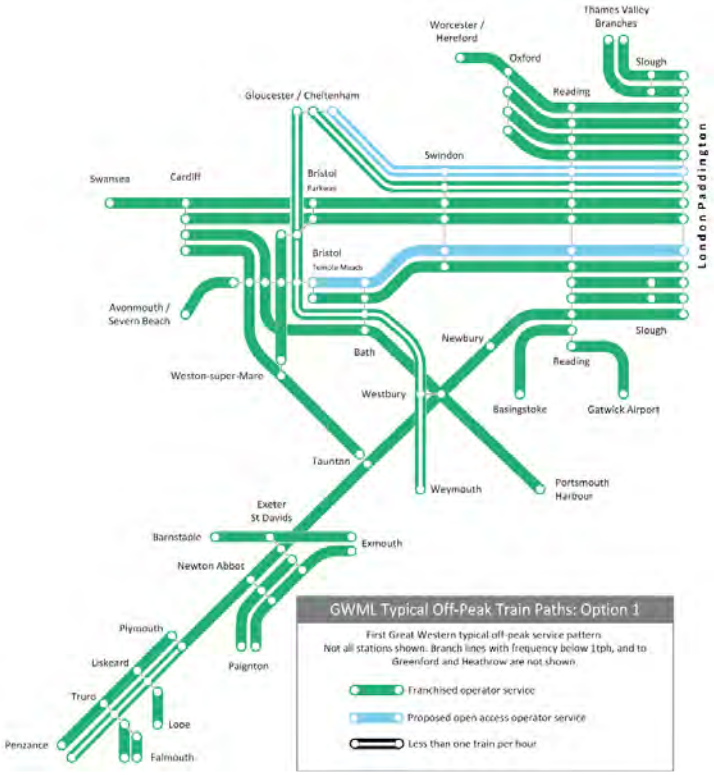



**Figure 12 – GWML Option 1**



### 7.5.2 Option 2

**Approach**

The timetable scenarios employed to test Option 2 are given in Figures 13 to 16. This option has been tested for West and East Coast Main Lines. Reflecting the CMA's options, both asymmetric and symmetric franchise options are considered.

The option is represented by allocating services to each of two new franchise operators on a route by route basis. The symmetric franchise options achieve a broadly 50:50 split of total franchise revenue and of profitable and socially desirable services. The asymmetric options provide an approximate 60:40 split. The smaller ('Beta') franchise has been allocated service groups which have a high revenue per train mile and are therefore likely to be profitable.

## Timetable Scenarios – West Coast Main Line

**Figure 13 – WCML Option 2a (Asymmetric)**

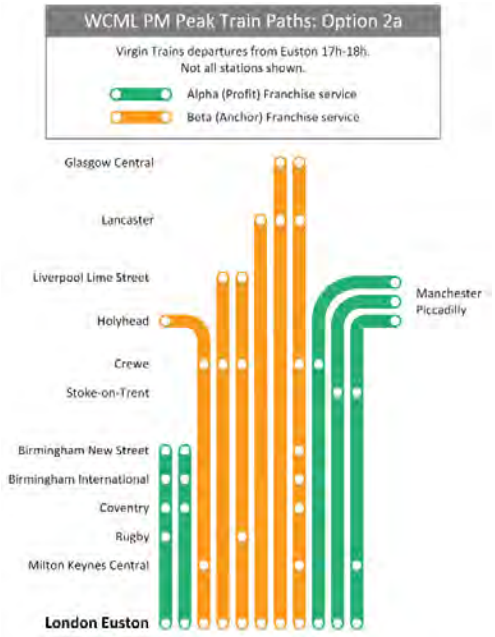
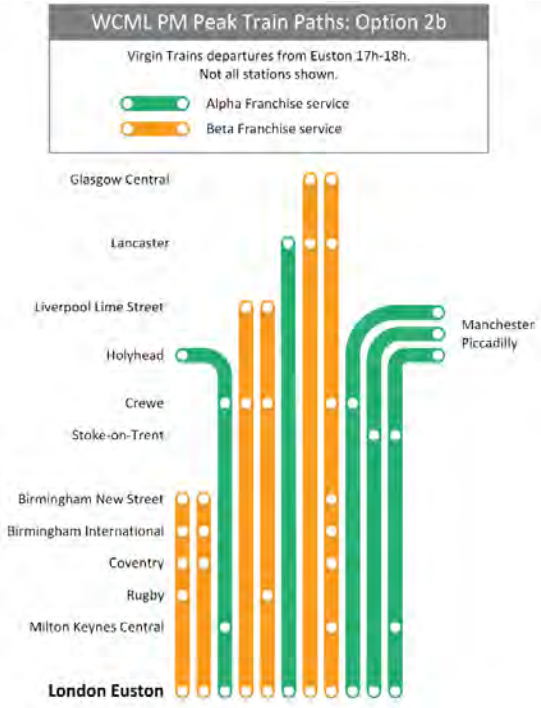



**Figure 14 - WCML Option 2b (Symmetric)**



## Timetable Scenarios – East Coast Main Line

**Figure 15 – ECML Option 2a (Asymmetric)**

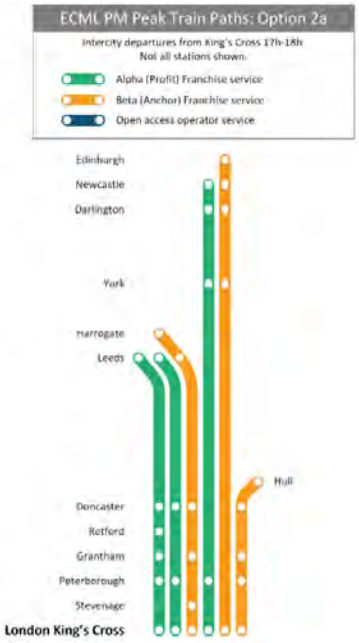
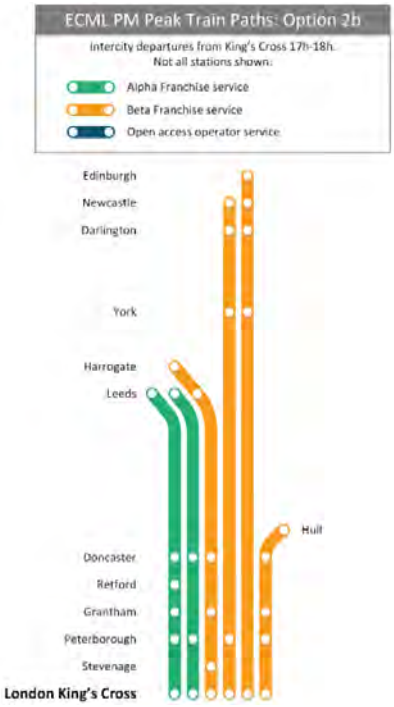



**Figure 16 – EMCL Option 2b (Symmetric)**

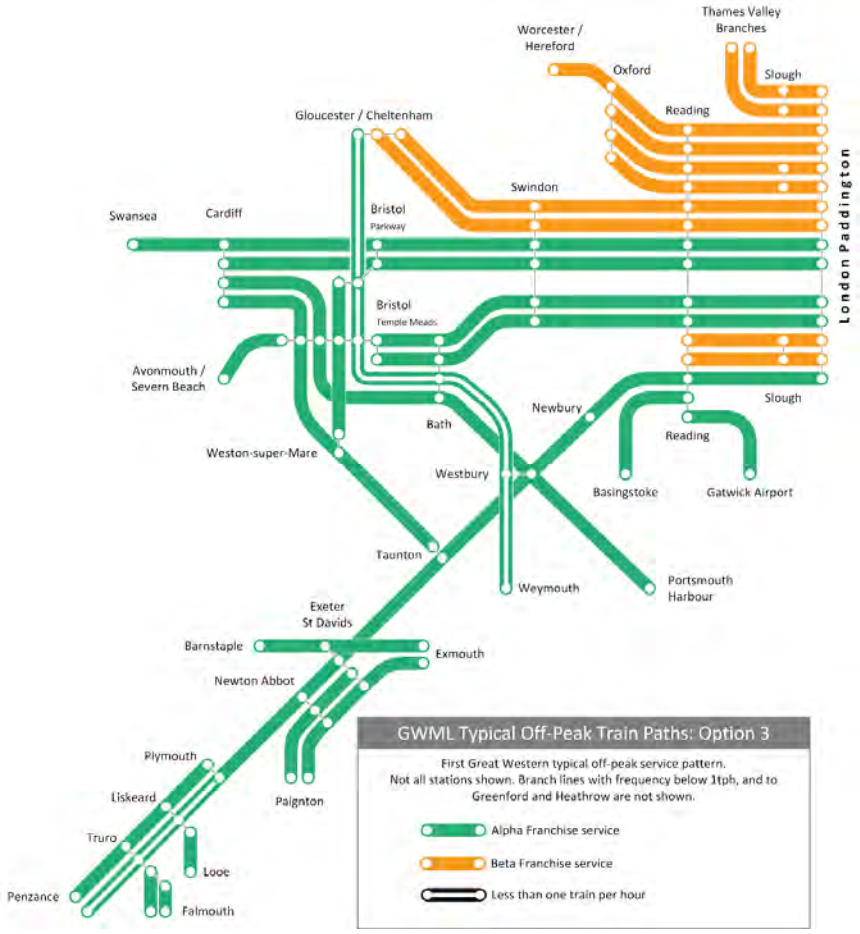


### 7.5.3 Option 3

There is currently a degree of franchise overlap on the East and West Coast mainline routes, albeit the overlap is primarily between fast, long distance services and local or stopping services which will have different journey times. The Great Western mainline has a much lesser degree of overlap. This is particularly evident on the portion of the route between Bristol, Reading and London Paddington. The Great Western franchise has also been highlighted by the CMA as a franchise that has undergone a degree of consolidation. Therefore, Option 3 is assessed by fragmenting the Great Western franchise.

The proposed division of the franchise is shown in Figure 17. A theoretical franchise responsible for operating shorter distance services into London Paddington is created. The concept is based broadly on the historical Thames franchise creating competition with Great Western services from Oxford and Reading. The addition of services to Gloucester and Cheltenham to London creates competition on longer distance flows via Swindon.

**Figure 17 – Option 3**



## 7.6 Modelling Assumptions

### 7.6.1 Option 1

The key assumptions used to model Option 1 are given in Tables 21 and 22 below. Specific consideration is given to the impacts on, and behaviours of, OAOs and franchise operators. The rationale for the assumptions employed is also provided in the table. The approach to modelling the PSO levy is discussed in the box below.

**PSO Levy**

The CMA notes that the expansion of OAOs could result in a reduction in franchise premiums paid to Government. Given that Government – through a combination of net franchise subsidies and support of Network Rail – funds non-profitable but socially desirable services, the CMA finds a case for OAOs to contribute to the funding of loss making services through a universal service levy or PSO levy.[60]

The CMA states that 'The contribution should seek to net off the potential funding shortfall to the government after the efficiency gains and savings resulting from OAOs operating previously subsidised unprofitable but socially valuable services in a commercially viable way are taken into account'.[61] However, because both profitable and unprofitable services are bundled together within both premium paying and subsidised franchises, establishing which services are profitable and unprofitable is likely to be difficult.

On the advice of the ORR, for the purposes of this study, the PSO levy is interpreted as a charge which is intended to offset the adverse financial impact of OAO entry on taxpayers. Such a levy could maintain suitable signals for entry and expansion between OAOs and franchised operators.

A simplified approach to the PSO levy has been taken based on a fixed per passenger km rate established for each route at the service group level. No account has been taken of specific stopping patterns or the mix of peak and off-peak services. A two stage process to calculating a 'proxy' for the PSO levy is as follows:

**Step 1** – Allocate the franchise premium to each service group based on the proportion of total franchise revenue earned by each service group in the 'do minimum' scenario;

**Step 2** – Calculate an implied premium per passenger km based on the passenger km in each service group in the 'do minimum' scenario.

This approach provides only an approximation of the PSO levy. Should Option 1 be developed further, more detailed analysis would be required to more clearly define the purpose and scope of the levy, its legal basis, and to address the technical challenges of designing such a levy.

[60] CMA 2015 (page 141)
[61] CMA 2015 (page 143)

**Table 21 – Modelling Assumptions: Option 1 (Open Access Operator)**

| Topic | | Assumption - Adjustment to 'Do Minimum' Assumption | Rationale / Evidence |
|---|---|---|---|
| **Price** | Average Yield | **Reduction in average yields of between 10% and 20%** on competed flows | Evidence from routes with open access competition consistently demonstrate OAOs significantly undercutting franchise operator fares. Currently, Hull Trains' dedicated tickets are, on average, around 15% cheaper than the interavailable fare set by the lead operator. Grand Central Trains are typically 20% to 40% cheaper than the interavailable fare. That this broadly represents a long run equilibrium given the length of time that these competitive positions have been established. Therefore, the reported differences between OAO and interavailable fares already include any fares response made by incumbent FO. Equally, it is important to consider that current fare differentials are influenced by the cost profile of existing OAOs and the marginal nature of the services they operate. Therefore it is considered prudent to employ a more conservative range of between 10% and 20%. |
| **Efficiencies** | Fixed Track Access Charge | £ per train km rate based on route wide FTAC | Under Option 1, OAOs would be subject to FTAC as per the CMA's recommendation. FTAC has been converted into a per train km rate. It is assumed that OAOs face charges at the same rate as franchise operators. The overall level of FTAC for each route is assumed to be as per the CP5 price list. |
| | Variable Track Access Charges | Calculated based on franchise train and vehicle mileage | OAOs are assumed to be subject to all variable charges. Rates have been taken from the CP5 price list. |
| | PSO Levy | Rate per passenger km based on franchise premium | A per passenger km PSO levy has been derived for each service group based on its estimated contribution to franchise premium (as estimated in the 'do minimum' scenario). |
| | Input Costs - Staff | **5% to 15% reduction** per train km | The McNulty report cites research by Leeds ITS which suggests historical OAO staff costs were 6 to 18% lower than franchised staff costs.[62] Wheat and Smith find that OAO unit labour costs (£ per employee) are on average 10.3% lower than those faced by intercity franchise operators.[63] Current and historical staff costs savings are likely to be the result of OAOs being able to recruit their own staff such that they are not subject to TUPE arrangements, although more efficient practices may also contribute to lower OAO staff costs. Following an expansion of OAOs, it may be that OAOs would be subject to TUPE arrangement such that staff cost savings are more difficult to achieve. In view of this, a range of 5% to 15% staff cost savings is employed. |
| | Input Costs – Rolling Stock | **0% to 10% reduction** in per train km rolling stock costs | Wheat and Smith estimate that for input costs other than staff, costs are on average 33.6% lower for OAOs than franchise operators.[64] They state that this 'might include lower cost rolling stock'. |

[62] Realising the Potential of GB Rail: Report of the Rail Value for Money Study
[63] Econometric analysis of efficiency gains from on-rail competition. Wheat and Smith (2015)
[64] Econometric analysis of efficiency gains from on-rail competition. Wheat and Smith (2015)

| Topic | | Assumption - Adjustment to 'Do Minimum' Assumption | Rationale / Evidence |
|---|---|---|---|
| | | | OAOs are not subject to the all of the same restrictions as franchised operators with respect to the type of rolling stock employed and therefore it is assumed that they would take advantage of the opportunity to employ lower cost rolling stock where possible. However, it is also noted that, in some situations OAOs will also face restrictions over the type of train that they can use (the requirement for West Coast Main Line operators to use faster, tilting rolling stock is one such example). Therefore, as a lower bound, it is assumed that no rolling stock efficiencies are possible. |
| | Efficiency (own costs) | **10% to 30% efficiency saving** on own costs per train km | Wheat and Smith find evidence of a pure 'open access business model' effect which relates to the efficiency of OAOs.[65] Whilst they note that the magnitude of this effect is uncertain, they conclude that 'cautious sensitivity analysis suggests that the difference with and without the business model effect is in the region of 34% of actual open access costs'. For the purposes of this analysis a more conservative range of between 10% and 30% has been applied to account for uncertainty. This compares to a range of 20% to 30% employed by MVA (2011).[66] |
| | Economies of Density | **Elasticity of own costs with respect to density – 0.95 to 0.85** | Density is measured as the number of train kms per route km. Wheat and Smith (2015) find increasing returns to density for both franchise operators and OAOs.[67] For all operators, they find an elasticity of own costs with respect to density of 0.84. For intercity franchise operators they find an elasticity of own costs with respect to density of 0.94. A similar range has been applied in this assessment. |
| **Product** | Timetable | See Figures 7 to 12 | |

[65] Ibid
[66] Modelling the Impacts of Increased On-rail Competition Through Open Access Operation: Report for the ORR (2011)
[67] Econometric analysis of efficiency gains from on-rail competition. Wheat and Smith (2015)

**Table 22 – Modelling Assumptions: Option 1 (Franchise Operator)**

| Topic | | Assumption - Adjustment to 'Do Minimum' Assumption | Rationale / Evidence |
|---|---|---|---|
| **Price** | Average Yield | **Reduction in average yields of between 5% and 10%** on competed flows | Economic theory would suggest that operators will respond to price competition. Evidence from Aecom (2014) and Arup (2009) suggests yield growth on flows with competition has been slower than yield growth on flows without competition. However, it is also the case that franchise operators have not matched OAO fares and therefore a differential between OAO and franchise fares would be expected. The franchise operator, as the lead operator, may have less incentive to reduce price. It is assumed that the reduction in fares for franchise operators is around half that of OAOs. |
| **Efficiencies** | Fixed Track Access Charge | £ per train km rate based on route wide FTAC | FTAC has been converted into a per train km rate such that the franchise faces FTAC payments in proportion to the change in train mileage that results from the scenario. The overall level of FTAC for each route is assumed to be as per the CP5 price list. |
| | Variable Track Access Charges | Calculated based on franchise train and vehicle mileage | Variable charges are applied on a per vehicle mile or per train mile basis. Rates have been taken from the CP5 price list. |
| | PSO Levy | NA | *The PSO levy is charged to OAOs only.* |
| | Input Costs - Staff | **No Change** | Franchise operators are assumed to be subject to TUPE arrangements as today. There is no evidence to suggest that franchise operators would have the ability to reduce unit costs of staff given the constraints of the franchise agreement. |
| | Input Costs – Rolling Stock | **No Change** | Franchise operators would continue to face the same constraints with respect to the type and cost of rolling stock they employ. There is no evidence to suggest that unit costs of rolling stock for franchise operators could be reduced given the constraints of the franchise agreement. |
| | Efficiency (own costs) | **0% to 10% efficiency saving** on own costs per train km | Evidence on the response of franchise operators to competition in unclear. Franchise operators already have incentives to minimise costs to secure franchises and to maximise profit during the franchise term subject to the constraints of the Franchise Agreement. Franchise operators would continue to be constrained by franchise agreements that would limit their ability to reduce cost. However, economic theory would suggest that the introduction of increased competition would create stronger incentives to improve efficiency. Evidence from other transport sectors (e.g. the bus market) supports this. In view of this uncertainty an upper bound of a 10% efficiency saving has been employed. |
| | Economies of Density | **Elasticity of own costs with respect to density – 0.95 to 0.85** | Density is measured as the number of train kms per route km. Wheat and Smith (2015) find increasing returns to density for both franchise operators and OAs. For all operators, they find an elasticity of own costs with respect to density of 0.84. For intercity franchise operators they find an elasticity of own costs with respect to density of 0.94. A similar range has been applied in this assessment. |
| **Product** | Timetable | See Figures 7 to 12 | |

### 7.6.2 Option 2

The key assumptions used to model Option 2 are given in Table 23. The behaviours of both competing franchise operators is assumed to be the same.

**Table 23 – Modelling Assumptions: Option 2 (Franchise Operator)**

| Topic | | Assumption - Adjustment to 'Do Minimum' Assumption | Rationale / Evidence |
|---|---|---|---|
| **Price** | Average Yield | **Reduction in average yields of between 5% and 10%** on competed flows | Economic theory would suggest that operators will respond to price competition. Evidence from Aecom (2014) and Arup (2009) suggests yield growth on overlapping routes is lower than for routes without competition. Robust evidence on the magnitude of this effect is not available although it is reasonable to assume that the reduction in yield would be less for franchise operators than for OAOs. Therefore a range of 5% to 10% has been employed. |
| **Efficiencies** | Fixed Track Access Charge | £ per train km rate based on route wide FTAC | FTAC has been converted into a per train km rate such that the level of FTAC paid by the franchise is proportionate to the scale of its operation. The overall level of FTAC for each route is assumed to be as per the CP5 price list. |
| | Variable Track Access Charges | Calculated based on franchise train and vehicle mileage | VTAC is charged on a per vehicle mile basis based on charges paid by franchise operators in 2013/14. |
| | Input Costs - Staff | **No Change** | Franchise operators are assumed to be subject to TUPE arrangements as today. There is no evidence to suggest that franchise operators would have the ability to reduce unit costs of staff. |
| | Input Costs – Rolling Stock | **No Change** | Franchise operators would continue to face the same constraints with respect to the type and cost of rolling stock they employ. There is no evidence to suggest that unit costs of rolling stock for franchise operators could be reduced. |
| | Efficiency (own costs) | **0% to 5% efficiency saving** on own costs per train km | Evidence on the response of franchise operators to competition in unclear. Franchise operators already have incentives to minimise costs to secure franchises and to maximise profit during the franchise term. Franchise operators would continue to be constrained by franchise agreements that would limit their ability to reduce cost. However, economic theory would suggest that the introduction of increased competition would create stronger incentives to improve efficiency. Evidence from other transport sectors (e.g. the bus market) supports this. In view of this uncertainty an upper bound of a 5% efficiency saving has been employed. |
| | Economies of Density | **Elasticity of own costs with respect to density – 0.95 to 0.85** | Density is measured as the number of train kms per route km. Wheat and Smith (2015) find increasing returns to scale for both franchise operators and OAOs. For all operators, they find an elasticity of own costs with respect to density of 0.84. For intercity franchise operators they find an elasticity of own costs with respect to density of 0.94. A similar range has been applied in this assessment. |
| **Product** | Timetable | See Figures 13 to 16 | |

### 7.6.3 Option 3

The key assumptions used to model Option 3 are given in Table 24. Option 3 also concerns two franchised operators and therefore the assumptions employed are as per Option 2.

**Table 24 – Modelling Assumptions: Option 3 (Franchise Operator)**

| Topic | | Assumption - Adjustment to 'Do Minimum' Assumption | Rationale / Evidence |
|---|---|---|---|
| **Price** | Average Yield | **Reduction in average yields of between 5% and 10%** on competed flows | Economic theory would suggest that operators will responsd to price competition. Evidence from Aecom (2014) and Arup (2009) suggests yield growth on overlapping routes is lower than for routes without competition. Robust evidence on the magnitude of this effect is not available although it is reasonable to assume that the reduction in yield would be less for franchise operators than for OAOs. Therefore a range of 5% to 10% has been employed. |
| **Efficiencies** | Fixed Track Access Charge | £ per train km rate based on route wide FTAC | FTAC has been converted into a per train km rate such that the level of FTAC paid by the franchise is proportionate to the scale of its operation. The overall level of FTAC for each route is assumed to be as per the CP5 price list. |
| | Variable Track Access Charges | Calculated based on franchise train and vehicle mileage | VTAC is charged on a per vehicle mile basis based on charges paid by franchise operators in 2013/14. |
| | Input Costs - Staff | **No Change** | Franchise operators are assumed to be subject to TUPE arrangements as today. There is no evidence to suggest that franchise operators would have the ability to reduce unit costs of staff. |
| | Input Costs – Rolling Stock | **No Change** | Franchise operators would continue to face the same constraints with respect to the type and cost of rolling stock they employ. There is no evidence to suggest that unit costs of rolling stock for franchise operators could be reduced. |
| | Efficiency (own costs) | **0% to 5% efficiency saving** on own costs per train km | Evidence on the response of franchise operators to competition in unclear. Franchise operators already have incentives to minimise costs to secure franchises and to maximise profit during the franchise term. Franchise operators would continue to be constrained by franchise agreements that would limit their ability to reduce cost. However, economic theory would suggest that the introduction of increased competition would create stronger incentives to improve efficiency. Evidence from other transport sectors (e.g. the bus market) supports this. Under the timetable scenario designed to test Option 3, direct competition between operators is less widespread than for Option 2. Therefore whilst an efficiency saving of between 0% and 5% is assumed, this has only been applied to service groups experiencing competition. |
| | Economies of Density | **Elasticity of own costs with respect to density – 0.85 to 0.95** | Density is measured as the number of train kms per route km. Wheat and Smith (2015) find increasing returns to scale for both franchise operators and OAOs. For all operators, they find an elasticity of own costs with respect to density of 0.84. For intercity franchise operators they find an elasticity of own costs with respect to density of 0.94. A similar range has been applied in this assessment. |
| **Product** | Timetable | See Figure 17 | |

# 8 Quantitative Assessment – Results

The following sections set out the results of the quantitative analysis. Results are presented for low, central and high assumptions for each of price and efficiency variables. The following impacts are considered:

- Impacts of price competition on average fares;
- The demand response to lower fares;
- Impacts on operator and industry efficiency;
- Overall financial impacts on operators and Government; and,
- Economic impacts considering both financial impacts and economic benefits.

## 8.1 Impacts on Fares

The following tables show the change in average fares (£s per journey) in each option. For Option 1, the changes are shown separately for the service groups operated by the franchise operator and for the service groups operated by the OAO.

### 8.1.1 Option 1

The reduction in average fares on service groups transferred to the OAO ranges from 6% to 13% on the East Coast Main Line, 4% to 8% on the West Coast Main Line and 6% to 13% on Great Western. The impact on overall fares depends on the extent to which the OAO services create competition with remaining franchised service groups. On the West Coast Main Line, the OAO competes with the franchise on flows between London, Birmingham, Manchester and Glasgow. The effect on the route as a whole is a relatively large change in overall fares of between 3% and 6%. For Great Western, where the extent of competition is more limited (given the broad geographical coverage of this franchise), the overall impact on average price (across the franchise) is lower at between 1% and 3%.

**Table 25 – Change in Average Fares: Option 1 ('Do Something' vs 'Do Minimum')**

| | | Low | Central | High |
|---|---|---|---|---|
| East Cost Main Line | OAO | -6.2% | -9.4% | -12.8% |
| | FO | -1.3% | -1.9% | -2.5% |
| | **Overall** | **-2.1%** | **-3.2%** | **-4.4%** |
| West Coast Main Line | OAO | -3.7% | -5.7% | -7.9% |
| | FO | -2.4% | -3.6% | -4.9% |
| | **Overall** | **-2.9%** | **-4.4%** | **-6.0%** |
| Great Western Main Line | OAO | -6.4% | -9.8% | -13.3% |
| | FO | -0.9% | -1.4% | -1.8% |
| | **Overall** | **-1.4%** | **-2.1%** | **-2.9%** |

### 8.1.2 Option 2

For franchised operators a lower reduction in price in response to competition has been assumed based on the evidence set out in Chapter 5. Therefore for Option 2 (two franchise operators) the change in fares on a particular flow is lower than for Option 1. In the case of the West Coast Main Line, Option 2 shows a smaller reduction in average fares of between 1% and 3%. However, depending on the way in which the franchise is divided between the two operators, Option 2 also has the potential to create more widespread competition i.e. competition across a wider geographic area. This is reflected in the results for the East Coast Main Line which shows similar or slightly higher changes in fare to Option 1.

In practice, it would be expected that symmetric competition would result in a greater degree of head to head competition and therefore a greater reduction in average fares. This is because, under the profit:anchor model there would be a degree of differentiation between the services operated by the two franchises. For example, the profitable franchise might offer faster, more direct services or it may be responsible for a higher proportion of peak services. In such cases, many passengers could choose an operator based on the service it provides and price may play less of a role in their choice of operator. However, given the relatively crude approach, these differences are not reflected in the modelling and the changes in fare are similar for both the 'asymmetric' and 'symmetric' versions of Option 2.

There are two main reasons why the above is not reflected in this analysis. Firstly, under Option 2a, whilst one of the franchises is more profitable than the other, the differences are not large. Therefore, in effect, both franchises are operating services which are broadly similar in nature. Secondly, the division of services between operators has been undertaken by allocating route-based service groups to each operator. Therefore, the differences in profitability are the result of the destinations served, rather than attributes such as speed or time of day. As a result, the change in fares shown in Table 26 are determined primarily by the degree of geographical overlap which has been created.

**Table 26 – Change in Average Fares: Option 2 ('Do Something' vs 'Do Minimum')**

| | Low | Central | High |
|---|---|---|---|
| East Cost Main Line – **Asymmetric** | -2.5% | -3.9% | -5.2% |
| East Cost Main Line – **Symmetric** | -2.0% | -3.1% | -4.1% |
| West Coast Main Line – **Asymmetric** | -1.5% | -2.2% | -3.0% |
| West Coast Main Line – **Symmetric** | -1.4% | -2.1% | -2.9% |

### 8.1.3 Option 3

In contrast, under Option 3, there is a significant difference between the services operated by the two franchises. One franchise is responsible for operating a high proportion of longer distance and rural services, whilst the other is responsible for operating primarily shorter distance 'commuter' routes. Therefore, competition is limited in geographic extent and also to the extent that the operators are serving different markets. The change in fares is lower for Option 3 than for the other two options.

**Table 27 – Change in Average Fares: Option 3 ('Do Something' vs 'Do Minimum')**

| | Low | Central | High |
|---|---|---|---|
| Great Western Main Line | -0.6% | -1.0% | -1.3% |

## 8.2 Demand and Revenue Impacts

This section illustrates changes in demand and revenue as a result of price competition.

### 8.2.1 Option 1

Table 28 shows the overall (route wide) change in journeys and revenue under each of the Option 1 scenarios. The changes in demand and revenue are shown for the route as a whole and exclude the effect of the any increase in frequency introduced by the OAO.

Lower fares results in higher overall demand. The response of demand to changes in fare differs slightly across each of the routes (based on the proportion of full, season and reduced ticket types). However, these differences are not large and therefore the increase in demand is broadly proportionate to the size of the change in fare set out in Table 25. Based on prevailing PDFH v5.1 elasticities, the demand response is not sufficient to offset the reduction in fare and therefore the net effect is a reduction in revenue.

**Table 28 – Percentage Change in Demand and Revenue: Option 1 *Excludes Timetable Change Impacts***

| | | East Coast Main Line | West Coast Main Line | Great Western Main Line |
|---|---|---|---|---|
| Journeys | Low | 1.3% | 2.0% | 0.4% |
| | Central | 1.9% | 3.0% | 0.6% |
| | High | 2.6% | 4.0% | 0.8% |
| Revenue | Low | -0.8% | -0.9% | -1.0% |
| | Central | -1.3% | -1.5% | -1.6% |
| | High | -1.7% | -2.1% | -2.2% |

Tables 29 to 31 illustrate the resultant market shares of the franchise operator and OAO. This is shown for a situation before any changes are made to fares levels and following the reduction in price of both operators. Effects of timetable change are excluded.

The initial transfer of services from the franchise to the OAO results in a loss of market share for the franchise operator. On the East Coast Main Line the OAO's starting market share is 17.2%. On the West Coast Main Line the OAO has a market share of 32.5%. For Great Western, the OAO accounts for just 6.6% of the market. In all cases, fare competition results in a further shift in market share from the franchise to the OAO. This is because the OAO reduces price more aggressively than the franchise operator. The resultant market shares for the OAOs are 18.5%, 33.3%, and 6.9% respectively.

The assumed fare reductions are based on high level assumptions as set out in Chapter 9. Should competition result in larger fare changes this may be reflected in more marked shifts in market share. It is considered that the OAO reducing fares by a greater proportion than the franchise operator is the more likely outcome, although not the only outcome of price competition.

**Table 29 – Market Shares: Option 1 East Coast Main Line (Central Case, 2023)**

| | 'Do Minimum' | | 'Do Something' (Pre-Fare Competition) | | 'Do Something' (Post-Fare Competition | |
|---|---|---|---|---|---|---|
| | FO | OAO | FO | OAO | FO | OAO |
| Journeys | 28,655 | NA | 24,365 | 5,058 | 24,520 | 5,548 |
| Revenue | 789,971 | NA | 668,557 | 130,318 | 659,703 | 129,468 |
| Market Share | 100% | NA | 82.8% | 17.2% | 81.5% | 18.5% |

**Table 30 – Market Shares: Option 1 West Coast Main Line (Central Case, 2023)**

| | 'Do Minimum' | | 'Do Something' (Pre-Fare Competition) | | 'Do Something' (Post-Fare Competition | |
|---|---|---|---|---|---|---|
| | FO | OAO | FO | OAO | FO | OAO |
| Journeys | 44,355 | NA | 31,230 | 15,051 | 31,825 | 15,922 |
| Revenue | 1,144,681 | NA | 852,342 | 304,454 | 837,034 | 303,726 |
| Market Share | 100% | NA | 67.5% | 32.5% | 66.7% | 33.3% |

**Table 31 – Market Shares: Option 1 Great Western Main Line (Central Case, 2023)**

| | 'Do Minimum' | | 'Do Something' (Pre-Fare Competition) | | 'Do Something' (Post-Fare Competition | |
|---|---|---|---|---|---|---|
| | FO | OAO | FO | OAO | FO | OAO |
| Journeys | 114,909 | NA | 107,377 | 7,535 | 107,729 | 7,986 |
| Revenue | 1,008,387 | NA | 887,785 | 120,785 | 876,718 | 115,474 |
| Market Share | 100% | NA | 93.4% | 6.6% | 93.1% | 6.9% |

### 8.2.2 Option 2

As in Option 1, the net effect of lower fares is an overall reduction in revenue across the route as a whole. The size of the change is broadly proportionate to the reduction in fares set out above.

**Table 32 – Percentage Change in Demand and Revenue: Option 2**

| | | East Coast Main Line – Asymmetric | East Coast Main Line - Symmetric | West Coast Main Line – Asymmetric | West Coast Main Line – Symmetric |
|---|---|---|---|---|---|
| Journeys | Low | 1.7% | 1.3% | 0.9% | 0.7% |
| | Central | 2.6% | 1.9% | 1.3% | 1.1% |
| | High | 3.5% | 2.6% | 1.8% | 1.4% |
| Revenue | Low | -0.8% | -0.8% | -0.6% | -0.7% |
| | Central | -1.3% | -1.3% | -0.9% | -1.1% |
| | High | -1.7% | -1.7% | -1.2% | -1.5% |

### 8.2.3 Option 3

As in the Options 1 and 2, Option 3 exhibits an increase in demand but an overall reduction in revenue, although the changes are significantly reduced given the relatively limited extent of competition and operator responses under this option.

**Table 33 – Percentage Change in Demand and Revenue: Option 3**

| | | Great Western Main Line |
|---|---|---|
| Journeys | Low | 0.2% |
| | Central | 0.4% |
| | High | 0.5% |
| Revenue | Low | -0.4% |
| | Central | -0.7% |
| | High | -0.9% |

## 8.3 Operating Cost and Efficiency

The following section considers how the efficiency assumptions affect operating costs.

### 8.3.1 Option 1

Figures 18 to 20 show the impacts on operating costs (£'s per train mile for the year 2023) for each of the Option 1 scenarios. Operating costs are given for the franchise operator, OAO and for the two operators in combination. It is worth reiterating that our analysis assumes no impact on economies of scale of reducing the size of the franchised operator, which the efficiency analysis produced for the CMA suggests would lead to reductions in cost per train mile.

For the OAO, in the majority of cases, the effect of lower input costs or the efficiencies achieved by the OAO offsets the loss of density relative to the franchise operator. Under the central case, the OAO is 16% more efficient than the franchise as a whole for the East Coast Main Line scenario and 11% more efficient for the West Coast Main Line scenario. However, the Great Western Main Line scenario illustrates that this is not the only possible outcome. As a result of a large reduction in density of operation, the OAO is less efficient than the franchise operator by 3%.

The outcome for the franchise operator depends on the level of efficiency savings assumed to have been achieved. If it is assumed that no efficiency savings are possible then, in all cases, the franchise costs rise due to the loss of economies of density. Under the central case (with 5% efficiency savings) then the effect on franchise efficiency tends to be broadly neutral or slightly negative. With an upper bound of 10% efficiency savings, the franchise operator makes a net gain in efficiency in all cases.

The effect of OAO entry on overall or total industry costs is positive for most of the scenarios. This would suggest that Option 1 is likely to deliver overall benefits with respect to efficiency. However, the analysis also highlights that this result is not assured.

**Figure 18 – Industry Costs: Option 1 East Coast Main Line**


**Figure 19 – Industry Costs: Option 1 West Coast Main Line**

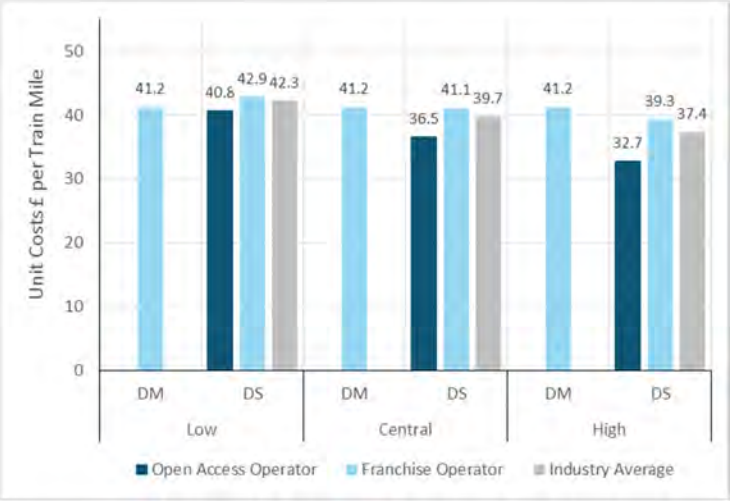
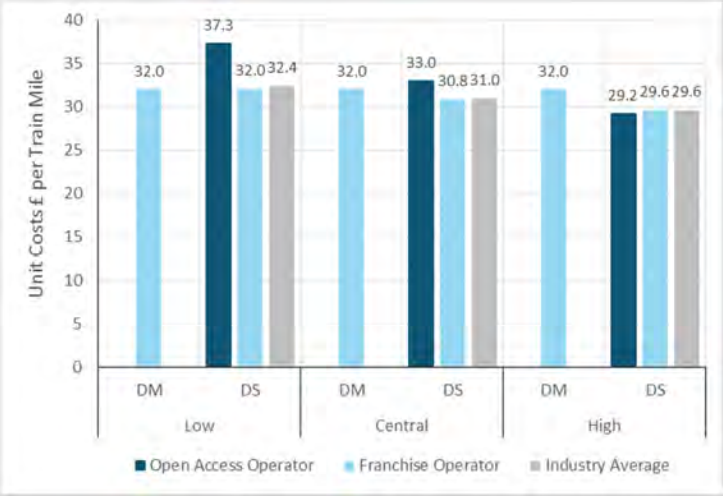



**Figure 20 – Industry Costs: Option 1 Great Western Main Line**



### 8.3.2 Option 2

Figures 21 and 22 show the change in industry costs (both franchise operators combined) for the East and West Coast Main Line scenarios. With respect to efficiency, the outcomes are similar for Options 2a (asymmetric competition) and 2b (symmetric competition) and therefore one set of results is shown for each route.

The analysis suggests that, assuming no economies of scale, overall cost savings are less likely for Option 2 than for Option 1 given that both operators continue to be subject to a franchise specification and face similar constraints to the franchise operator under the 'do minimum' scenario. In the central case, the effect on total industry costs is broadly neutral. The upper bound case results in overall savings whilst the lower bound case results in higher overall costs.

**Figure 21 – Industry Costs: Option 2 East Coast Main Line**

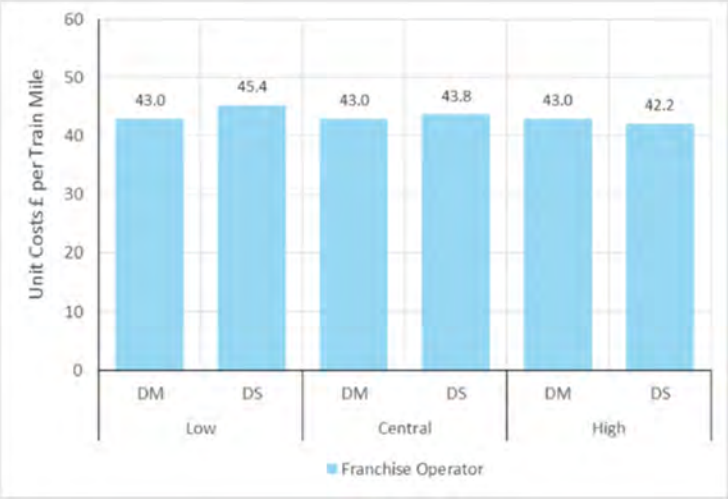
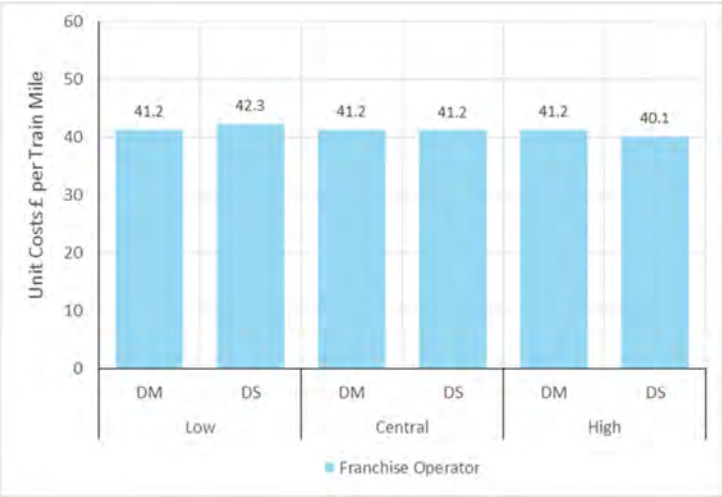


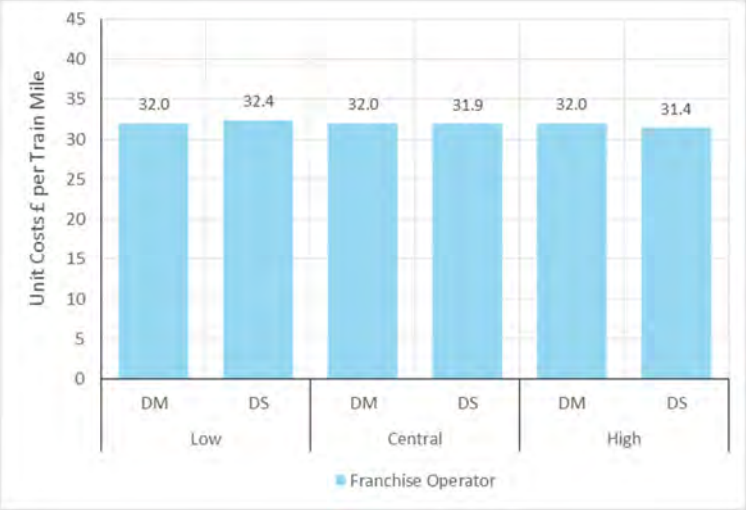

**Figure 22 – Industry Costs: Option 2 West Coast Main Line**



### 8.3.3 Option 3

For Option 3, competition is limited in geographic extent. To reflect this, the efficiency gains from competition are assumed to apply only to the affected service groups, rather than to the franchise as a whole. The outcome for Option 3 is similar to that of Option 2, with the net impact on costs being negative or positive depending on the assumptions employed, including no economies of scale. The changes in overall costs are relatively slight for this option.

**Figure 23 – Industry Costs: Option 3 Great Western Main Line**




## 8.4 Financial Impacts

The following charts and tables illustrate the impacts of each scenario on operator costs and revenues, as well as the impact on Government of changes in franchise premium and, in the case of Option 1, the combined effect of changes in premium payments and PSO levy payments.

The financial impacts are given in *average annual* terms over the appraisal period and are reported in 2010 prices.

### 8.4.1 Option 1 – East Coast Main Line

The results for the East Coast Main Line, under central case assumptions, are given in Figure 24. The chart illustrates a transfer of franchise revenues and costs to the OAO. However, the reduction in revenue is larger than the reduction in costs such that franchise premium payments fall by 17%.

The introduction of the PSO levy partly offsets the loss of premium to Government, although the Government is left in a worse financial position overall. The primary reason for this relates to the design of the PSO levy employed for this study. The PSO levy has been set based on the predicted franchise premium earned in 2023 under the 'do minimum' scenario. From 2023 onwards it is assumed that the rate of the levy is fixed in real terms. However, the franchise premium (in the 'do minimum' scenario) increases over time in real

terms because of the effect of exogenous growth in demand. The net result is that, over the appraisal period, the amount of premium abstracted, exceeds the amount paid in PSO levy payments.

It should be noted, however, that the PSO payments suggested in this analysis are a product of the specific assumptions employed for this study in the absence of a detailed study into the design of the PSO levy. On this basis, the precise outcomes with respect to the PSO levy shown in Figures 24 to 26 and Tables 34 to 36 should be interpreted with caution. In practice it may be possible to define a PSO levy which is updated over time. However, the challenges of calculating a levy to balance the need to compensate Government and the risks to OAO profitability should not be underestimated.

The overall impact on private operators (which are the sum of the OAO and franchise operator) in the central case is positive. After the reduction in premium, the franchise operator makes a reduced profit of £9m per annum in the central case. This is outweighed by the surplus of £27m made by the OAO after PSO levy payments are taken into account.

In effect this result implies that the profit margin achieved by OAOs are relatively high. To a degree this result is a consequence of the fact that the service groups transferred to OAOs are profitable to start with. However, it should also be considered that the assumptions on fare changes are relatively crude and the changes in fare are exogenous to the assessment. In practice, if the producer surplus is large, there may be more scope for competition to result in larger reductions in fare that may erode excess profits over time whilst also resulting in higher benefits for users.

**Figure 24 – Financial Impacts: Option 1 East Coast Main Line (Central Case)**

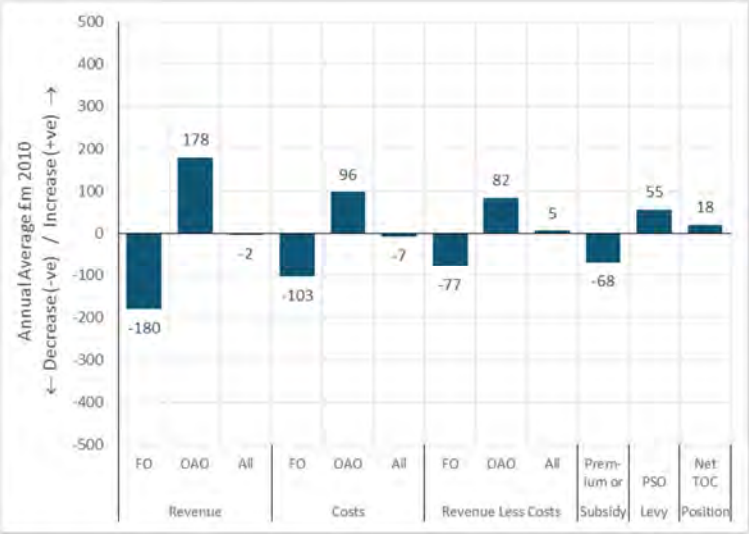



Table 34 shows how the results differ between the low, central and high scenarios. It is notable that, whilst the Government suffers a loss of premium in all cases, under the high scenario the PSO levy more than offsets the reduction in premium to leave the Government better off in comparison to the 'do minimum' scenario. This is because, under the more optimistic assumptions for the achievement of

efficiency savings by the franchise operator, lower franchise costs serves to partially offset the loss of franchise revenue to the OAO.

**Table 34 – Financial Impacts: Option 1 East Coast Main Line**

| | | Low | Central | High |
|---|---|---|---|---|
| Revenue | FO | -177 (-16%) | -180 (-16%) | -184 (-17%) |
| | OAO | 179 | 178 | 177 |
| | All TOCs | 3 | -2 | -7 |
| Costs (excluding premium / PSO levy) | FO | -78 (-11%) | -103 (-14%) | -128 (-17%) |
| | OAO | 111 | 96 | 84 |
| | All TOCs | 32 | -7 | -44 |
| Gross Operating Profit (Revenue less Costs) | FO | -98 | -77 | -56 |
| | OAO | 69 | 82 | 93 |
| | All TOCs | -30 | 5 | 37 |
| **Premium** | | **-89 (23%)** | **-68 (-17%)** | **-47 (-12%)** |
| **PSO Levy** | | **53** | **55** | **56** |
| **Government Income (Premium + PSO Levy)** | | **-37 (-9%)** | **-14 (-3%)** | **+9 (+2%)** |
| **Net TOC Profit** | | **7** | **18** | **28** |

## 8.4.2 Option 1 – West Coast Main Line

On the West Coast Main Line, the transfer of two train paths to the OAO results in significantly larger impacts on franchise premium than for the East Coast scenario. In this case, in the central case, there is a 27% reduction in franchise revenue as a result of the transfer of services to the OAO and the subsequent changes in fares. This results in a corresponding reduction in premium payments of 24%.

As modelled, the PSO levy tends to under-compensate Government for the loss of premium unless large (10%) efficiency savings are realised by the franchise operator in response to competition.

**Figure 25 – Financial Impacts: Option 1 West Coast Main Line (Central)**

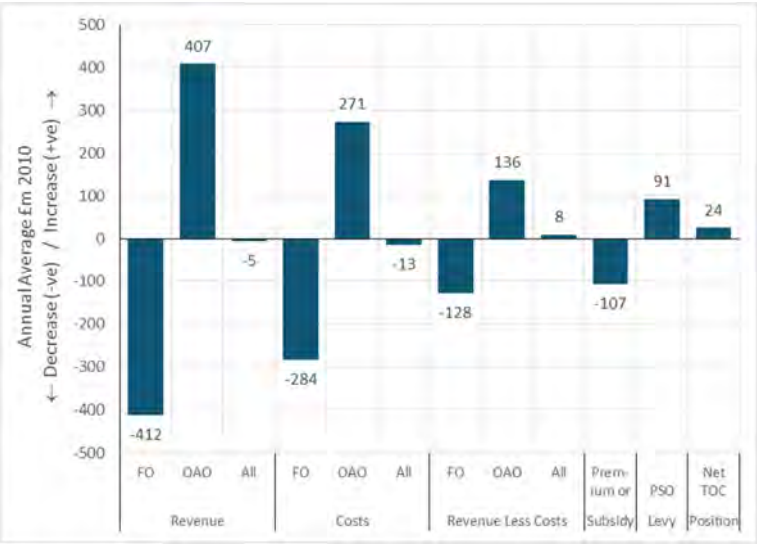


**Table 35 – Financial Impacts: Option 1 West Coast Main Line**

| | | Low | Central | High |
|---|---|---|---|---|
| Revenue | FO | -405 (-26%) | -412 (-27%) | -420 (-27%) |
| | OAO | 408 | 407 | 405 |
| | All TOCs | 3 | -5 | -14 |
| Costs (excluding premium / PSO levy) | FO | -253 (-25%) | -284 (-28%) | -315 (-32%) |
| | OAO | 303 | 271 | 243 |
| | All TOCs | 50 | -13 | -73 |
| Gross Operating Profit (Revenue less Costs) | FO | -152 | -128 | -104 |
| | OAO | 105 | 136 | 163 |
| | All TOCs | -47 | 8 | 59 |
| **Premium** | | **-132 (-27%)** | **-107 (-24%)** | **-83 (-18%)** |
| **PSO Levy** | | **90** | **91** | **93** |
| **Government Income (Premium + PSO Levy)** | | **-42 (-9%)** | **-16 (-4%)** | **10 (+2%)** |
| **Net TOC Profit** | | **-5** | **24** | **49** |

## 8.4.3 Option 1 – Great Western

The outcome for the Great Western Main Line franchise under Option 1 is similar to that of the East and West Coast Main Line franchises with the net result of a transfer of franchise profits from Government to the OAO.

In the case of Great Western, the PSO levy fails to fully compensate the Government for the loss of premium in each of the low, central or high cases although the limitations to the analysis of the PSO levy in this assessment have been noted elsewhere in this report.

**Figure 26 – Financial Impacts: Option 1 Great Western Main Line (Central)**

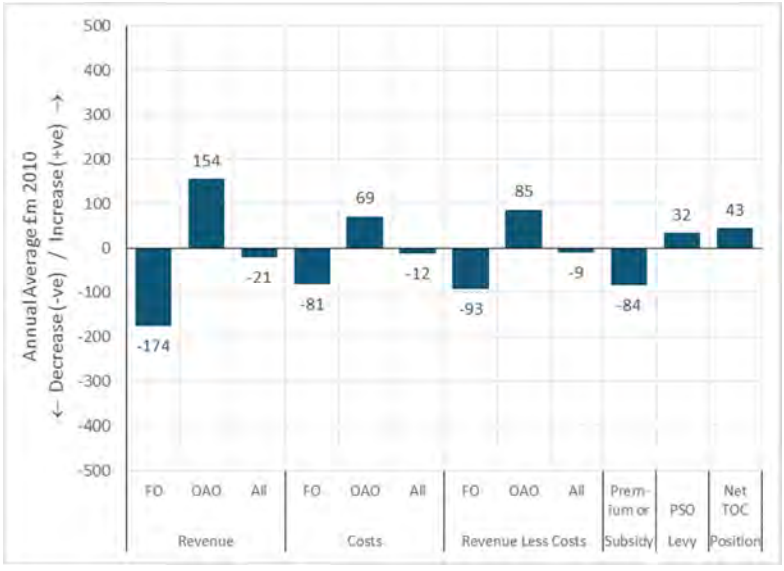


**Table 36 – Financial Impacts: Option 1 Great Western Main Line**

| | | Low | Central | High |
|---|---|---|---|---|
| Revenue | FO | -170 (-12%) | -174 (-13%) | -180 (-13%) |
| | OAO | 156 | 154 | 151 |
| | All TOCs | -13 | -21 | -29 |
| Costs (excluding premium / PSO levy) | FO | -47 (-5%) | -81 (-8%) | -116 (-12%) |
| | OAO | 78 | 69 | 61 |
| | All TOCs | 31 | -12 | -55 |
| Gross Operating Profit (Revenue less Costs) | FO | -123 | -93 | -64 |
| | OAO | 78 | 85 | 90 |
| | All TOCs | -45 | -9 | 26 |
| **Premium** | | **-114 (-32%)** | **-84 (-24%)** | **-55 (-15%)** |
| **PSO Levy** | | **32** | **32** | **33** |
| **Government Income (Premium + PSO Levy)** | | **-83 (-23%)** | **-52 (-15%)** | **-22 (-6%)** |
| **Net TOC Profit** | | **38** | **43** | **48** |

### 8.4.4 Option 2

Under Option 2, both operators remain franchised and are assumed to earn profits on the same basis as the franchise operator under the 'do minimum' scenario. Therefore, the impacts on franchise premium are much less significant than for Option 1. On the East Coast Main Line, under central case assumptions, a reduction in franchise revenue occurs alongside an increase in franchise costs such that the franchise premium falls by around 7%. On the West Coast Main Line, franchise operating costs fall slightly. However, the fall in franchise revenue is larger than the reduction in costs such that premiums fall by 3% to 4%.

However, under more optimistic assumptions for the efficiency savings that result from competition, the loss of premium is very small (1% for the East Coast Main Line) or even reversed in the case of the West Coast Main Line which exhibits a small increase in franchise premium of between 2% and 3% in the high case.

The differences between the asymmetric and symmetric sub-options are neither large, nor consistent. As noted above, this is likely to be a consequence of the relatively crude approach to modelling. In reality, it would be reasonable to expect that the symmetric option would result in a higher degree of direct competition between operators and therefore a larger reduction in premium would result.

**Figure 27 – Financial Impacts: Option 2a (Asymmetric) East Coast Main Line (Central)**

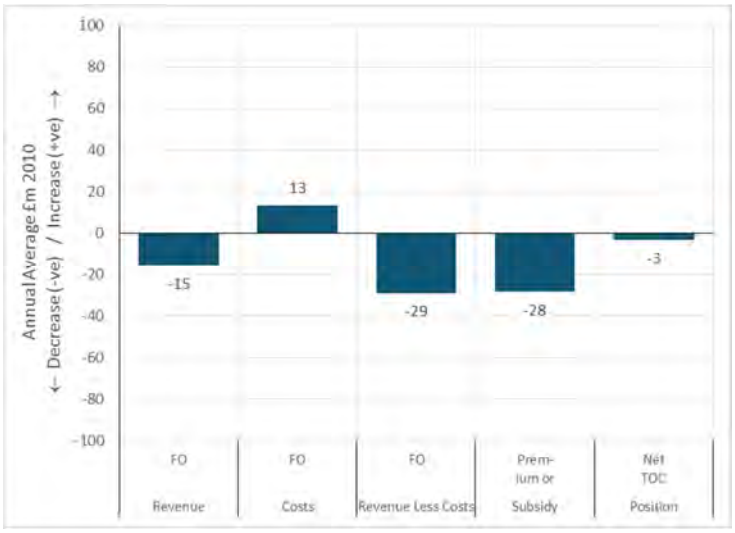



**Figure 28 – Financial Impacts: Option 2b (Symmetric) East Coast Main Line (Central)**

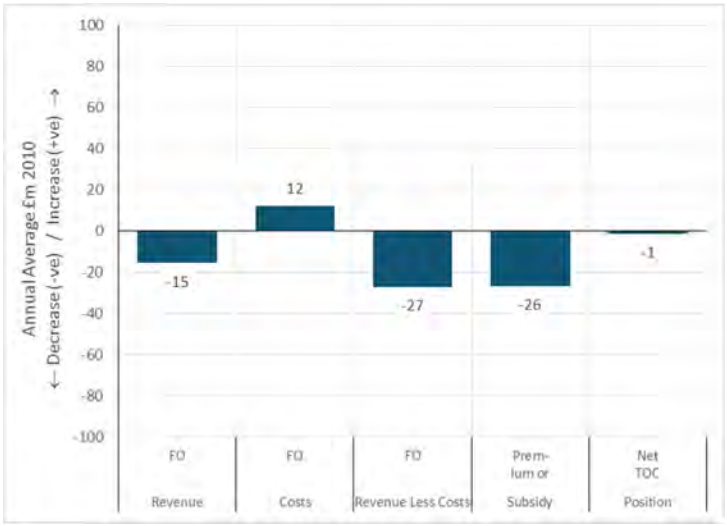


**Table 37 – Financial Impacts: Option 2 East Coast Main Line**

| | Asymmetric | | | Symmetric | | |
|---|---|---|---|---|---|---|
| | Low | Central | High | Low | Central | High |
| TOC Revenue | -10 (-1%) | -15 (-1%) | -21 (-2%) | -10 (-1%) | -15 (-1%) | -21 (2%) |
| TOC Costs (excl. premium) | 43 (+6%) | 13 (+2%) | -15 (-2%) | 40 (+5%) | 12 (+2%) | -16 (+2%) |
| TOC Gross Operating Profit (revenue less costs) | -53 | -29 | -6 | -50 | -27 | -5 |
| **Premium** | **-52 (-13%)** | **-28 (-7%)** | **-5 (-1%)** | **-50 (-13%)** | **-26 (7%)** | **-4 (-1%)** |
| **Net TOC Profit** | **-2** | **-3** | **-4** | **-1** | **-1** | **-2** |

**Figure 29 – Financial Impacts: Option 2a (Asymmetric) West Coast Main Line (Central)**

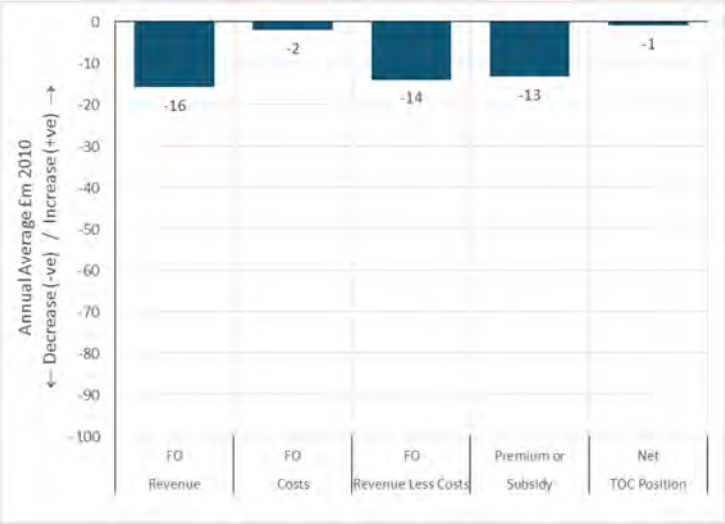


**Figure 30 – Financial Impacts: Option 2b (Symmetric) West Coast Main Line (Central)**

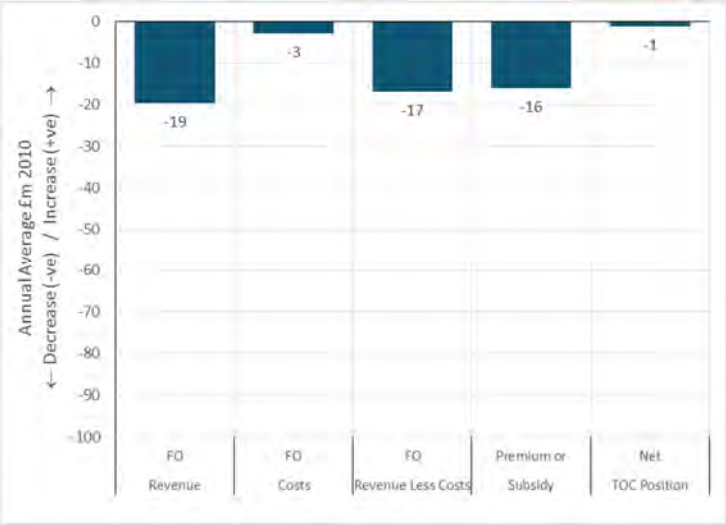



**Table 38 – Financial Impacts: Option 2 West Coast Main Line**

| | Asymmetric | | | Symmetric | | |
|---|---|---|---|---|---|---|
| | Low | Central | High | Low | Central | High |
| TOC Revenue | -10 (-1%) | -16 (-1%) | -21 (-1%) | -13 (-1%) | -19 (-1%) | -26 (-2%) |
| TOC Costs (excl. premium) | 31 (+3%) | -2 (-0.2%) | -34 (-3%) | 29 (+3%) | -3 (-0.3%) | -34 (-3%) |
| TOC Gross Operating Profit (Revenue less Costs) | -41 | -14 | +13 | -42 | -17 | +8 |
| **Premium** | **-40 (-9%)** | **-13 (-3%)** | **+14 (+3%)** | **-42 (-9%)** | **-16 (-4%)** | **+9 (+2%)** |
| **Net TOC Profit** | **-1** | **-1** | **-1** | **-1** | **-1** | **-1** |

### 8.4.5 Option 3

Option 3 has the least significant financial impact. Under the central case, although franchise costs are lower as a result of competition, the net effect is a reduction in premium of approximately 2%. As for Option 2, the upper bound scenario shows an increase in franchise premium although, as above, this is considered to be a less likely outcome.

**Figure 31 – Financial Impacts: Option 3 Great Western Main Line (Central)**

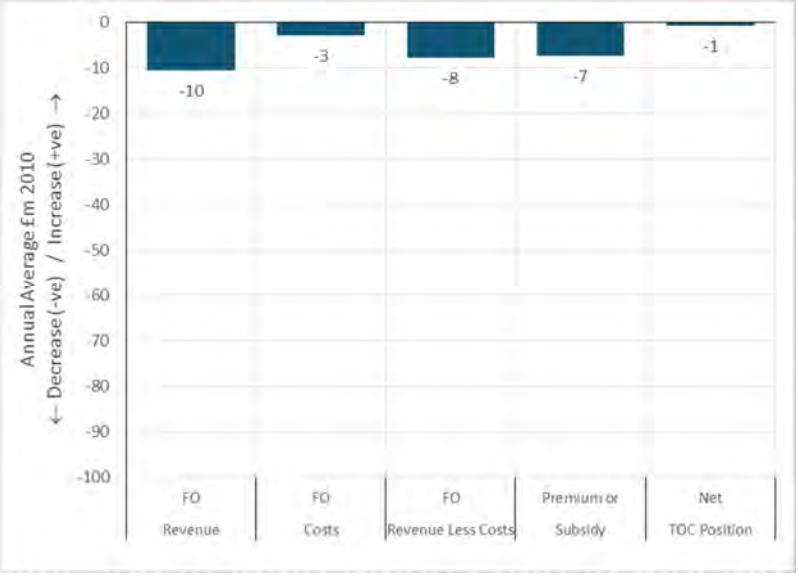



**Table 39 – Financial Impacts: Option 3 Great Western Main Line**

| | Low | Central | High |
|---|---|---|---|
| TOC Revenue | -7 (-0.5%) | -10 (-1%) | -14 (-1%) |
| TOC Costs (excl. premium) | 15 (+2%) | -3 (-0.3%) | -20 (-2%) |
| TOC Gross Operating Profit (Revenue less costs) | -22 | -8 | +6 |
| **Premium** | **-22 (-6%)** | **-7 (-2%)** | **+7 (+2%)** |
| **Net TOC Profit** | **0** | **-1** | **-1** |

### 8.4.6 Franchise Operator and OAO Profitability

It should be noted that, in the absence of cost data at a service group level, calculations of profitability are subject to a margin for error. However, the profitability of the OAO, after FTAC and PSO levy payments is of central importance to the feasibility and impact of Option 1. In a situation in which the OAO cannot generate a profit, it will not be possible to attract an OAO (or at least, for the OAO to remain in the market for the long-term). If the service is of marginal viability, then this would raise the risk of the OAO defaulting after a period of time, leaving the OAO's service being removed.

Under the scenarios defined for this study, the OAO is forecast to be profitable in all cases, even after PSO levy payments. This, in itself, is not a surprising outcome. The analysis has selected some of the more heavily revenue generating routes across three premium generating franchises to be transferred to an OAO. Furthermore, the PSO levy has been set at a level no higher than the starting franchise premium for each service group in the 'do minimum' scenario.

However, it is notable that this outcome is dependent on the level of charges paid by operators to Network Rail. This is of particular relevance given the Government's plan to direct its funding of the rail industry through train operating companies.

It is uncertain whether, in practice, the full costs of Network Rail will be passed on in charge to operators. The outcome in terms of profitability for operators will also be dependent on the relative treatment in terms of charging and funding of OAOs and franchise operators. Furthermore, it should be considered that any increase in Network Rail's efficiency – either as a result of increased competition, or through general improvements over time – would serve to reduce the costs needed to be met through a combination of FTAC and grants. Therefore, the tentative conclusion of the analysis of profitability is that feasibility of Option 1 will be influenced by the charging framework put in place, as well as the nature of the service which the OAO is able to provide, whilst the future profitability of franchising will influence the potential benefits of all of the CMAs options.

## 8.5 Economic Appraisal

The economic appraisal brings together the financial and economic impacts or welfare effects of each Option. The primary economic benefit of each of the options is the benefits to users of lower rail fares. 'Non user benefits' are also included in the analysis – these relate to the benefits of an increase in rail demand and the associated reduction in travel by car. Such benefits include a reduction in highway congestion, reducing accident rates and reduced greenhouse gas emissions.

When interpreting the results of the economic appraisal, it is important to consider the range of impacts set out in Chapter 7 that have not been quantified that will, in practice, affect the overall balance of costs and benefits.

All results presented in this section represent total costs and benefits aggregated over the 20 year appraisal period and discounted to 2010 values.

### 8.5.1 Option 1

Figures 32, 33 and 34 illustrate the fact that Option 1 results in a transfer from Government (in lower premium payments) to passengers and operators (in lower fares and higher profits respectively although, as noted, excess profits made by OAOs may be eroded over time through dynamic fare competition which is not reflected in this analysis.

Under the central case, Option 1 delivers net economic benefits in the range £262m to £915m (2010 prices) over a period of 20 years. The West Coast Main Line scenario, which involves the largest transfer of services to an OAO and which results in the greatest degree of competition, delivers the largest benefits to users in lower fares and therefore exhibits the highest net present value.

Whilst the analysis suggests that Option 1 is likely to deliver net economic benefits, the result is sensitive to the assumptions employed. In the low case, the net present value is negative in two of the three scenarios. This is because the benefits to users of lower fares are offset by an overall increase in industry costs. This, in turn, is the result of a loss of efficiency as a result of having two smaller operators (with associated reductions in the density of operations), rather than one larger operator. As noted, the trade-offs between efficiency savings and loss of density are difficult to predict with certainty given the relatively limited evidence

base on this topic, although the analysis supports the conclusion of Wheat and Smith (2015) that the overall effect on industry costs could be positive or negative.

**Figure 32 – Economic Appraisal: Option 1 East Coast Main Line (Central)**

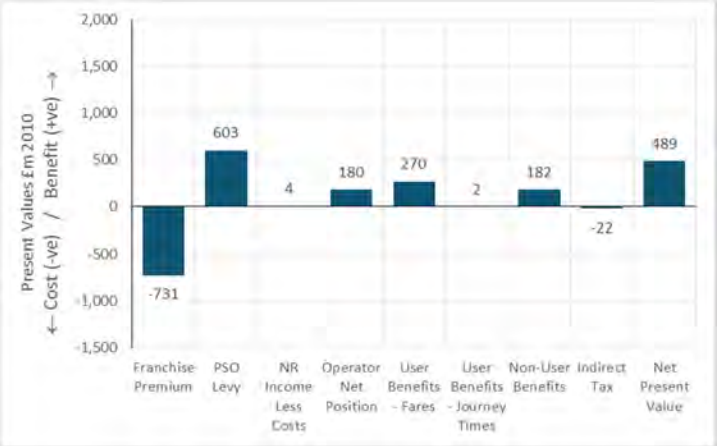



**Table 40 – Economic Appraisal: Option 1 East Coast Main Line (£m 2010 Present Values)**

| | Low | Central | High |
|---|---|---|---|
| Premium | -966 | -731 | -499 |
| PSO Levy | 585 | 603 | 622 |
| Network Rail (Income less costs) | 4 | 4 | 4 |
| Net Impact on Government Funds | -377 | -123 | +128 |
| Private Operators | 55 | 180 | 283 |
| Users – Fares | 176 | 270 | 368 |
| Users – Journey Times | 2 | 2 | 2 |
| Non-Users (Benefits of reduced car use) | 144 | 182 | 221 |
| Indirect Tax | -17 | -22 | -27 |
| **Net Present Value** | **-17** | **489** | **975** |

**Figure 33 – Economic Appraisal: Option 1 West Coast Main Line (Central)**

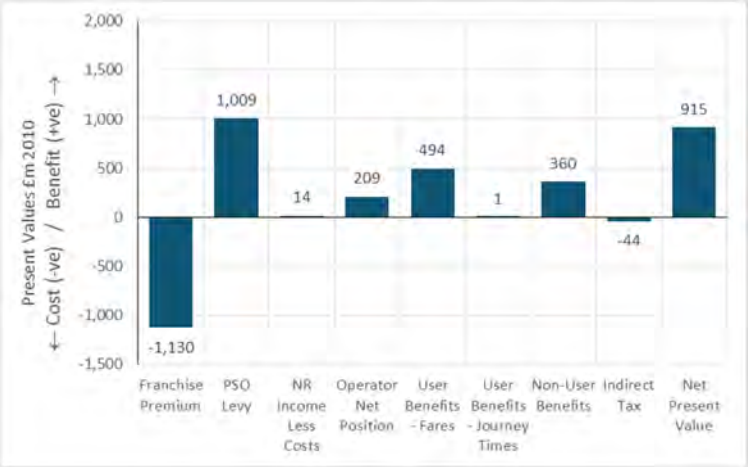



**Table 41 – Economic Appraisal: Option 1 West Coast Main Line (£m 2010 Present Values)**

| | Low | Central | High |
|---|---|---|---|
| Premium | -1,404 | -1,130 | -864 |
| PSO Levy | 990 | 1,009 | 1,029 |
| Network Rail (Income less costs) | 14 | 14 | 14 |
| Net Impact on Government Funds | -400 | -107 | +179 |
| Private Operators | -107 | 209 | 484 |
| Users – Fares | 324 | 494 | 671 |
| Users – Journey Times | 1 | 1 | 1 |
| Non-Users (Benefits of reduced car use) | 282 | 360 | 438 |
| Indirect Tax | -34 | -44 | -53 |
| **Net Present Value** | **66** | **915** | **1,720** |

**Figure 34 – Economic Appraisal: Option 1 Great Western Main Line (Central)**

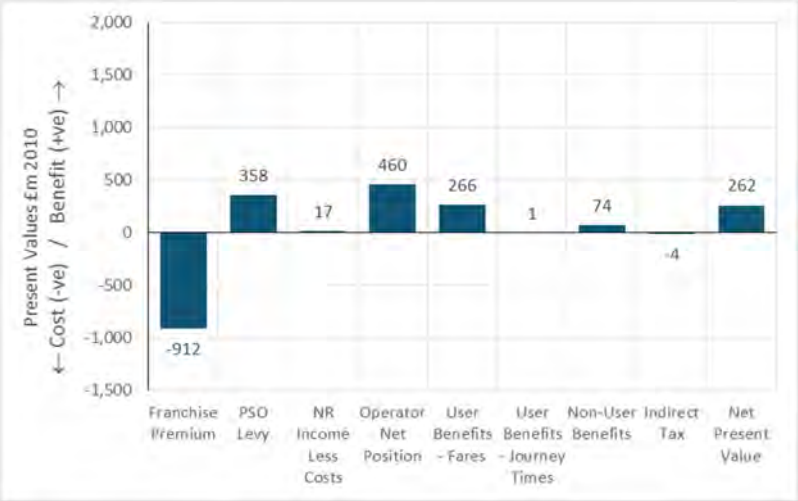



**Table 42 – Economic Appraisal: Option 1 Great Western Main Line (£m 2010 Present Values)**

| | Low | Central | High |
|---|---|---|---|
| Premium | -1,242 | -912 | -585 |
| PSO Levy | 352 | 358 | 365 |
| Network Rail (Income less costs) | 17 | 17 | 17 |
| Net Impact on Government Funds | -873 | -536 | -202 |
| Private Operators | 398 | 460 | 508 |
| Users – Fares | 175 | 266 | 360 |
| Users – Journey Times | 1 | 1 | 1 |
| Non-Users (Benefits of reduced car use) | 50 | 74 | 97 |
| Indirect Tax | -1 | -4 | -6 |
| **Net Present Value** | **-250** | **262** | **758** |

### 8.5.2 Option 2

For the East Coast Main Line, the benefits to users of lower fares are of a broadly similar magnitude for Option 2 as for Option 1. In the central case, the benefits of lower fares are between £229m and £347m in present value terms (2010 prices) for Options 2a and 2b respectively, compared with £270m for Option 1. Whilst the assumed reduction in average yields is lower under Option 2 than for Option 1, Option 2 creates competition across a wider range of flows such that the overall effect on franchise average yields is similar.

For the West Coast Main Line, the user benefits for Option 2 are lower than for Option 1. This reflects the much more significant shift from franchise to open access operations under Option 1.

For each of the Option 2 scenarios, the impact on franchise premium payments is much lower than for Option 1. However, because of the offsetting effect of the

PSO levy, Option 2 actually reduces Government funds by a larger amount than for Option 1. It should be noted that this result is highly sensitive to the specific approach taken to the design of the PSO levy.

Overall, Option 2 delivers net economic benefits under the central case assumptions although, for both the East and West Coast Main Line scenarios, the benefits are not as large as for Option 1. This would lead us to conclude that Option 2 is likely to deliver an overall improvement in welfare, although it is also interesting to note that, applying more conservative assumptions for changes in yields and operator efficiency results in an overall negative economic appraisal result.

As noted, the differences between the modelling outputs for the asymmetric and symmetric versions of Option 2 are explained more by the geographical extent of competition than the nuances of competition between more or less profitable franchise operators. The differences between the results for Option 2a and 2b should therefore be interpreted with caution.

**Figure 35 – Economic Appraisal: Option 2a (Asymmetric) East Coast Main Line (Central)**

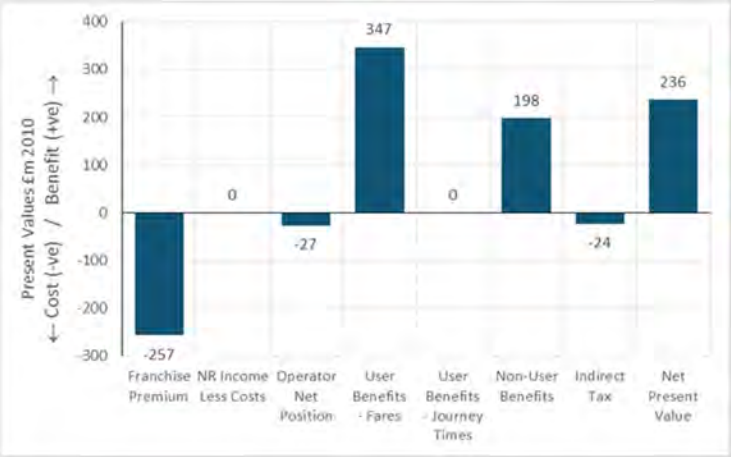



**Figure 36 - Economic Appraisal: Option 2b (Symmetric) East Coast Main Line (Central)**

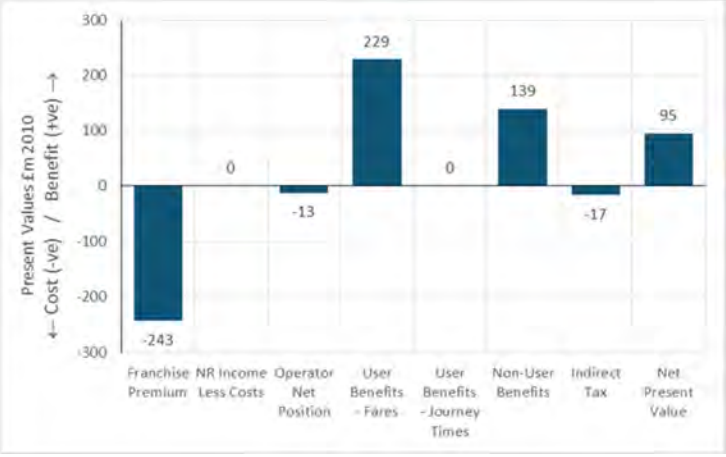


**Table 43 - Economic Appraisal: Option 2 East Coast Main Line**

| | Asymmetric | | | Symmetric | | |
|---|---|---|---|---|---|---|
| | **Low** | **Central** | **High** | **Low** | **Central** | **High** |
| Premium | -484 | -257 | -40 | -462 | -243 | -33 |
| Network Rail (Income less costs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Impact on Government Funds | -484 | -257 | -40 | -462 | -243 | -33 |
| Private Operators | -18 | -27 | -37 | -9 | -13 | -18 |
| Users – Fares | 229 | 347 | 466 | 152 | 229 | 307 |
| Users – Journey Times | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Users (Benefits of reduced car use) | 131 | 198 | 266 | 92 | 139 | 187 |
| Indirect Tax | -16 | -24 | -32 | -11 | -17 | -23 |
| **Net Present Value** | **-157** | **236** | **622** | **-237** | **95** | **420** |

**Figure 37 - Economic Appraisal: Option 2a (Asymmetric) West Coast Main Line (Central)**

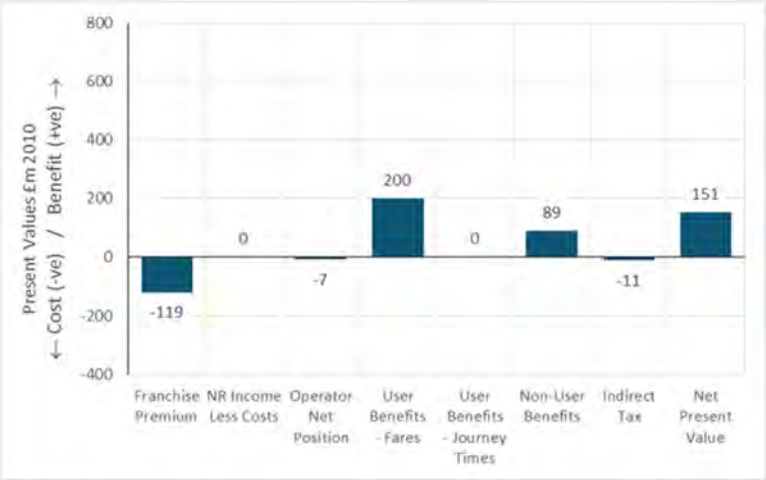



**Figure 38 - Economic Appraisal: Option 2a (Asymmetric) West Coast Main Line (Central)**

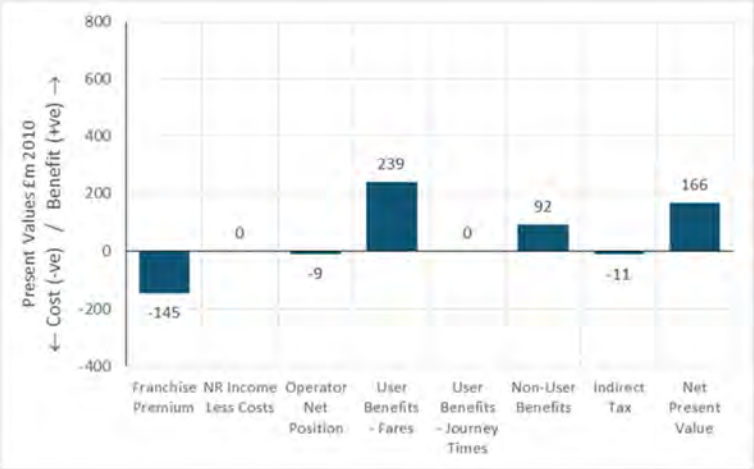


**Table 44 - Economic Appraisal: Option 2 West Coast Main Line**

| | Asymmetric | | | Symmetric | | |
|---|---|---|---|---|---|---|
| | **Low** | **Central** | **High** | **Low** | **Central** | **High** |
| Premium | -375 | -119 | +129 | -203 | -145 | +89 |
| Network Rail (Income less costs) | 0 | 0 | 0 | 0 | 0 | 0 |
| Net Impact on Government Funds | -375 | -119 | +129 | -203 | -145 | +89 |
| Private Operators | -5 | -7 | -10 | -6 | -9 | -12 |
| Users – Fares | 132 | 200 | 268 | 159 | 239 | 321 |
| Users – Journey Times | 0 | 0 | 0 | 0 | 0 | 0 |
| Non-Users (Benefits of reduced car use) | 59 | 89 | 119 | 61 | 92 | 123 |
| Indirect Tax | -7 | -11 | -14 | -7 | -11 | -15 |
| **Net Present Value** | **-195** | **151** | **492** | **4** | **166** | **505** |

### 8.5.3 Option 3

Finally, the results of the economic appraisal of Option 3 are shown in Figure 28 and Table 45. The benefits of competition to users, and the impact on Government funds are an order of magnitude lower for Option 3 than for Option 2. Clearly it would be possible to construct a scenario in which the degree of overlap between two franchises under Option 3 is much more extensive than is the case here and such a scenario would deliver a larger impact. Although it could be argued that this would result in Option 3 effectively merging into Option 2.

As for Option 2, Option 3 shows a positive net present value under the central and high cases, but a negative net present value under the low case assumptions.

**Figure 39 – Economic Appraisal: Option 3 Great Western Main Line (Central)**

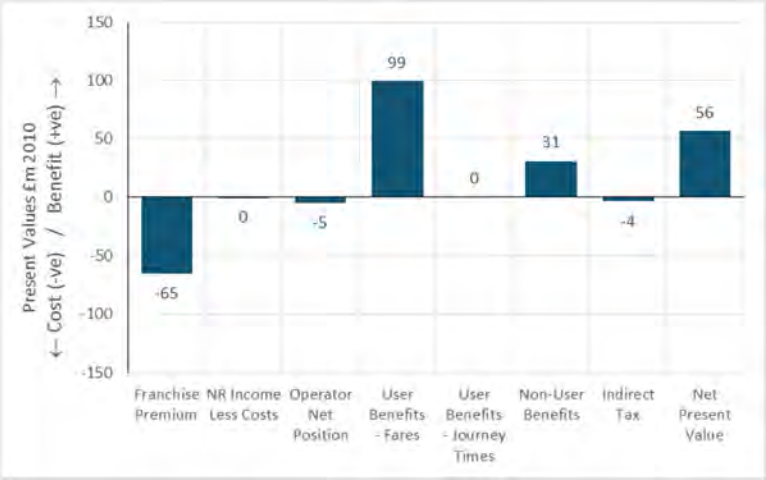


**Table 45 - Economic Appraisal: Option 3 Great Western Main Line**

| | Low | Central | High |
|---|---|---|---|
| Premium | -199 | -65 | +66 |
| Network Rail (Income less costs) | 0 | 0 | 0 |
| Net Impact on Government Funds | -199 | -65 | +66 |
| Private Operators | -3 | -5 | -6 |
| Users – Fares | 66 | 99 | 133 |
| Users – Journey Times | 0 | 0 | 0 |
| Non-Users (Benefits of reduced car use) | 21 | 31 | 41 |
| Indirect Tax | -2 | -4 | -5 |
| **Net Present Value** | **-118** | **56** | **228** |

# 9 Overall Impact Assessment

## 9.1 Assessment Criteria

This Chapter provides an assessment of the overall impacts of each of the CMA's options for increasing on-rail competition. The overall assessment draws on the results of the quantitative impact assessment but also considers the range of impacts and risks that are not reflected in the quantitative results. The assessment considers the following impacts:

- Impacts on passenger outcomes: the prices charged for passenger rail travel; and the product offered in terms of level of service and capacity, and quality of service.
- Meeting social objectives: taken from recent DfT franchise consultations, this covers: the ability of local communities to deliver integrated transport, regeneration and investment; improving social and environmental sustainability; and maintaining or improving accessibility.
- Wider benefits and externalities: covers the ability of the rail network to facilitate economic growth and induce modal shift from cars.
- Impacts on industry costs and efficiency: split by the effects on Network Rail and operators.
- Impacts on rail industry funding and affordability: covering the impact on the industry funders; and the risks to the financial flows to those funders.

## 9.2 Option 1

### 9.2.1 Impacts on Passenger Outcomes

**Price**

The increased presence of OAOs would be likely to create competitive pressure, leading to OAO and franchised operators competing on price, resulting in a reduction in fares for passengers at the market level. The experience on the GB rail network thus far of OAO activity is that they tend to compete with the franchised operator on both price and quality to some extent; and that franchised operators have responded to this competition by reducing fares. In this assessment, we have assumed that there will be a broadly similar extent of price competition to that observed historically. There are, of course, a range of other plausible business models that could be employed by OAOs – such as low price, low quality operations, but these have not been modelled.

The modelling demonstrates that the impact of this option, in terms of benefits from greater competition, will depend on the amount of capacity that is allocated to OAOs – the benefits to passengers of lower fares are likely to be larger if OAOs are given a larger share of the market.

### Product – Level of Service and Capacity

Under Option 1, OAOs are likely to have more flexibility than the franchise operator to introduce timetable changes to maximise revenue. More OAOs could lead to innovations and improvements in dynamic efficiency as alternative station calls are made to better match supply to demand. Therefore, it should be considered that OAO entry could lead to an increase or a reduction in the level of service at individual stations. The key outcome is that the OAO would have incentives to dynamic matching of demand and supply, to avoid crowding, but also to ensure high capacity utilisation. This could be different from franchise provision, which is likely to require longer trains to be specified for the duration of a franchise, rather than gradually lengthening trains over its course as demand emerges.

The increase in the share of OAOs in the market due to reallocation of services from franchise operators may exert some pressure on Network Rail to maximise the utilisation of capacity and free up additional train paths, although the extent is likely to be limited given the relatively small size of the OAOs compared with the overall franchised market. For example, Grand Central Rail raised capacity questions that led to Network Rail identifying additional capacity, which led to Grand Central Rail launching its service from London to Sunderland. However, such opportunities may be limited and it is difficult to draw general conclusions from this example as the actual availability of capacity on each route will be dependent on a number of factors (including network geography and capacity, mix of rolling stock operating and station calling patterns).

### Product – Quality

As noted, as for capacity and performance, impacts on product quality have been excluded from the quantitative analysis. In general, it is expected that increase in on-rail competition will create incentives for both operators to improve the quality of their product in order to maximise market shares. In this respect it is notable that OAOs in Britain have exhibited some of the highest levels of customer satisfaction in the industry.

On balance we would conclude that OAO entry is likely to improve quality, although this is not assured. Whilst OAOs would be incentivised to differentiate themselves from the franchise, it may be that the OAO chooses to trade-off quality against providing lower fares. Therefore, the OAO may choose to employ fewer staff or deploy lower cost rolling stock in order to minimise costs and reduce price. In this case, service quality may decline. Although, given that the OAO will only reduce quality if it expects to generate higher revenue, this would signal that passengers are willing to forego quality for lower fares.

### Product – Performance

As noted in the operational review, it is considered that Option 1 may have slight adverse impacts on performance reliability by introducing multiple operators to a route, having the effect of increasing complexity and making it more challenging to recover from perturbation. These adverse impacts for passengers need to be considered alongside the benefits of lower fares and/or improved quality.

### 9.2.2 Meeting Social Objectives

As noted, the effect of OAO entry may be to reduce service frequency at individual stations compared to the 'do minimum' case. This may conflict with Government objectives to provide minimum levels of service. Through the franchise specification, Government is able to ensure that trains operate at non-commercial times of day and that sufficient capacity is provided to cater for demand at peak times, even if this results in higher overall costs. The OAO may choose to reduce frequencies outside peak periods or to decrease the frequency of calls at stations with lower patronage. There may also be economic and social benefits for particular communities of ensuring minimum stopping frequencies for particular stations. Whichever the outcome, it is important to consider that Government would retain the ability to provide minimum service levels through the remaining franchised train paths, albeit with potentially less operational flexibility than under the current arrangements. Therefore, it is reasonable to conclude that the importance of this issue will depend on the design on option 1 and the nature and scale of OAO entry that is permitted.

### 9.2.3 Wider Benefits and Externalities

It is expected that Option 1, primarily through lower fares, will lead to an overall increase in rail demand. The quantitative analysis demonstrates that a shift from car travel to rail travel delivers a range of external benefits including decongestion effects, reduced accident rates, lower greenhouse gas emissions, and reduced noise and air quality impacts.

Although such benefits are difficult to quantify with accuracy, applying default rates provided in WebTAG guidance on transport appraisal suggests that these benefits are non-trivial relative to other impacts which are modelled here.

The wider economic benefits of Option 1 are difficult to predict. In general, it is expected that the reduction in fares would, in effect, reduce transaction costs, which may deliver productivity gains which are additional to the direct 'user benefits'. Although it is arguable that business travellers and, to a lesser degree commuters, will be relatively insensitive to changes in fare.

At a local level, Option 1 could have a positive or negative economic impact, depending on whether the profit maximising response is to increase or reduce service frequency, although the experience of OAOs to date highlights the potential for OAOs provide new connections to previously poorly connected stations.

### 9.2.4 Impacts on Industry Costs and Efficiency

**Operators**

The OAO is likely to be more efficient than the franchise operator that it replaces, both because of the incentives it faces and because OAOs, unconstrained by franchise specifications, are likely to have a more agile business model which allows them to achieve lower costs than franchise operators.

Franchise operators are already incentivised to minimise operating costs and therefore the extent to which there is scope for increased competition to deliver further efficiencies is contentious. However, whilst franchised operators would still be constrained by franchise specifications, the introduction of a new form of competition could strengthen their incentives to achieve efficiency gains. In addition, there may be efficiency gains where the OAO introduces alternative working practices which the franchise operator could adopt (subject to the constraints of the franchise agreement and any agreements with trade unions).

As noted in Chapter 4, the econometric study undertaken by Wheat and Smith (2015) concluded that the cost disadvantages of sub-optimal density appear to be more than offset by the efficiency advantages offered by OAOs being able to adopt a different business model although the effect on total industry costs is ambiguous. The quantitative analysis suggests that Option 1 would lead to lower industry costs in two scenarios modelled, but would increase costs in the third case.

**Network Rail**

OAOs are exposed to changes in track access charges levied by Network Rail, while franchise operators are held harmless from the effect of such changes. Therefore, by increasing the proportion of OAOs, it is possible that expenditure by Network Rail is subject to increased scrutiny given the link between expenditure and access charges. This may result in efficiency savings being made by Network Rail. Given the scale of Network Rail, a relatively marginal improvement in efficiency could deliver significant cost savings overall. However, the extent to which OAO entry would affect Network Rail's incentives is difficult to predict and therefore it is not possible to conclude with any certainty that Option 1 would lead to an improvement in Network Rail efficiency.

As set out in the legal and operational review, Network Rail may face higher operating costs in relation to the increased complexity of managing timetable change, although any such costs are likely to be small in the context of the overall appraisal.

### 9.2.5 Impacts on Rail Industry Funding and Affordability

**Impacts on Government Funds**

Franchise premiums would be very likely to reduce as a result of Option 1 and this is borne out in the quantitative assessment. The loss of premium is both the transfer of premium generating services from the franchise, as well as the 'second round' effects of fare competition on the market share of the franchise operator. The quantitative assessment shows that the size of the reduction in premium is likely to be approximately proportionate to scale of OAO entry into the market.

The overall impact of the loss of premium would be muted by a PSO levy. It is clear that designing a levy which balances the objectives of compensating Government and creating appropriate signals for OAO entry and exit will be challenging in practice and further detailed work would be required on the PSO levy before Option 1 could be pursued.

In determining the PSO levy for the purposes of this study, we have been in a privileged position of knowing (or to be more precise pre-determining) the level of franchise premium associated with the routes which are transferred to an OAO. In practice, even if disaggregated data were available, this situation is dynamic and therefore it would be difficult to estimate with precision.

**Risks and Uncertainty**

Setting the PSO levy too low would run the risk of increasing Government costs and resulting in OAOs generating excess profits. Setting the PSO levy too high may put at risk the commercial viability of OAOs, increasing the risks that OAOs may not fill the gap left by the franchise operator, or that the OAO may withdraw its services after a period of time.

Whilst there are clear risks to Government funds of Option 1 associated with the PSO levy, it should also be recognised that there are also significant risks to the franchise operator and to Government funds under the current arrangements

In the current situation, the entry of an OAO into the market can result in revenue abstraction without the offsetting effect of a PSO levy. In the short run, revenue abstraction will impact on premiums through revenue or profit sharing mechanisms under the franchise agreement. In the long term it would be reasonable to expect franchise bidders to 'price in' the uncertainties surrounding open access entry to the market.

Whilst the open access application process provides a mechanism for limiting such impacts, it could be argued that the 'Not Primarily Abstractive' test is less precise at predicting the loss of franchise revenue than a PSO levy. Furthermore, in a situation in which the capacity left over for OAO entry is relatively transparent, this may result in more rather than less certainty for franchise bidders.

On balance, given the much larger scale of OAO entry into the market and the downward pressure on fares, combined with the challenges of PSO levy design, it is considered that Option 1 would place Government funding at greater risk than in the status quo.

### 9.2.6 Summary

**Table 46 – Summary Assessment: Option 1**

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| Passenger Outcomes | Price | Increase in consumer surplus of:<br>£176m - £368m (ECML)<br>£324m - £671m (WCML)<br>£175 - £360m (GWML) | The increased presence of OAOs would be likely to create competitive pressure, leading to OAO and franchised operators competing on price, leading to a reduction in fares. |
| | Product | Increase in consumer surplus of £1m to £2m | OAOs will have more flexibility than franchised operators to match demand and supply, leading to improvements in dynamic efficiency within the constraints of the network infrastructure. |
| | Quality | N/A | OAOs will have more flexibility than franchised operators to match consumer preferences to their product offering. It is not possible to predict whether this will result in an increase in quality (with a higher price) or lower quality (at a lower price). The franchised operators will face an incentive to respond to this competition by either increasing quality, or lowering prices and quality. |
| Social Objectives | Support local communities to deliver transport integration, regeneration and investment | N/A | Option may result in less co-ordination, making it more difficult to deliver integrated transport. However, it is possible that increased OAO entry may result in more investment. |
| | Maintain or improve accessibility | N/A | There is likely to be an adverse effect on accessibility under this option as the increased level of OAO activity could result in certain stations receiving fewer train paths. However, this is likely to be offset to some degree by an increase in accessibility to the areas in which the OAO operates and where it identifies new markets. If service levels are expected fall below minimum required levels, the franchise operator could be required to make up any shortfall through the franchise specification. |
| Wider Benefits and Externalities | Deliver economic growth | N/A | Option is likely to support economic growth through lower transport costs for users, reducing the cost of economic interactions. |

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| | Induce modal shift from car travel | N/A | Option will have a positive impact on modal shift from the car through lower fares and better matching of products to consumer preferences. |
| Industry Costs and Efficiency | Operators | Change in Industry Costs of:<br>-£486m to +£32m (ECML)<br>-£803m to +£50m (WCML)<br>-£603m to +£31m (GWML) | This option is likely to deliver an overall improvement in industry efficiency although this outcome is not assured in all circumstances. |
| | Network Rail | N/A | This option may result in increased efficiency of Network Rail, but due to the contractual structures in the industry not competition. As OAOs are exposed to changes in access charges, while franchised operators are not, OAOs have a much stronger incentive than franchised operators to engage with the Network Rail to reduce costs. Network Rail may face higher costs due to increased timetable complexity. |
| Industry Funding and Affordability | Impacts on government funds | Impact on Government Funds of:<br>-£381m to +£124m (ECML)<br>-£414m to +£165m (WCML)<br>-£891m to -£220m (GWML) | The effect of Option 1 would be to reduce franchise premiums relative to the 'do minimum'. However, the overall effect on Government funds will depend on the design of the PSO levy which, in practice, may over or under-compensate Government for the loss of premium income. |
| | Risk and uncertainty | N/A | This option is likely to increase the risk to government funds. The greater uncertainty associated with competition compared with monopoly provision is likely to result in an increase in the risk of unanticipated calls on government funds in this option. |

## 9.3 Option 2

### 9.3.1 Impacts on Passenger Outcomes

**Price**

Direct competition on routes between franchise operators would lead to competitive pressure on prices. The reduction in fares that results from competition between two franchises may be lower than for the entry of an OAO into the market because franchise operators will have less flexibility than OAOs to reduce their costs. However, the quantitative analysis demonstrates that it is possible to configure Option 2 to create widespread competition across a route. In this case, Option 2 may deliver benefits to passengers of a similar magnitude to Option 1.

Of the two sub-options considered here, the competition between two broadly equal franchises (in respect to service frequency and profitability) is likely to bring the greatest benefits from increased competition. Under an asymmetric model, with operators servicing more distinct markets, operators are likely to have less incentives to compete on fares. However, two equal franchises also introduces the greatest risk of tacit collusion occurring. This would reduce the benefits under this option as the predicted price reductions may not occur if the operators collude. As for Option 1, the greater the extent of competition created, the higher the overall benefits to users that results.

**Product – Level of Service and Capacity**

In general it is not expected that this Option would have a significant impact on the levels of service provided by the operators. Each operator would provide the level of service required under the franchise specification as in the current situation.

**Product – Quality**

As for Option 1, as a result of direct competition with another operator, franchise operators will also have greater incentives than under the status quo to invest in the quality of their services in order to secure market share whilst also growing the overall market. Although, under Option 2, the extent to which the operators have the flexibility to innovate on service quality will depend on the degree of prescription in the franchise specification.

Where they are not constrained by the franchise specification, the most likely outcome is an improvement in quality. However, as for Option 1, the profit maximising approach may be to trade off quality against cost and lower fares. Therefore an improvement in quality is not guaranteed. It may be the case that one of the two operators pursues a high quality – high cost strategy, whilst the other pursues a ‘no frills’ approach.

The key difference between Option 1 and 2 is that, under Option 2, the franchise specification provides a means by which Government can set minimum standards for quality.

**Product – Performance**

Minor adverse impacts on performance may result from Option 2 as a result of having multiple operators on a route. However, this is a situation which exists today and is managed through established processes. Arguably, managing multiple operators is less challenging when both operators are franchised given that conflicts between two operator's proposals can be resolved at bid stage.

### 9.3.2 Meeting Social Objectives

Under Option 2, both operators would be franchised such that Government would have the same ability to provide minimum levels of service to deliver economic and social benefits as they would in the current situation.

### 9.3.3 Wider Benefits and Externalities

Lower fares will result in an overall increase in rail demand and a reduction in car use which will deliver a range of economic and environmental benefits. The extent of such benefits will depend on the scale of the benefits of competition that result.

By reducing the cost of travel, Option 2 may be associated with wider economic benefits through lower fares. However, this option will result in a train timetable similar to the 'do minimum' scenario and therefore wider economic benefits are likely to be of relatively minor significance.

### 9.3.4 Impacts on Industry Costs and Efficiency

**Operators**

The incentives to improve efficiency will be greater with Option 2 than for the status quo. However, efficiency is still constrained by franchise specifications for both operators. Given that the majority of services would still be operated by franchise operators, franchise specifications and TUPE rules may still limit the scope of potential operating cost savings in comparison to Option 1. As noted above, the precise benefits of this option will depend on the extent to which the DfT specifies the franchises.

The quantitative analysis illustrates that the impact of Option 2 on overall industry efficiency may be positive or negative. A loss of economies of density that results from sub-dividing a larger operator into two smaller operations will have a negative impact on efficiency. This may or may not be offset by the efficiency gains that result from greater competition although the magnitude of both these effects is difficult to predict with accuracy.

**Network Rail**

Assuming that the DfT does not expose operators to mid-franchise changes in access charges, then Option 2 will have limited or no effects on Network Rail's behaviour. Network Rail will face a small increase in costs from having to deal with more operators.

### 9.3.5 Impacts on Rail Industry Funding and Affordability

**Impacts on Government Funds**

To the extent that operators are able to predict the effect of competition at bid stage, Option 2 is likely to result in lower franchise premiums overall as a result of price competition. In some circumstances a loss of efficiency may further reduce the profitability of a franchise although, as noted, the net effect on operating costs of Option 2 may be positive or negative.

The extent of the reduction in franchise premium will depend on the extent to which direct competition between operators is created through this option. For this reason, (assuming no tacit collusion) having two equal franchises competing directly is likely to have a larger impact on franchise premium. Retaining an anchor franchise and a profitable franchise is likely to significantly reduce the potential impacts on Government funds. Importantly, to a much greater extent than for Option 1, Government would be able to control the outcome in the way that service are divided between operators.

Under Option 2, although the operators may share some of the pain, the loss of profitability of the franchise would be largely passed on to Government through lower premiums, without the offsetting effect of a PSO levy. Therefore the impact on Government funds of Option 2 could be higher than for Option 1.

Expanding the number of franchise operators may also result in higher costs of procurement for client bodies, although this is likely to be of second order significance when compared to the effect on premium income.

**Risks and Uncertainty**

Option 2 is likely to have more limited implications with regard to risks to public funds than Option 1. Unlike Option 1, where both operators are franchised such that the abstraction of market share from one operator to another would have a neutral effect on the total franchised market share

However, the effects of on-rail competition will make it more difficult to predict franchise income and profitability. Exposing operators to increased commercial risk may increase the prospects for operator default, although operators will be aware of the competition they will face at bid stage which will limit this risk

### 9.3.6 Summary

**Table 47 – Summary Assessment: Option 2**

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| Passenger Outcomes | Price | Increase in consumer surplus of:<br>£152m to £466m (ECML)<br>£132m to £321m (WCML) | Direct competition between operators would be likely to lead to reductions in average fares. |
| | Product | N/A | No significant impacts expected. |
| | Quality | N/A | Product quality is likely to change to better match consumer preferences, but to a lesser degree than Option 1 given the constraints of the franchise specifications. |
| Social Objectives | Support local communities to deliver transport integration, regeneration and investment | N/A | The option is unlikely to have a material effect in this area – it increases the number of operators slightly, but does not fundamentally effect the incentives on those operators. |
| | Maintain or improve accessibility | N/A | No significant impacts expected. Having more franchise operators does not affect the government's ability to specify minimum service patterns for each franchise, and it seems likely that the service patterns would remain similar between 'do minimum' and 'do something'. |
| Wider Benefits and Externalities | Deliver economic growth | N/A | Likely to have slight positive economic impacts through lower transport costs. |
| | Induce modal shift from car travel | N/A | Option will have a positive impact on modal shift from the car, primarily as a result of lower fares. |
| Industry Costs and Efficiency | Operators | | The impact of this option on overall industry efficiency is ambiguous. |
| | Network Rail | N/A | This option is unlikely to materially affect the efficiency of Network Rail between the 'do minimum' and 'do something' scenarios. As the relationship between Network Rail and operators would be similar to today |

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| Industry Funding and Affordability | Impacts on government funds | | This Option is likely to reduce the premium paid to funders relative to the 'do minimum' due to the reductions in average fares. |
| | Risk and uncertainty | N/A | This option is likely to increase the risk to government funds compared to the 'do minimum', but to a lesser extent than Option 1. The greater uncertainty associated with competition compared with monopoly provision is likely to result in an increase in the risk of unanticipated calls on government funds in this option. However, as both operators will be subject to the restrictions of franchise agreements and have contracted premium payments to funders, the risk is limited to an increase in the risk of failure of a franchise–which is a low probability, but high impact event. |

## 9.4 Option 3

### 9.4.1 Impacts on Passenger Outcomes

**Price**

Competition on routes with overlapping franchises would lead to competitive pressure on these routes, which could lead to fare reductions and greater investment in quality. This conclusion is supported by the findings of Arup's 2009 research which suggested that, in instances where competition had been removed, fares had increased[68]. Given that the majority of services would still be operated by franchise operators, franchise specifications may still limit the scope of competition.

Option 3 is more likely to deliver competition benefits that are comparable to Option 2 and in many ways the two options are similar. However, the outcome is very much dependent on the extent of direct competition that is created through the redrawing of the franchise map. In general, it is expected that competition created through overlapping franchises will be more limited in extent than the competition created by splitting franchises into two. This is both because the overlaps may be limited in geographic extent but also because it is more likely to be the case that the franchises will serve differentiated markets. This is reflected in the scenario constructed for Option 3 which results in competition between 'express' and stopping services. As a result, the estimated benefits to users of lower fares is much less for Option 3 than for Option 2.

**Product – Level of Service and Capacity**

As for Option 2, it is not expected that Option 3 will have a significant impact on the levels of service provided by the operators. Each operator would provide the level of service required under the franchise specification as in the current situation.

**Product – Quality**

It is reasonable to expect that Option 3, by introducing greater levels of competition, will incentivise operators to compete on quality or to differentiate their product. However, it is typically the case that overlaps are not between operators with homogenous offers in any case. As for Option 2, the extent to which the operators have the flexibility to innovate on service quality will depend on the degree of prescription in the franchise specification.

**Product – Performance**

Minor adverse impacts on performance may result from Option 3 as a result of having multiple operators on a route, although the situation of having overlapping operators will not be very different to today.

[68] Arup (2009)

### 9.4.2 Meeting Social Objectives

As for Option 2, both operators would be franchised such that Government would have the same ability to provide minimum levels of service to deliver economic and social benefits as they would in the current situation.

### 9.4.3 Wider Benefits and Externalities

Lower fares will result in an overall increase in rail demand and a reduction in car use which will deliver a range of economic and environmental benefits. The extent of such benefits will depend on the scale of the benefits of competition that result. As for Option 2, Option 3 will result in a train timetable similar to the 'do minimum' scenario and therefore wider economic benefits are likely to be of relatively minor significance.

### 9.4.4 Impacts on Industry Costs and Efficiency

**Operators**

In a similar way to Option 2, the introduction of more intense on-rail competition would strengthen operator's incentives to improve efficiency although franchise operators will have limited flexibility to reduce costs. It is presumed that the creation of overlapping routes is likely to result in an overall fragmentation of the franchise map and a loss of economies of density. Therefore, the net effect of this option on industry efficiency may be positive or negative.

**Network Rail**

As for Option 2, assuming that the DfT does not expose franchise operators to changes in access charges, then this option will have very limited or no effects on Network Rail behaviour.

### 9.4.5 Impacts on Rail Industry Funding and Affordability

**Impacts on Government Funds**

As for Option 2, although the effect of lower fares would be partly offset by greater passenger numbers, the overall impact of increased competition will be a reduction in franchise premiums. As for Option 2 it would be reasonable to expect that the loss of franchise profitability will, at least in the long run, be passed on to Government in lower premium payments.

As above, the magnitude of the impact on Government funds will be proportional to the extent of competition created through franchise remapping. Importantly, to a large extent, Government would be able to control the outcome through the remapping process. The scenario employed to test Option 3 as part of this study resulted in a relatively slight reduction in premium when compared with Option 2, although should this be replicated across the network then the reduction in premium or increase in subsidy could be more significant.

### Risks and Uncertainty

As for Option 2, increased rail competition could increase the risks of higher funding requirements for Government, although the significance of these risks will be proportionate to the extent of competition. In most circumstances the impact is likely to be relatively slight and, as above, Government would retain control over the extent of overlapping routes.

### 9.4.6 Summary

**Table 48 – Summary Assessment: Option 3**

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| Passenger Outcomes | Price | Increase in consumer surplus of: £66m to £133m (GWML) | Direct competition between operators would be likely to lead to reductions in average fares. The extent to which this is true will depend on the extent of competitive overlap. |
| | Product | N/A | No significant impacts identified. |
| | Quality | N/A | Product quality is likely to change to better match consumer preferences, but to a lesser degree than Option 1 given the constraints of the franchise specifications. |
| Social Objectives | Support local communities to deliver transport integration, regeneration and investment | N/A | The option is unlikely to have a material effect in this area – it increases the number of operators slightly, but does not fundamentally effect the incentives on those operators. |
| | Maintain or improve accessibility | N/A | No significant impacts expected. Having more franchise operators does not affect the government's ability to specify minimum service patterns for each franchise, and it seems likely that the service patterns would remain similar between 'do minimum' and 'do something'. |
| Wider Benefits and Externalities | Deliver economic growth | N/A | Likely to have slight positive economic impacts through lower transport costs. |
| | Induce modal shift from car travel | N/A | Option will have a positive impact on modal shift from the car, primarily as a result of lower fares. |
| Industry Costs and Efficiency | Operators | | The impact of this option on overall industry efficiency is ambiguous. |
| | Network Rail | N/A | This option is unlikely to materially affect the efficiency of Network Rail between the 'do minimum' and 'do something' scenarios. As the relationship between Network Rail and operators would be similar to today. |

| Impacts | | Quantitative Results (£m 2010 Present Value for 20 year appraisal period) | Assessment |
|---|---|---|---|
| Industry Funding and Affordability | Impacts on government funds | | This Option is likely to reduce the premium paid to funders relative to the 'do minimum' due to the reductions in average fares, although the extent of any impacts on funders will depend on the degree of overlap that results. |
| | Risk and uncertainty | N/A | This option is likely to increase the risk to government funds compared to the 'do minimum', but to a lesser extent than Option 1 or Option 2. The greater uncertainty associated with competition compared with monopoly provision is likely to result in an increase in the risk of unanticipated calls on government funds in this option. However, as both operators will be subject to the restrictions of franchise agreements and have contracted premium payments to funders, the risk is limited to an increase in the risk of failure of a franchise–which is a low probability, but high impact event. |

## 9.5 Option 4

### 9.5.1 Impacts on Passenger Outcomes

**Price**

Although not specifically modelled, this option is likely to lead to the largest increase in competition out of the four options as multiple operators would be competing on all or the majority of the flows, leading to significant benefits as operators compete on price. This requires the licenses to be designed and auctioned in such a way that results in competition across the route in question.

Minimum licensing conditions (e.g. minimum specifications regarding calling patterns, but no specification beyond this minimum by funders) would also create the strongest incentives for all operators to achieve efficiency gains compared to the other three options, which would provide further scope for lower fares.

As for the other options, Option 4 could be designed with a greater of lesser degree of competition and therefore the detailed approach to implementation will influence the overall benefits that are delivered.

**Product – Level of Service and Capacity**

The implications of Option 4 for levels of service and capacity will be highly dependent on the degree to which operators are required to provide minimum service levels under the license agreements. This Option would be most successful if the market were able to determine all but a minimum level of service (e.g. trains per hour from a specific station). Provided that operators are afforded a degree of flexibility under their licenses, operators will face similar incentives to an OAO to alter stopping patterns or service frequencies to better match supply to demand. This would have the effect of improving allocative efficiency and dynamic efficiency, while the OAO-type operators would have strong incentives to keep crowding to a minimum.

**Product – Quality**

By creating the most intense level of completion, Option 4 is also expected to create the strongest incentives for operators to differentiate their product and compete on quality. Option 4 would also provide the most scope and incentive for operators to differentiate their product and to introduce innovations in service quality to gain market share. Option 4 has the most scope to attract new operators to the UK rail market which may increase the likelihood of increased innovation. In a similar manner to an OAO, the licensed operators may choose divergent strategies, with some operators seeking to maximise market share by providing higher quality and others seeking to introduce a ‘no frills’ service. It is notable that low-cost models have emerged in the deregulated bus and air sectors but are not present in the rail sector in the UK. On balance it is expected that Option 4 would deliver an overall improvement in quality. As for Option 1, the emergence of a low cost, low grade model would presumably be a reflection of passenger preferences.

**Product – Performance**

As noted, multiple operators will increase risks to performance. Option 4 is considered to be feasible from an operational perspective although having multiple operators would pose greater risks to reliability than any of the other options and therefore the potential dis-benefits to passengers of less reliable services would need to be weighted up against the benefits of lower fares and improved quality.

### 9.5.2 Meeting Social Objectives

In its purest form, a system of licenses has the potential to conflict with the important economic and social role of the railway. In practice, to ensure minimum levels of service, operators will need to be obliged to operate services at non-commercial times, to provide a certain number of seats at critical points on the network and to ensure stations receive a minimum stopping pattern. As noted elsewhere in this report, it is considered that a system of administratively designed licenses is a more likely option than a trading based allocation, given the inherent difficulties of defining what services and stopping patterns are profitable or unprofitable. Specifically, this would involve auction packages of paths, where a licence requirement includes the need to provide minimum trains per hour from a set of stations along the route.

In theory, licenses could be designed in such a way that the resultant service is no worse than it is today under a system of franchises although, equally, more prescriptive licence conditions would put at risk some of the benefits of allowing market forces to shape services going forward. Achieving an appropriate balance between prescription and market forces would likely be a major determinant of the success or failure of this option.

### 9.5.3 Wider Benefits and Externalities

Lower fares will result in an overall increase in rail demand and a reduction in car use, which will deliver a range of economic and environmental benefits. The extent of such benefits will depend on the scale of the benefits of competition that result.

Through the mechanism outlined above, there may be knock on impacts of lower fares on the wider economy as a result of Option 4, although any benefits are likely to be of relatively minor significance.

### 9.5.4 Impacts on Industry Costs and Efficiency

**Operators**

Option 4 would create the strongest incentives for operators to reduce costs. As noted, franchise operators are already incentivised to minimise operating costs and therefore the extent to which there is scope for increased competition to deliver further efficiencies is contentious.

By moving away from franchise agreements, Option 4 also provides the greatest scope for operators to achieve improved efficiency through innovation. Furthermore, depending on how employee arrangements are dealt with under this option, there may be opportunities to develop new contractual arrangements.

Equally, by replacing a large franchise with a number of smaller operators, Option 4 also introduces higher risks of a loss of efficiency due to a loss of economies of density and/or scale.

The net effect of Option 4 is therefore ambiguous. However, on balance, provided that licenses are designed along logical operational grounds, it is tentatively concluded that Option 4 is likely to result in greater efficiency in the long term.

**Network Rail**

This option may significantly change the relationship between the operators and Network Rail – if the operators are exposed to changes in track access charges and have paid a significant amount for the paths, they will have a strong incentive to engage with Network Rail (or the regulatory process) to ensure it delivers the performance and enhancements it committed to in the most cost effective way.

As noted, Option 4 would also place a greater burden on Network Rail in its role as a system operator and an arbiter of the requirements of multiple operators. This may result in some increase in costs for Network Rail.

### 9.5.5 Impacts on Rail Industry Funding and Affordability

**Impacts on Government Funds**

The implications of Option 4 on industry funding are difficult to predict given that the precise auctioning arrangements and payment mechanisms are yet to be defined, but also because of the inherent nature of an auctioning system.

It is likely that funding for Network Rail would be obtained via the path auctions, which have the potential to generate considerable revenues upfront for Government/Network Rail, which may be seen as advantage of this option. Whether auctioning would be a more efficient means than a franchise competition of generating competition between operators, and minimising operator profit margins, is difficult to assess.

Overall, given the significant increase in on-rail competition that Option 4 could bring about, operators would be unable to extract monopoly rents to the same extent as a franchise operator. The effects of competition may be priced into the price of licenses such that the revenue from the auction would be less than the value of franchise premium payments.

**Risks and Uncertainty**

As noted, the current arrangements are not without risk for Government. The levels of premium offered by competing bidders on a particular franchise bid can vary significantly which suggests that franchise profitability is not necessarily easy to predict. Furthermore, the current arrangements for OAO entry into the market also places franchise premium at risk. However, on balance it is likely that

Option 4 would introduce a higher degree of risk given that it is likely to be less easy to predict the outcomes of an auctioning process than a franchise agreement.

Where services require subsidy or offer a marginal commercial return, Option 4 may increase the risks of default when compared with the current situation. However, it should also be recognised that, under Option 4, these risks would be spread over a number of operators and therefore Government would no longer be exposed to the risk of the failure of a franchise which operators all of the services on a particular route or network.

Should Option 4 be considered further, wide-ranging research and preparatory work would be required to design a system that is fit for purpose for the GB rail sector and the early conclusions of this review would need to be revisited based on a more detailed framework for this option.

### 9.5.6 Summary

**Table 49 – Summary Assessment: Option 4**

| Impacts | | Assessment |
|---|---|---|
| Passenger Outcomes | Price | Given the lack of a franchise agreement, there is likely to be substantial competition between operators on all elements of the product offering, including price. |
| | Product | Given the lack of a franchise agreement, there is likely to be substantial competition between operators on all elements of the product offering. The new OAOs will be heavily incentivised to match the level of service to the demand such that they cater for the demand: if one OAO does not, then assuming a significant overlap with another OAO, that OAO will (if it is profitable to do so). |
| | Quality | The operators would have strong incentives to match their product offering to consumer preferences, and the ability to amend their product to reflect these. These product offerings may be higher or lower quality, but are likely to be better matched to consumer preferences. |
| Social Objectives | Support local communities to deliver transport integration, regeneration and investment | The option may have a material effect in this area – by increasing the number of operators serving particular communities, it may make it harder to deliver integrated transport and regeneration. However, given the stronger incentives on the new operators to invest to grow the market it may result in increased investment in local areas. |
| | Maintain or improve accessibility | There is likely to be an adverse effect on accessibility in some locations and a positive effect on others under this option as the new operators focus on the most profitable parts of the network, although the degree will depend on the degree of specification of the licenses. |
| Wider Benefits and Externalities | Deliver economic growth | Option is likely to support economic growth through lower transport costs for users, reducing the cost of economic interactions. |
| | Induce modal shift from car travel | Option will have a positive impact on modal shift from the car through lower fares and better matching of products to consumer preferences. |
| Industry Costs and Efficiency | Operators | This option delivers strong incentives to operators to increase their efficiency and does not have a franchise specification to prevent that. Option 4 also introduces higher risks of a loss of efficiency due to a loss of economies of density and/or scale. The net effect of Option 4 is therefore ambiguous. |

| Impacts | | Assessment |
|---|---|---|
| | Network Rail | As the operators are likely to have paid significant sums for access to the rail network, and (we assume) are exposed to changes in Network Rail's costs, they have a strong incentive to engage with Network Rail to increase its efficiency. This would be particularly the case if there were separate units of Network Rail for each route. |
| Industry Funding and Affordability | Impacts on government funds | The effect is highly uncertain – as it depends on the differences between the premium paid and the funds raised by auctioning the paths. One key difference is that the funding would be raised up front through an auction, rather than over time as in the 'do minimum'. |
| | Risk and uncertainty | Risk increases in a number of dimensions, although reduces in others. In particular, the risk that an operator will cease operations increases and the government would need to be an operator of last resort; and the revenue from the rail industry accruing to the government would come in large periodic 'chunks', rather than being profiled over time. However, the impact of an operator failing would be less (on passengers, staff and funders) than is currently the case because the operator would be smaller than a franchised operator in the 'do minimum'. |

# Appendix A

Legal and Operational Review

# A1 Option 1 – Increased Open-Access Competition

**Table 50 – Legal and Operational Feasibility Assessment: Option 1**

| Topic | | Implications | Assessment |
|---|---|---|---|
| **Timescales and Complexity of Implementation** | **Implementation and Governance** | Option comprises a change to open access arrangements but existing system of franchising largely unchanged. Subject to legal issues discussed below, changes to charging arrangements could be instituted at the commencement of a Control Period. Changes to franchise specification could be made at the point of franchise change. Would require new charges to be designed and incorporated into the overall industry charging structure. | |
| | **Legal implications and requirements for legislation** | A contribution to FTAC is legally possible but changes would need to be undertaken as part of a periodic review so that those changes are made in the context of the charging scheme as a whole.<br>The PSO-levy would be a government imposed levy, distinct from the charges ORR establishes as part of the charging framework. It would therefore require primary legislation. EU legislation provides for a suitable levy but its imposition is discretionary. The current bundling of PSOs and non-PSOs poses challenges for the construction of a universal levy. | |
| **Network Capacity and Operational performance** | **Network Capacity** | Limited capacity for OAOs to operate additional services (based on current franchise specification) on high yield flows in and out of London, particularly due to platform capacity constraints at London termini. Some scope for OAOs on outer parts of the network although proposed FTAC/PSO arrangements may make these routes less attractive for OAOs. Therefore, a significant increase in OA operations likely to require some reduction in franchised paths. | |
| | **Operational control and performance** | All things being equal, an increase in the number of operators will increase risks to performance. Operators are required to work with Network Rail to develop contingency plans. This process would become more difficult with an increased number of operators. With a large operator it is possible to 'mix and match' within its overall resources to recover a service. This becomes more difficult with a larger number of smaller operators. This may increase performance risks and result in less reliable journeys for passengers which would need to be considered alongside benefits of competition for passengers. | |
| | **Rolling stock** | An increase in the number of operators will result in a higher overall requirement for maintenance spares which will result in some inefficiencies. However, more operators may have a marginal effect on the level of competition in the rolling stock market leading to reductions in overall rolling stock costs. Overall the effects are considered to be of marginal importance. | |

| Topic | | Implications | Assessment |
|---|---|---|---|
| | **Depots and stabling** | This option could place increased pressure on depot capacity, ultimately requiring more depots in the long term. Proliferation of different rolling stock fleets will increase the requirement for maintenance spares and different maintenance skills which may result in some inefficiencies. | |
| **Management of a multi-operator railway** | **Managing timetable change** | An increase in the number of operators will lead to some increase in complexity. Franchised services are specified in an inter-connected manner, taking into account the available capacity and capability. OA operators have less incentive to bid in a co-ordinated manner. This makes Network Rail's role as the co-ordinator of the timetable more challenging and costly. OAOs have proved to be workable although a more significant role for OAOs may result in extended timescales for timetable creation. | |
| | **Managing network change and strategic projects** | Franchised operators can be required by the DfT to accommodate network changes. Implementing changes mid-way through an OAOs track access agreement may result in increased complexity. Major rolling stock renewals – such as IEP – would be difficult to roll out across both franchised and OAOs. | |
| | **Station management** | Current station management arrangements could continue under this option. The franchised operator is likely to continue to be the Station Facility Owner (with the exception of Network Rail managed stations). | |
| **Overall Assessment** | Option will result in increased complexity which may result in higher costs for Network Rail and DfT to manage timetable change and strategic projects. Some adverse impacts on performance are expected. Although it is difficult to be precise about the magnitude of these effects, any negative impacts on the reliability of services would need to be considered alongside the benefits to passengers of increased competition. Further review of the legal implications of the PSO levy is required. | | |

# A2 Option 2 – Two franchise operators for each franchise

**Table 51 – Legal and Operational Feasibility Assessment: Option 2**

| Topic | | Implications | Assessment |
|---|---|---|---|
| **Timescales and Complexity of Implementation** | **Implementation and Governance** | Option 2 requires the DfT to undertake remapping exercise to generate competition whilst retaining operational integrity. This option would add a degree of complexity to the franchise procurement process. | |
| | **Legal implications and requirements for legislation** | No specific legal issues identified – Option 2 could be introduced within existing legal framework. | |
| **Network Capacity and Operational performance** | **Network Capacity** | Capacity allocated by Government through franchising process. Whilst there are constraints to total capacity, splitting franchises into two or more separate franchises is unlikely to result in significant capacity issues. Possible duplication of ancillary movements. | |
| | **Operational control and performance** | An increase in the number of operators will increase risks to performance. Operators are required to work with Network Rail to develop contingency plans. This process could become more difficult with an increased number of operators. With a large operator it is possible to 'mix and match' within its overall resources to recover a service. With two smaller operators endeavouring to recover two similar services, this will become more difficult, as they will have two separate (and smaller) pools of resources (trains, crews) with which to recover the service. | |
| | **Rolling stock** | An increase in the number of operators will result in a higher overall requirement for maintenance spares which will result in some inefficiencies. However, more operators may also improve competition in the rolling stock market leading to reductions in overall rolling stock costs.<br>Leasing or purchasing of fleets in smaller blocks may increase risks that trains will not be universally deployable after initial lease period. | |
| | **Depots and stabling** | This option could place increased pressure on depot capacity, ultimately requiring more depots in the long term. Proliferation of different rolling stock fleets will increase the requirement for maintenance spares and different maintenance skills which may result in some inefficiencies. | |
| | **Managing timetable change** | An increase in the number of operators will make co-ordination more complex although the implications of this option on the timescales and costs of timetable creation are likely to be minimal. | |

| Topic | | Implications | Assessment |
|---|---|---|---|
| **Management of a multi-operator railway** | **Managing network change and strategic projects** | Franchised operators can be required by the DfT to accommodate network changes. Under this option, network change can continue to be managed in this way. | |
| | **Station management** | Where there is an anchor franchise it is likely that current station management arrangements could continue. However, if franchises are of a broadly equal size, determining how station management responsibilities are divided between the operators may introduce some complexity and adverse incentives. | |
| **Overall Assessment** | Option has minor adverse implications for operational control and performance but can be delivered within current industry structures and practices. | | |

# A3 Option 3 – More overlapping franchises

**Table 52 – Legal and Operational Feasibility Assessment: Option 3**

| Topic | | Implications | Assessment |
|---|---|---|---|
| **Timescales and Complexity of Implementation** | **Implementation and Governance** | Option 3 requires franchise re-mapping which could be achieved at franchise renewal. Otherwise, existing system of franchising would be unchanged. May require transfer of services mid-franchise. | |
| | **Legal implications and requirements for legislation** | No specific legal issues identified – Option 3 could be introduced within existing legal framework. | |
| **Network capacity and operational performance** | **Network Capacity** | Capacity allocated by Government through franchising process. Unlikely to result in significant capacity issues provided services are reallocated to an alternative operator. Possible duplication of ancillary movements. | |
| | **Operational control and performance** | An increase in the number of operators will increase risks to performance. Operators are required to work with Network Rail to develop contingency plans. This process would become more difficult with an increased number of operators. With a large operator it is possible to 'mix and match' within its overall resources to recover a service. With a large operator, it is possible to "mix-and-match" within its resources to recover a service. With two smaller operators endeavouring to recover two similar services, this will become more difficult, as they will have two separate (and smaller) pools of resources (trains, crews) with which to recover the service. In all probability, there would be a worse overall service than if there was a single operator. | |
| | **Rolling stock** | An increase in the number of operators will result in a higher overall requirement for maintenance spares which will result in some inefficiencies. However, more operators may also improve competition in the rolling stock market leading to reductions in overall rolling stock costs. Leasing or purchasing of fleets in smaller blocks may increase risks that trains will not be universally deployable after initial lease period. | |
| | **Depots and stabling** | This option could place increased pressure on depot capacity, ultimately requiring more depots in the long term. Proliferation of different rolling stock fleets will increase the requirement for maintenance spares and different maintenance skills which may result in some inefficiencies. | |
| **Management of a multi-operator railway** | **Managing timetable change** | An increase in the number of operators will make co-ordination more complex although the implications of this option on the timescales and costs of timetable creation are likely to be minimal. In some cases, competing franchises may seek timetable changes to optimise revenue. Any resulting timetable disputes would require resources to resolve. | |
| | **Managing network change** | Franchised operators can be required by the DfT to accommodate network changes. Under this option, network change can continue to be managed in this way. | |

| Topic | | Implications | Assessment |
|---|---|---|---|
| | **and strategic projects** | | |
| | **Station management** | Current station management arrangements could continue under this option. The franchised operator which accounts for the majority of services from a station is likely to be the Station Facility Owner (with the exception of Network Rail managed stations). | |
| **Overall Assessment** | Option 3 amounts to some re-mapping of existing franchises. Whilst is may result in very minor adverse effects on performance it can be delivered within current industry structures and practices. | | |

# A4 Option 4 – Licensing multiple operators

**Table 53 – Legal and Operational Feasibility Assessment: Option 4**

| Topic | | Implications | Assessment |
|---|---|---|---|
| **Timescales and Complexity of Implementation** | **Implementation and Governance** | Option 4 would require a radical overhaul to the current system by replacing franchises, on part of the UK network, with a system of licensing. Licensed routes would need to include socially valuable services and place constraints on operators to ensure minimum acceptable levels of service continue to be provided. Balancing these needs with the objective of allowing market forces to optimise services would be challenging. New system of auctioning would need to be devised. If subsidy is required for certain routes it is unclear how the subsidy would be set.<br>This option would also require an overhaul of the current timetabling process and an increased emphasis on NR as system operator. | |
| | **Legal implications and requirements for legislation** | Option 4 requires an amendment to the 1993 Railways Act – option creates a distinction between Network Rail as system operator and Network Rail as network operator.<br>The EU operates a parallel system of train licensing. The Recast Directive has removed explicit permission for member states to have their own, additional, domestic system of licensing. A licensing system of the complexity set out in the CMA's description of Option 4 may raise concerns for the Commission. | |
| **Network capacity and operational performance** | **Network Capacity** | Capacity would be allocated based on the auctioned licenses. Licences would need to have sufficient specificity to enable a timetable to be created and paths allocated to operators. The higher the degree of specificity, the lesser the autonomy of operators which would limit the benefits of this option. | |
| | **Operational control and performance** | An increase in the number of operators will increase risks to performance. Operators are required to work with Network Rail to develop contingency plans. This process would become more difficult with an increased number of operators. With a large operator it is possible to 'mix and match' within its overall resources to recover a service. With a large operator, it is possible to "mix-and-match" within its resources to recover a service. With a number of smaller operators, the ability to recover a service will be more challenging, resulting in significant risks to performance. | |
| | **Rolling stock** | An increase in the number of operators will result in a higher overall requirement for maintenance spares which will result in some inefficiencies. However, more operators may also improve competition in the rolling stock market leading to reductions in overall rolling stock costs.<br>Licensed operators may pose a more significant risk for ROSCOs or other rolling stock funders due to the length of rolling stock lease that could be offered. Requiring licensed operators to provide new rolling stock may have cost implications that would make licenses less attractive. | |

| Topic | | Implications | Assessment |
|---|---|---|---|
| | **Depots and stabling** | This option could place increased pressure on depot capacity, ultimately requiring more depots in the long term. Proliferation of different rolling stock fleets will increase the requirement for maintenance spares and different maintenance skills which may result in some inefficiencies. | |
| **Management of a multi-operator railway** | **Managing timetable change** | Introducing timetable change midway through licence periods would be potentially complex and problematic. Timetables would need to be effectively co-ordinated by Network Rail given possibility of numerous operators. Option has the potential to significantly increase the likelihood of disputes and appeals. | |
| | **Managing network change and strategic projects** | Managing change is likely to be significantly more complex under this option. Any changes introduced midway through an operator's licence period may be subject to challenge and may be difficult to agree. All licences would have to be reviewed simultaneously to permit co-ordination with major project change dates. Such a system may not provide sufficient flexibility to deal with unanticipated changes in projects or project timescales. An increased role for Network Rail as a system operator would help to mitigate these issues. | |
| | **Station management** | Station management responsibilities could be a requirement under an operator's licence. Where there are multiple operators calling at a station, determining which operator should be the Station Facility Owner will be more challenging. This option makes it more likely that alternative station management arrangements will be requited with third-party management of stations served by multiple licence holders. | |
| **Overall Assessment** | Option 4 requires a major overhaul and replacement of the current system of franchises. Potential legal challenges to implementation have been identified and further work would be required to establish the feasibility of the option from a legal standpoint. The means of allocating capacity and ensuring minimum levels of service may result in licences becoming more prescriptive – putting at risk the stated benefits of this option. A system of licences would greatly increase the complexity of timetable change and delivery of major projects. | | |

# Appendix B

Initial Review of Incentives and Behaviours

# B1 Current Arrangements

**Table 54 – Initial Review of Incentives and Behaviours: Status Quo**

| Behaviours | Franchisee | Alternative Open Access Operator (OAO) |
|---|---|---|
| Key driver | Profit depends on being able to meet and beat the franchise bid in terms of revenue, average fare or costs. | Profit depends on maximising revenue and utilisation of fleet and paths (subject to ORCATS rules and availability of paths); including identifying new direct routes to London, while minimising costs. Operator may need to take part in auction/allocation process to win paths (if more than one interested OA operator—e.g. East Coast Mainline). Operators are also subject to passing the NPA (not primarily abstractive) test. |
| Temporal perspective | Until the end of the franchise, although the operator may also have a good chance of success at the next franchise bid if its performance during the franchise is viewed positively by DfT. | To end of path allocation, or beyond if keen to remain operating. |
| Geographic perspective | Constrained by franchise specification. | Incentivised to consider alternative station calls to match supply to demand. |
| Product perspective | Will invest in quality depending on scoring of franchise bid and seek to maximise revenue or minimise costs, subject to franchise agreement and length. | Will match quality to customer requirements, to the extent it is profitable over the long-term. |
| Legacy costs | TUPE arrangements and historic/specified rolling stock fleet, with some exceptions. | Flexibility in choosing staff, pay & conditions, and rolling stock. |
| Access charges | Pay FTAC and VTAC. Insulated against changes in charges, except EC4T. Limited incentives regarding Network Rail's behaviour—franchisees have little incentive to put pressure on Network Rail to create extra capacity (and use its resources more efficiently). | Pay VTAC, fully exposed to changes in access charges. |
| Facilities | Often manages stations and responsible for depots, allowing access to both for other operators. | Gains access to stations and depots via agreements with NR/franchisees. |
| Fares regulation | Often Lead Operator (when competing against alternative operator). Retails a range of inter-available and own-operator products. | Subject to behaviour of Lead Operator. Can price own-operator tickets up to the constraint from the relevant regulated product. |
| Form of competition | For the market. Strong incentives to increase fares. Efficiency constrained by franchise specification and weaker incentive to be efficient (compared to the OAO). Potential that franchisee may price differently on services that timetabled at similar time to the competing OAO. | In the market and for paths where there is more than one applicant. Trains operated provides access to revenues via ORCATS. Otherwise competing against franchisee and other modes to sell own-operator products. Incentives for efficiency and innovation (matching products to customers). |

# B2 Option 1

**Table 55 – Initial Review of Incentives and Behaviours: Option 1**

| Behaviours | Franchisee | Open Access Operator (OAO) |
|---|---|---|
| Key driver | Profit depends on being able to meet and beat the franchise bid in terms of revenue, average fare or costs. Will need to respond to increased competition on flows with competition from an OAO. The level of competition that the franchisee will face from an OAO should be more transparent and factored in the franchise bid. | Maximising revenue and utilisation of fleet and paths. Operator may need to take part in auction/allocation process to win paths (if more than one interested OAO). Operator may either be no longer subject to the NPA test or the percentage of abstraction would be increase. This may therefore be more emphasis on economic benefits of greater competition. However, If OAOs are given a significant proportion of a franchise, then the government may want more scrutiny of access applications, which could constrain the OAO. |
| Temporal perspective | Until the end of the franchise. | To end of path allocation – services would began after the expiry of existing franchise term. |
| Geographic perspective | Constrained by franchise specification. Proportion of services could be reduced and some allocated to OAOs (this may include some unprofitable services). Alternatively, additional capacity could be made available, which is allocated to OAOs so the coverage of the franchise remains largely unchanged | Incentivised to consider alternative station calls to match supply to demand. May operate on train paths that have been removed from the franchise specification (subject to profitability). OAO will maximise profit by choosing highest revenue routes/stopping pattern subject to operational constraints. May operate some unprofitable services if incentivised to do so as part of the OA auction/application process. |
| Product perspective | Will invest in quality depending on scoring of franchise bids, May also invest in quality to maximise revenue. Additional competition from OAOs could lead to greater investment in quality. | Will match quality to customer requirements to the extent this is profitable in the long-term. |
| Legacy costs | TUPE arrangements and historic/specified rolling stock fleet, with some exceptions. | Flexibility in choosing staff, pay & conditions, although this flexibility could be reduced if the OAO inherits a large proportion of the previous franchise. There may be flexibility in choosing rolling stock although it would depend on the proportion of the franchise that is allocated to the OAO. For example, the OAO could possibly inherit the franchise rolling stock if it was allocated a large proportion of the franchise. |
| Access charges | Pay FTAC and VTAC. Insulated against changes in charges, except for EC4T. Limited incentives regarding Network Rail's behaviour, unless | Pay VTAC plus FTAC (subject to the provisions of Regulation 2015/909) and/or levy (which could be introduced over time). This could replace the |

| Behaviours | Franchisee | Open Access Operator (OAO) |
|---|---|---|
| | driven by operational requirements. Potential weakening of incentives to control costs within the franchise period as OAO part-funding the USO. | need for the NPA test as OAOs would be allowed to abstract greater revenue but would need to contribute to filling the gap in funding that accrues from franchisees paying lower premiums (as a result of abstraction). Fully exposed to changes in access charges, which significantly increases the scale of risk for OAOs.<br><br>Evidence from the rail industry highlights that new entrants have incentives to put pressure on Network Rail to use capacity more efficiently (i.e. to accommodate new entry and to control costs). For example, Grand Central Rail raised capacity questions that led to Network Rail identifying additional capacity, which led to Grand Central Rail launching its service from London to York. |
| Facilities | Often manages stations and responsible for depots, allowing access to both for other operators. | Gains access to stations and depots via agreements with NR/franchisees. |
| Fares regulation | Often Lead Operator (when competing against alternative operator). Retails a range of inter-available and own-operator products (subject to constraints of regulated fares). | Subject to behaviour of Lead Operator. Can price own-operator tickets up to the constraint from the relevant regulated product. |
| Form of competition | For the market. Strong incentives to increase fares and increase rents. Efficiency constrained by franchise specification but competition leads to greater incentive to achieve any possible efficiency gains. | In the market and for paths. Trains operated provides access to revenues via ORCATS. Otherwise competing against franchisee and other modes to sell own-operator products. Incentives for efficiency and innovation (matching products to customers). |

# B3 Option 2

**Table 56 – Initial Review of Incentives and Behaviours: Option 2**

| Behaviours | Franchisee | Second franchised operator |
|---|---|---|
| Key driver | Profit depends on being able to meet and beat the franchise bid in terms of revenue, average fare or costs. | Same as main franchise. |
| Temporal perspective | Until the end of the franchise. | Until the end of the franchise. Franchise length would coincide with other franchisee's contract length. |
| Geographic perspective | Constrained by franchise specification. Depending on the sub-options:<br>• 50:50 split;<br>• asymmetric split (e.g. 60:40); or<br>• This franchisee would be the anchor franchise and be responsible for the vast majority of routes and public service obligations that are introduced. | Constrained by franchise specification. The second franchisee would be responsible for the remaining proportion of services. Depending on the sub-option adopted, this could vary between 50% to a small minority of services. |
| Product perspective | Will invest in quality depending on scoring of franchise bids. May also invest in quality to maximise revenue. Depending on extent of overlap and scope for substitution between franchisees, there would be an incentive to invest more in quality:<br>• the 50:50 sub-option would possibly lead to the greatest incentives to invest in quality due to this sub-option leading to the greatest level of competition<br>• the asymmetric split sub-option will also incentivise operators to invest in quality but possibly to a lesser extent than the 50:50 sub-option<br>• if this franchisee operates the anchor franchise then it may have less incentive to differentiate its product by investing quality as the operator may already be sufficiently different due to factors such as frequency | If this franchisee operates the minority franchise in the 'anchor franchise' sub-option, then it may still have an incentive to invest in quality in order to compensate for low frequency. Alternatively the franchise may consider to compete on prices rather than quality and offer a low quality but low cost service. |
| Legacy costs | TUPE arrangements and historic/specified rolling stock fleet, with some exceptions. | TUPE arrangements and historic/specified rolling stock fleet, with some exceptions. |
| Access charges | Pay FTAC and VTAC. Insulated against changes in charges, except for EC4T. Evidence from the rail industry highlights that competing | Pay FTAC and VTAC. Insulated against changes in charges, except for EC4T. If the third sub-option is chosen and the second franchise option |

| Behaviours | Franchisee | Second franchised operator |
|---|---|---|
| | franchises have incentives to put pressure on Network Rail to use capacity more efficiently (i.e. to accommodate new entry and to control costs). For example, Chiltern Railways undertook major upgrade work on the network in partnership with Network Rail, which was partly in response to faster and more frequent services launched by Virgin Trains. | only has a relatively small proportion of services then it may have a greater incentive to pressure Network Rail to use capacity more efficiently (than the anchor franchise operator). |
| Facilities | • Allocation may require a mechanism put in place to allocate stations across both franchises when there is no clear lead operator (e.g. in the 50:50 sub-option)<br>• Allocation may also possibly require a mechanism in the asymmetric split sub-option<br>• Likely to manage stations and be responsible for depots if the third sub-option is implemented and this operator is the anchor franchise. | May manage stations in the 50:50 sub-option or in the asymmetric split sub-option (if the operator runs enough services). Unlikely to managed stations in the 'anchor franchise' sub-option. |
| Fares regulation | May be Lead Operator (when competing against alternative operator with significantly smaller proportion of services). Retails a range of inter-available and own-operator products. | Subject to behaviour of Lead Operator (if the Lead Operator has significantly larger proportion of routes). Can price own-operator tickets up to the constraint from the relevant regulated product. Could be Lead Operator on some flows. |
| Form of competition | For the market and in the market. Strong incentives to increase fares, but balanced by requirements to grow patronage on competing flows, so may result in increased price competition on those flows.<br><br>The degree of competition would be dependent on the sub-option specified:<br>• If the two franchises are similar (e.g. 50:50 sub-option) then there is the possibility of extensive price competition but also tacit collusion<br>• If there is asymmetry then both operators would compete on a number of flows with differentiated products<br>Efficiency likely to be constrained by franchise specification but price competition could spur innovation and some efficiency gains. | Same as main franchise. |

# B4 Option 3

**Table 57 – Initial Review of Incentives and Behaviours: Option 3**

| Behaviours | Franchisee |
|---|---|
| Key driver | Profit depends on being able to meet and beat the franchise bid in terms of revenue, average fare or costs. Will need to respond to increased competition on flows overlapping franchises. The level of competition that the franchisee will face from other franchises should be transparent and factored in the franchise bid. |
| Temporal perspective | Until the end of the franchise. |
| Geographic perspective | Constrained by franchise specification. Specification of services will be altered to allow for a greater degree of overlap, which will require remapping work to be undertaken. Service pattern on overlapping route likely to be determined by DfT through franchise specification. |
| Product perspective | Will invest in quality depending on scoring of franchise bids, and to maximise revenue. Additional competition from overlapping franchisees could lead to greater investment in quality. |
| Legacy costs | TUPE arrangements and historic/specified rolling stock fleet, with some exceptions. |
| Access charges | Pay FTAC and VTAC. Insulated against changes in charges, except for EC4T. Limited incentives regarding Network Rail's behaviour, unless driven by operational requirements. |
| Facilities | Often manages stations and responsible for depots, allowing access to both for other operators. |
| Fares regulation | Depends whether Lead Operator or not in terms of proportion of services on competed routes. Retails a range of inter-available and own-operator products. |
| Form of competition | For the market and in the market. Strong incentives to increase fares and increase rents, but balanced by requirements to grow patronage on competing flows, so may result in increased price competition on those flows.<br><br>Efficiency less constrained by reduced franchise specification and price competition could spur innovation and some efficiency gains. |

# B5 Option 4

**Table 58 – Initial Review of Incentives and Behaviours: Option 4**

| Behaviours | Operator |
|---|---|
| Key driver | Profit depends on maximising utilisation of fleet and paths. The paths that the operator choses and/or is allocated will also determine revenues. The operator may need to take part in an auction process to win paths (if more than one interested OAO) and will also run some of the unprofitable routes, which will either be bundled with profitable routes or chosen by the operator (as part of the licensing specification). |
| Temporal perspective | To end of path allocation. Potential for a grandfathering situation. |
| Geographic perspective | Paths operated for the period of the licence. Operators will be able to consider purchasing track access for wide range of paths and will have a lot more scope to determine the network that it operates on compared to the current franchising system. A central authority would be required to identify and designate the unprofitable routes. |
| Product perspective | Will match quality to customer requirements. Operators would also need to run some unprofitable services as part of gaining licence to run premium services:<br>• Under sub-option a), each licence would include a number of unprofitable services that the operator would operate<br>• Under sub-option b), the operator would have to pick a certain 'number' of unprofitable services from a 'list', which is produced by a central authority. Unprofitable services can be traded between operators in the second sub-option. |
| Legacy costs | More flexibility in choosing staff, pay & conditions, and rolling stock. However, due to the removal of franchises there will be issues regarding TUPE arrangements and historic/specified rolling stock fleet, which may need to be addressed in the licences, which would reduce the OAOs flexibility. |
| Access charges | Pay VTAC plus FTAC and/or levy. Fully exposed to changes in access charges. Will place pressure on Network Rail's costs particularly if there is greater devolution to NR routes. There could also be incentives for operators to pressure Network Rail to create extra capacity in order to accommodate greater capacity within licences or to allow additional licences to be allocated to new entrants. |
| Facilities | Operators may still manage stations on routes that they operate. However, there may be a possibility that operators just gain access to stations and depots via agreements with NR. DfT, ORR or NR will need to address changes that need to be made to station interfaces (if/when the previous operator stops managing the station). |
| Fares regulation | Can price own-operator tickets up to the constraint from the relevant regulated product. Track access allocations likely to determine whether there is a Lead Operator or not. |
| Form of competition | In the market (once paths have been allocated competing operators). Trains operated provides access to revenues via ORCATS. Otherwise competing against other operators and other modes to sell own-operator products. Minimal licence conditions would create strong incentives for operators to improve efficiency and innovate (matching products to customers). |

| Behaviours | Operator |
|---|---|
| | The body in charge of the licensing would need to ensure that there was competition on all or the majority of the flows. This greater level of competition could lead to greater significant pressure on prices due to increased amount of direct competition. |

# B6 Implications for central authorities

**Table 59 – Initial Review of Incentives and Behaviours: Implications for Central Authorities**

| Option | Implications for central authorities |
|---|---|
| Option 1 – existing market structure, but significantly increased open access operations | • Lower franchise premiums, which would need to be addressed (e.g. through some form of levy).<br>• Less control of rail services due to reduced franchise specifications and increase in services operated by OAOs.<br>• ORR would possibly play a greater role in allocating paths to OAOs due to an increased number of the open access applications and the focus being on economic benefits rather than the NPA test. |
| Incentives and Behaviours: Option 2 – two franchisees for each franchise | • Increase in subsidy requirement if competition drives a considerable reduction in prices. This is most likely in the 50:50 split sub-option (assuming there is no tacit collusion). Passenger growth could partially offset this.<br>• The government retains full control of rail services through franchise specification although the specification of the option may mean that it has to split the franchises by a pre-defined proportion (e.g. 50:50 in the first sub-option). This will reduce the government's ability to determine the level of competition (unlike Option 3).<br>• There could also be increased costs/administration requirements due to coordinating a greater number of franchisees. |
| Incentives and Behaviours: Option 3 – more overlapping franchises | • Increased competition would lead to a reduction in franchise premiums although this is likely to be offset to some degree by greater passenger numbers.<br>• The government retains full control of rail services through franchise specification. The government can therefore determine where and when competition takes place, which would allow the government to have more control over achieving its policy objectives.<br>• Challenges involved with re-designing the franchise map and additional costs with coordinating a greater number of franchisees. |
| Option 4 – licensing multiple operators, subject to conditions (including public service obligations) | • No franchise premiums, which would need to be addressed (e.g. through some form of levy).<br>• There could also be increased costs/administration requirements to develop and run an allocation system for when multiple operators apply for the same access rights.<br>• There may be further and significant costs with the restructuring the GB rail system from a franchise based system to one using 'licences'. These costs could include developing the licence specification, consultation and dealing with legacy costs. |