



Centre on Regulation in Europe
Improving network industries regulation

Liberalisation of passenger rail services

Case Study - Britain

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1. Introduction

The reform of Britain's railways was the boldest of any railway reform anywhere in the world, resulting in the former vertically-integrated monopoly, British Rail, being dismantled with roughly one hundred new, private companies created in the process. In contrast to other countries, such as Sweden, it was also implemented quickly in the mid-1990s, starting with the creation of a totally separate infrastructure manager (separate legal entity), Railtrack, in 1994. Railtrack was later privatised in 1996. All passenger services were franchised. Importantly, British Rail¹ was not permitted to bid in the franchise competition in contrast to the approach adopted elsewhere in Europe. Thus franchising in turn meant that by 1997 all passenger rail services in Britain were run by private companies. Provisions were made for the future development of open-access competition which remains relatively small-scale at present. Whilst not the focus of this chapter, freight services were separated horizontally (from passenger) and vertically, with full privatisation and the introduction of open-access competition.

There are a number of significant differences between the British model and that adopted in the rest of Europe. First of all, whilst Britain was not the only country to adopt full, legal vertical separation, it was the only country to privatise the rail infrastructure. Further, its franchise areas are considerably larger than those of other European countries and as already noted franchising was implemented across the whole network over a very short period of time, with no incumbent, state-owned company permitted to bid. It also took a different approach to the ownership of rolling stock, which again was fully privatised. Finally, Britain applied franchising not only for commuter and regional services but also for inter-city services (though a very small part of this market is now provided by open-access operators). Where competition has been introduced in Inter-city services elsewhere in Europe this has been in the form of open-access competition. There are other important differences in, for example, the approach to franchise contracts. In Britain, net-cost contracts - which place both cost and revenue risks with the operator - are much more prevalent than elsewhere in Europe.

These differences are important because they enable us to study the impact of franchising under a different set of circumstances to the wider European experience; and thus to draw a richer set of lessons about what works and in what circumstances. Britain also has a twenty year period over which the evidence can be documented and assessed, during which time the franchising model has been reviewed and changed several times. Further, even the current position does not seem to be the final equilibrium, with the British anti-trust body, the Competition and Markets Authority (CMA) instigating a review of passenger rail competition in 2015 and concluding that there should be a much greater role for open access competition.

¹ British Rail therefore ceased to exist as a provider of rail services or infrastructure. However the company did continue to exist for the purpose of managing certain liabilities.



It is worth noting at the outset that perhaps the most surprising result of passenger rail franchising in Britain is that far from being associated with unit cost reductions, the opposite has occurred (see section 4). This issue has created an on-going challenge to government (and users) who have to pay for these cost rises. They come on top of the very large cost increases seen on the rail infrastructure, which the independent regulator, the Office of Rail and Road (ORR²) has been seeking – not entirely successfully – to bring under control since 2003.). The question of how to structure franchises and the associated contracts to bring about cost reductions is therefore highly pertinent. The extent to which a different type of competition – open access – may be more effective in this regard also emerges as a key policy question.

As a high level statement it might be said that in other respects, especially growth in rail usage and mode share, franchising has been a qualified success (see section 5). The same might be said to an extent of quality (at least eventually) and also fares (at least on average). However the extent to which some of these effects can be attributed to franchising is less clear as will be discussed further below. Further, whilst demand has grown very strongly, this has not prevented train operators being forced (on multiple occasions) to abandon franchise agreements because of failure to meet revenue targets; thus inviting questions about how to deal with the problem of overly-optimistic bids.

The remainder of this chapter is structured as follows. In section 2 the organisation of the tendering process, the general approach to franchising and the nature of the franchise contract is summarised. The relationship between franchised operators and the infrastructure manager is explained in section 3. Sections 2 and 3 are mainly descriptive with the key issues being explored in the remainder of the chapter. Section 4 then deals with the evidence on what has happened to costs. Section 5 covers the evidence on demand and quality, as well as government support and fares. In both chapters the link between the approach Britain has taken to franchising (at different points in time over the last twenty years) and the resulting outcomes is discussed. Section 6 then asks what reforms are being made or could be made to the franchising process to tackle the problems of the past. Finally, before concluding in Section 8, Section 7 discusses the future role that open-access competition might play either instead of or alongside franchising.

² British Rail therefore ceased to exist as a provider of rail services or infrastructure. However the company did continue to exist for the purpose of managing certain liabilities.



2. Organisation of the franchising process

This section summarises the key features of the franchising process as well as the general approach to franchising and the nature of the franchise contract types that have been used in Great Britain over the period since privatisation. It is intended to set out the key background for the subsequent analysis but is a summary only. For further detail, particularly covering the early structure and developments, see Nash and Smith (2011). A list of current franchises, owners, franchise length and size is shown in Table 1.

Table 1: Britain's Rail Franchises

Train operator	Ownership	Term	m train-km
Greater Anglia	Abellio (owned by NS)	9 years	29.8
Arriva Trains Wales	Arriva (owned by DB)	15 years	24.0
Essex Thameside	National Express (private operator)	15 years	7.0
Caledonian Sleeper	Serco (private operator)	15 years	1.4
Chiltern Railways	Arriva (see above)	20 years	11.1
CrossCountry	Arriva (see above)	9 years	33.0
East Midlands Trains	Stagecoach (private operator)	2.5 years; direct award	23.0
Govia Thameslink Railway	Govia (65% Go Ahead; 35% Keolis)	7 years	61.9
Great Western Railway	FirstGroup (private operator)	4 years; direct award	43.0
London Midland	Govia (see above)	2 years; direct award	25.0
London Overground	Arriva (see above) – from November 2016	7.5 years + 2 year option	8.1
Merseyrail	50:50 joint venture (Abellio / Serco)	25 years	6.6
Northern	Arriva (see above)	9 years + 1 year option	46.2
ScotRail	Abellio (see above)	7 years + 3 year option	46.7
South Western	Stagecoach (private operator)	10 years	40.2
Southeastern	Govia (see above)	3.5 years; direct award	31.1
TfL Rail (Crossrail)	MTR Corporation (see above)	8 years + 2 year option	2.3
TransPennine Express	FirstGroup	9 years + 1 year option	19.6
Virgin West Coast	51% Virgin; 49% Stagecoach	3 years; direct award	35.2
Virgin East Coast	10% Virgin ; 90% Stagecoach	8 years	22.1

Source: Author's own analysis.

2.1 The initial structure at privatisation

As noted in the introduction at the outset of the British reforms all passenger services in Great Britain were subject to franchising with open access to be introduced gradually over time. The franchising process was organised by the Office of Passenger Rail Franchising (OPRAF) which had its own staff and Director, but was essentially under the direct control of the Department for Transport. In the majority of cases franchises were let on relatively short terms, 7 years; though some longer franchises were agreed (15 years) in return for investment commitments. All the contracts were let on a net cost basis, thus giving both revenue and cost risk to the franchisee. Franchises were awarded to the firm willing to run services for the lowest subsidy (and in some cases the maximum premium). Price was the sole criterion for selection, though companies had to pass a pre-qualification process before proceeding.

It was envisaged that private firms should be given as much freedom to run the services that they believed were required by the market; hence the franchise agreements specified a minimum service level only. It was also envisaged that private firms would have incentives to produce quality services and as such the early franchise agreements did not specify quality as tightly as currently. Quality in the sense of punctuality and reliability was also subject to a performance regime with operators paying penalties or receiving bonus payments depending on their performance. Since bidding was carried out on a lowest subsidy / highest premium basis, it was necessary to regulate some fares (specified in the franchise agreements). On some routes, such as inter-city services, it was recognised that competition from other modes should be an adequate discipline on operators (though operators were required to offer a regulated, off-peak fare).

In order to minimise entry barriers and to ensure continuity and reduce hold-up problems at franchise renewal, the franchises were let as essentially “asset-less” operating franchises. Train operating companies (TOCs) would pay variable and fixed access charges for use of the infrastructure to the privatised infrastructure manager, Railtrack, and lease the rolling stock from one of three private rolling stock companies. Railtrack was regulated by the independent regulator, ORR, and the TOCs were indemnified against any increase (or decrease) in track access charges during the course of their franchise agreements. It was also believed that competition would develop in respect of the provision of rolling stock.

2.2 Subsequent developments

As will become clear in the later sections of this chapter, and hinted at in the introduction, the experience of rail franchising, and reforms in Great Britain more generally, has not been without significant (sometimes repeated) problems. Here we summarise the changes to the franchising approach that have occurred since privatisation, together with a brief explanation as to the reasons behind the changes. More detail is provided in sections 4 onwards, when the changes

can be more properly understood in the context of the problems that emerged and for which the changes were envisaged to be the solution.

The key changes that have emerged since the initial structure are summarised below, grouped under four headings.

2.2.1 Institutional changes

Whilst not the direct focus of this Chapter, the infrastructure manager, Railtrack was placed into administration following large cost increases for maintenance, renewals and new upgrade projects and replaced with a new not-for-profit company, Network Rail. Network Rail was formerly a private company, limited by guarantee (funded entirely by debt, and with no shareholders). However, as its debt was fully under-written by the government, in 2014 it was reclassified as a public body. As will be discussed further in section 3, numerous attempts have been made to ensure better joined-up thinking between Network Rail and train operators.

In 2001 OPRAF was abolished and replaced by the Strategic Rail Authority (SRA). SRA was a non-departmental body, no longer under the direct control of DfT, though it could take guidance and direction from ministers. The SRA took on all the functions of OPRAF but was also, as its name implies, given the task of developing a strategic plan for the whole rail industry. This was deemed lacking in the previous structure with no regulatory body or company having the powers, access to data or the correct incentives to take on that role, given the need for continued government support. The SRA was however abolished in 2004, with its powers being transferred to DfT.

Whilst DfT has responsibility for franchising for most services in Great Britain, powers have been given to national bodies in Scotland and Wales and to public transport authorities in London and Merseyside to specify and manage the main franchise in their area. Outside London within England, new bodies are emerging that seek to take these powers further, such as Rail North, which combines together local, county and city councils in the North and manages the Northern franchise jointly with DfT. These developments reflect the idea that such bodies can make better trade-off decisions between expenditure on rail versus other modes, and also develop national or city / regional based rail and transport strategies that better meet the needs of those areas.

Rolling stock continues to be provided in the main by private, rolling stock leasing companies. This differs from the approaches taken elsewhere in Europe. However, on recent large rolling stock procurement exercises, for example Crossrail (a new line that will add 10% to London's rail capacity) saw TfL procuring and owning the rolling stock, in part because its cost of borrowing was lower than that on offer in the private sector. DfT led the procurement exercise for the new Inter City Passenger train (IEP) and the Thameslink franchise. The scale and complexity of these procurements, and the fact that the rolling stock procurement had to take place prior to letting the franchises, were key reasons for the public sector taking the lead. Thus private sector finance remains the dominant source of rolling stock funding but DfT has taken the lead on key

procurement exercises and as noted there is now one case of public ownership of rolling stock. See Nash et. al. (2014) for further discussion of the need for government involvement in rolling stock procurement.

2.2.2 Risk sharing

There has been a move to increased risk sharing between TOCs and government through the so-called “cap and collar” regime which increased or reduced franchise payments if passenger revenues differed by certain percentages from bid projections. These protections would typically only become active a few years into the franchise, leaving all risks with the TOC in the early years. Since this regime was thought both to encourage aggressive bidding and to provide perverse incentives once the TOC entered the cap and collar arrangement, an alternative has been developed which rebases franchise payments depending on GDP growth and an assumed GDP elasticity of rail demand (again becoming active part way through the franchise).

Whilst the above arrangements apply to all TOCs, a small number of franchises have moved to gross-cost type arrangements with much more significant revenue risk passed from the TOC to the government. This reflects in general an objective to make contract types fit the circumstances. These have emerged, for example, for London inner suburban services (where the franchise agreement is signed between the TOC and Transport for London (TfL) rather than the Department for Transport). Given integrated ticketing arrangements and TfL’s plans to invest in public transport, there is naturally a reduced role for private sector risk taking in driving revenue growth. Another example is the new, enlarged, Thameslink, Southern and Great Northern (TSGN) franchise, which involves significant investment (e.g. in the key station at London Bridge) and major changes to the pattern of services as well as a franchise commitment to introduce driver only operated trains (DOO). Both of these factors were expected to lead to disruption (on the revenue side) due to anticipated industrial action; further, a gross cost contract might be expected to lead to greater focus on cost reduction

2.2.3 The problem of overly-optimistic bids

Processes for dealing with overly-optimistic bids have been developed following multiple franchise failures during the period since privatisation. The problem has been pervasive and persistent. By 2001 roughly half the sector had moved onto management contracts or re-negotiated contracts mainly due to companies making overly-optimistic cost projections (see section 4). Since then other franchises have run into problems, most notably on the East Coast Mainline intercity route, where within a few years two separate operators defaulted and the operation was run for a time as a state-owned company. Solutions have included increased risk sharing as noted above. Further, DfT has developed approaches for increasing the capital requirements / performance bonds to make default a more costly option for operators. Such capital requirements can be increased for bids that are deemed to be more risky. It is far from clear whether such measures have worked to date (see sections 5 and 6).

As noted, a key difference between the British model and that adopted elsewhere in Europe is that franchising has been applied to long distance services as well as commuter and regional operations. In principle, as profitable services, it would appear that long distance operations should be amenable to franchising. However, it is particularly on these franchises that problems of overly-optimistic bidding and franchise failure have emerged. The CMA has proposed open-access as a potential solution to some of the problems emerging on these routes. This is discussed further in section 7.

2.2.4 Quality management and franchise specification / term

Partly because of concerns over quality measures such as train cleanliness, franchise agreements have become more specific about what is required in terms of quality. This is also partly in recognition of the fact that particularly for lightly used services the passenger revenue incentive for operators for improving quality may be limited. The latest franchise agreements also include quality directly in the bid evaluation process (with quality being converted into a financial measure).

At the same time, to ensure a workable timetable, franchise agreements became more specific about precise services to be run. However, during the major Value for Money study by Sir Roy McNulty in 2011 it was argued that franchise agreements had become too specific and were not giving enough freedom for franchised operators to optimise their service offerings. There has also been a consolidation of franchises mainly to reduce conflicts at major stations in London; there are currently 20 franchises, as compared to the original 25 at privatisation. Whilst there may have been good reasons for this consolidation as noted, Britain's franchises are considerably larger on average than those elsewhere in Europe and this poses particular issues with respect to cost control (see section 4). Further, and related to the above point about overly-optimistic bids, larger franchises also potentially increases the risk of failure because the financial implications of losses on an individual franchise are severe. Small, entry level franchises have been proposed, which would have lower risk and would also encourage new entrants.

Around 2001, when the SRA took over responsibility for strategic planning, there was a desire to move to longer franchises, in return for greater commitment in terms of investment. However, the rail financial crisis created by the failure of Railtrack meant that this policy did not develop further. The McNulty review in 2011 called for longer franchises in order to give incentives for investment and cost reduction. However the current franchise length, with a few exceptions, is currently seven years with the ability to extend by a further three years subject to good performance. The Brown review in 2013 argued that the loss of flexibility and increased risk (for firms and government) resulting from longer franchises outweighed the benefits in general. Examples of longer franchises exist (20 and 25 years) on relatively self-contained networks with one operator and where significant investment is being proposed either by the operator itself or the funder.

3. The relationship with the infrastructure manager

The theory of contestable markets (Baumol, 1982) and related theoretical developments have seen a transformation in the way network industries in general are viewed from a policy perspective. This has led to the view that for such industries the infrastructure is a natural monopoly that requires regulation, but competition or the threat of competition may well remove the need for regulation in supply. It is this view that underpins the idea of introducing franchising or open-access competition for passenger rail services.

However, it is also recognised that, from a transaction cost perspective, there could be disadvantages of vertical separation. Ultimately though, there is scope for transaction costs, hold-ups, misalignments of incentives and bad decision making in integrated and separated environments and it is difficult to argue, a priori, whether the costs will be higher or lower in one environment than another. It should be noted that even if an integrated firm is able to deliver lower costs because of improved co-ordination, to the extent that this model limits competition, pressure for improved efficiency could be reduced. It may therefore be seen as an empirical question as to which structure will deliver the lowest cost outcome.

There has been a wide debate within Europe – across all network industries - on how best to meet European legislation which requires fair access to infrastructure for all operators. In the case of rail, two main structures have emerged – full, vertical separation, as most notably in Sweden and the UK (but also other railways), and the “holding company model”, adopted in Germany and also elsewhere. The latter model seeks to retain some of the co-ordination benefits of an integrated structure through a holding company structure which has operations and infrastructure within separate subsidiaries under the same parent company. The parent might particularly be seen as having a role in ensuring co-ordination of investment decisions between the infrastructure subsidiary and the dominant train operator (subsidiary of the same parent). However, this may also lead to concerns that this structure might not permit a level playing field for new entrants (see Mizutani et. al., 2015; van de Velde et. al., 2012 and Nash et. al, 2014).

The evidence on the cost impact of vertical separation is mixed with some studies showing increased costs and others reduced costs. Arguably the most up-to-date and advanced empirical contribution (in terms of method and data) – which also, notably, includes Britain in the sample (in contrast to most of the rest of the literature) is found in Mizutani et. al., 2015³. The study shows that vertical separation reduces costs for some railways, but for the most intensely-utilised networks it increases costs. The latter finding is intuitive because the potential for higher transaction costs and costs resulting from misaligned incentives are magnified on more complex networks which are running close to capacity.

³ The author of this chapter is also an author of that paper. The paper evidences the statement above regarding the enhancements to the method and data compared to previous studies.



The above body of work and particularly van de Velde et. al. (2012) and Nash et. al. (2014) emphasise that whatever structure is adopted, some sort of glue is required to provide the necessary co-ordination over both timetabling and operations, organisation of access to infrastructure for maintenance, renewal and upgrade work, investment decisions and delivery of efficiency savings. These may be handled naturally, though not necessarily perfectly, by an integrated structure or via a holding company model. In a separated environment, however, contracts can provide some of the correct incentives.

In Britain there are two main contractual mechanisms which seek to align the incentives of train operators and Network Rail. First, a sophisticated and disaggregated track access charge system is designed to give the correct incentives for operators to run less damaging vehicles on the network and to cover the increased congestion costs resulting from running extra trains (these are not scarcity charges but recognise that as the network becomes busier, disruption and delays are likely to increase). Second, there exists a performance regime which again provides financial incentives for operators and Network Rail to deliver on-time and reliable services. However, it is generally argued that contracts may be insufficient and that further “glue” is needed in separated models.

The above points were also pointed out by Sir Roy McNulty in his 2011 Value for Money review. As a result a new body, the Rail Delivery Group (RDG) was set up, comprising the managing directors of all the train operating companies and Network Rail who would meet on a regular basis. This body also has supporting analytical capability. The purpose is to ensure greater joined up thinking. Alliances have already developed whereby operational staff co-locate together to ensure more co-ordinated operations, particularly in cases of disruption, and in some cases deeper alliances have developed with companies sharing cost and revenue risk with a view to seeking efficiency improvements and better organising infrastructure renewal. Such efforts have not been without problems but these developments emphasise the need for strong co-ordination between operations and infrastructure – which may be delivered through a mix of contractual and other approaches.

Having set out the structure and the general background to Britain’s rail reforms we now proceed to look at the evidence on the impact of rail franchising on key measures of interest, starting with the evidence on costs.

4. The evidence: the cost story

Arguably the most significant problem facing the rail sector in Britain post the reforms has been the very substantial rise in costs (both infrastructure and train operations). Infrastructure costs are not directly the focus of this note (though see the comments made below with respect to the question of reducing whole system costs). With respect to train operations, one of the objectives of competition for the market (in any sector) is to improve the efficiency of delivery. Evidence from European rail shows that usually competitive tendering is associated with substantial cost (or subsidy) reductions, typically in the range of 20-30%⁴. However, costs have gone up substantially in Britain. Examples are listed below:

- Germany and Sweden rail tendering: 20-30% savings; Alexanderson (2009) and Alexandersson and Hulten (2007);
- Netherlands rail tendering: 20-50% savings; van Dijk (2007);
- Competitive tendering in other industries: savings of 20-30%; e.g. Domberger et. al. (1987);
- 45% savings in bus de-regulation 1985-1997 (Britain); Nash (2008);
- 4-6% p.a. savings in utility privatisations (Britain); see e.g. Oxera (2008);
- Rail franchising reforms in Britain: unit costs increased by 14% between 1997 and 2006 (Smith and Wheat, 2012).

The British rail franchising case therefore clearly stands out compared to the rail tendering experience from elsewhere in Europe and indeed to experience from a range of other sectors. Unit costs rose by around 14% to 2006 – staying roughly constant in the subsequent years up to the McNulty enquiry in 2011. The McNulty review therefore proposed a target to get costs down in unit cost terms to at least where they were in 1997, with further reductions expected beyond that target.

⁴ As noted these savings refer to subsidy changes. In the case of gross cost contracts these would be driven by cost reductions. In the case of net cost contracts the picture is less clear. However, overall Germany and Sweden have made greater use of gross cost contracts than Britain and has seen little franchise failure, so we can be confident that underlying unit cost reductions have been achieved.

Table 2: Train Operating Company Real Unit Cost Changes 1998-2015)

	Per train-km	Per vehicle-km*
Staff	+44%	+34%
Rolling stock lease payments	-20%	-26%
Other	+46%	+35%
Total	+25%	+16%
(excluding payments to Network Rail)		
* Note: actual vehicle-km data were sourced from ORR and Network Rail for the years 1998 to 2010. From 2010 to 2015 vehicle-km are estimated on the assumption that average train length continues to increase at the same rate as over the 1998 to 2010 period.		

Source for cost data: ATOC (2013) and Great Britain Rail Industry Financial Information 2011-12 to 2014/15, Office of Rail and Road (ORR)

However, Table 2 indicates that unit costs have not fallen back from the high levels reached in the run up to the 2011 McNulty review. Indeed, costs per train-km, have continued to rise further – taking the unit cost increase between 1998 and 2015 to 25% (or slightly lower, at 16% per vehicle-km⁵). The literature shows clearly that train-km (or train hours) is the main driver of train operating costs thus making it the most appropriate indicator of unit costs. Of course longer trains do increase cost but there are substantial economies of train length so that the elasticity of costs with respect to vehicle-km would be considerably below unity (see Smith and Wheat, 2012 and Wheat and Smith, 2015). Unit costs per passenger-km have fallen marginally over this period but given the substantial growth in passenger volumes and the fact that passenger growth does not directly have much influence on costs (with train-km and vehicle-km being the main drivers), this does not give a good reflection of the efficiency of the industry in delivering the required output – namely the timetable.

It should also be emphasised that the cost increases amount to around £2.7bn per year in 2015 prices. The implications for government subsidies and fares are discussed in section 5 below.

A key reason for cost rises during part of the period was the placing of some franchises onto management contracts following financial distress (Smith and Wheat, 2012); though these effects were temporary, being eliminated following competitive re-franchising. More generally, British franchises are much larger than in countries such as Germany and Sweden and this necessitates a situation where a new franchisee takes over an existing company, rather than bringing in its own staff and rolling stock as can occur in Germany for example. Given also the relatively short franchises, there is therefore very little incentive for companies to tackle the staff cost base. It is clear from Table 2 that staff cost growth has been particularly high, both per train-km (44%) and per vehicle-km (34%) between 1998 and 2015. We further note that there is

⁵ As noted in the footnote to Table 1, we have had to make some estimates of vehicle-km over the period since 2010 based on previous trends in average train length.



some empirical evidence indicating that some British TOCs are too large from a cost perspective (decreasing returns to scale; Wheat and Smith, 2015). We return to this point in section 6 below.

At the same time, research has indicated weak incentives within the system to innovate in respect of developing better rolling stock with lower life cycle costs (see Nash et. al., 2014). That said, the data in Table 2 indicates that rolling stock costs have fallen per train-km since privatisation. However, caution is needed because there are differences in how certain aspects of rolling stock maintenance are treated in the train operating company accounts mean that some rolling stock costs are reported under the “other” category. It should be noted that the way in which older rolling stock was priced at privatisation means that the introduction of new rolling stock would not necessarily be expected to increase total rolling stock lease charges, particularly as that element of the market (new orders for rolling stock) appears to have been operating competitively. A further issue – as noted in Section 3 – concerns misalignment of incentives within a complex, fragmented industry which has led to a lack of focus on whole industry costs.

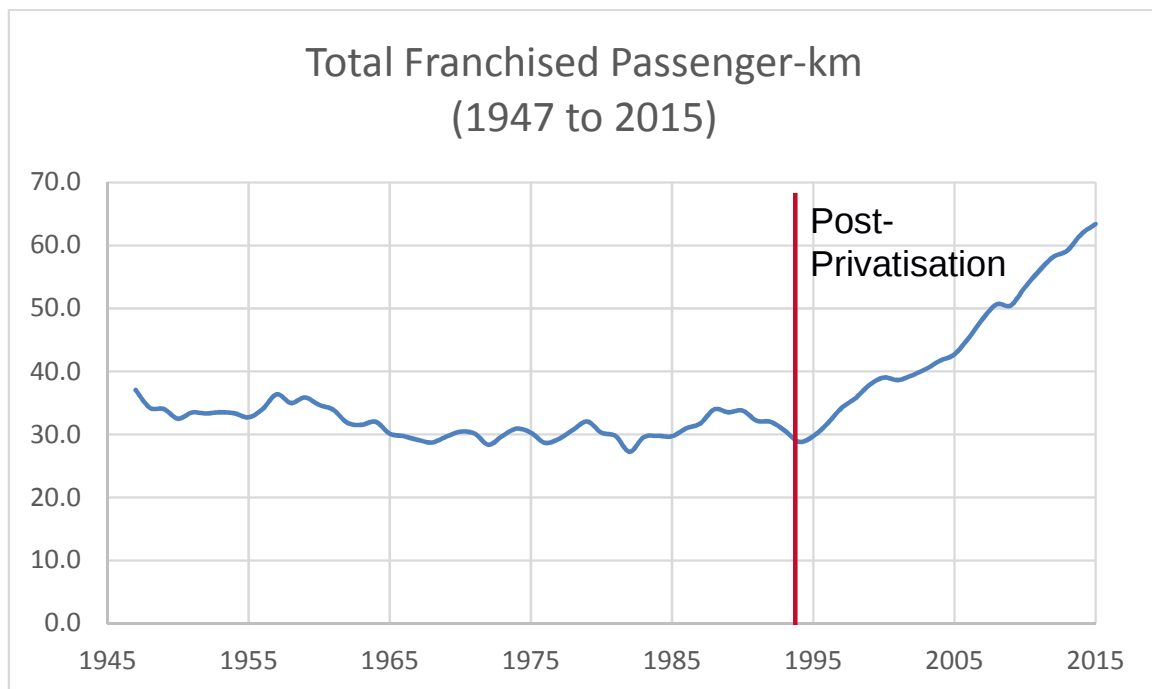
Given the very substantial increase in costs and the difficulties of getting these costs down, despite several reviews of rail franchising, it is clear that new approaches are required. In section 6 we discuss some proposed solutions to the problems that have emerged, as well as pointing out areas where further research is needed.

5. The evidence: trends in demand, quality, fares and subsidies

Below we set out the experience of rail franchising in respect of four key areas: demand, quality, fares and subsidies have been developed by PTAs in order to deal with the rolling stock problems such as:

5.1 The evidence on demand

Figure 1: Total Franchised Passenger-km (1947-2015)



Source: Office of Rail and Road (ORR) National Rail Trends Data Portal

As discussed above, one feature of rail privatisation is that it has been associated with a very substantial increase in passenger demand (see Figure 1). Since the completion of franchising in 1997, passenger-km have increased by 86% (or by around 120% since 1994 when the industry started to be restructured in preparation for privatisation), the rail mode share of all passenger km rose from 5% in the mid-1990s to 10% in 2014. The rail passenger growth in Britain is therefore the highest in Europe over this period. The data in Table 3 shows that strong growth has occurred on all types of services, with the highest growth being on regional services.

Table 3: Passenger-km Growth by Sector

Passenger km-franchised (billions)	1998	2016	% change
Long-distance	12.3	21.1	72%
London and South East	16.1	30.3	88%
Regional	6.3	12.3	97%
All services	34.7	63.8	84%

Source: ORR National Rail Trends Data Portal

A key question has always been the extent to which the demand growth was driven by the combination of privatisation and franchising. Early work on this question (Wardman, 2006) argues that most of the growth following privatisation was due to the strength of the economy and other external factors such as increased road congestion – though this early study did find a privatisation (unexplained demand growth) effect equivalent to roughly 20% of the growth. It should be noted that this study only used demand data from the 1990s.

It is further the case that demand growth in Britain has proved surprisingly strong throughout the period following the 2008 financial crisis and the subsequent economic downturn. Current rail demand models are therefore struggling to explain demand growth in Great Britain as strong rail demand has occurred at a time of economic downturn.

It is therefore difficult to isolate the impact of rail franchising on passenger demand. However, from an a priori perspective it is clearly the case that private firms, with a fixed profile of franchise payments, have strong incentives to maximise revenue growth through various means. Given the very substantial growth in rail demand since privatisation – as well as the evidence noted above – it would seem reasonable to say that franchising has at least partly contributed to this growth. In respect of the aim of increasing rail demand and mode share, rail franchising may therefore be seen to be a success.

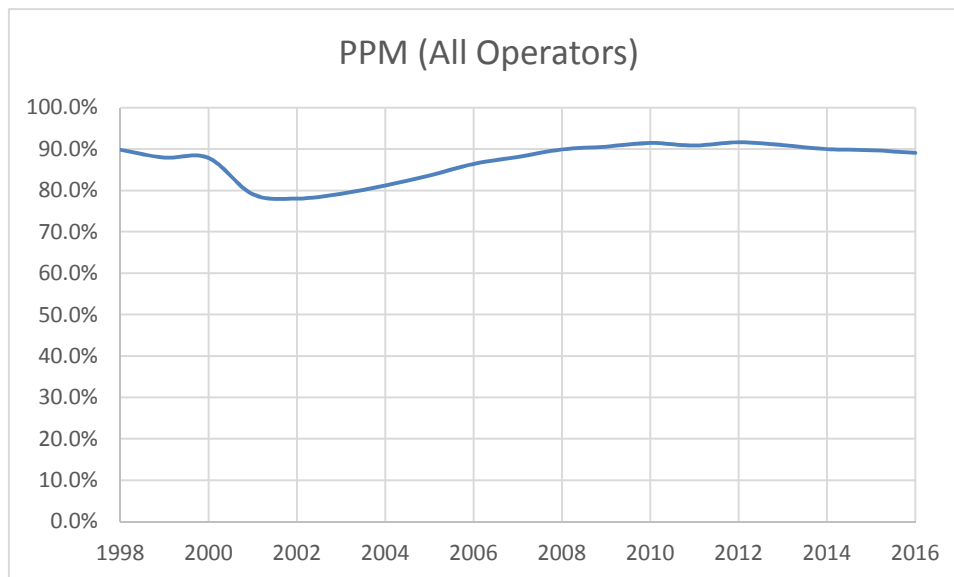
5.2 The evidence on quality

As noted in section 2, the quality of passenger rail services has been – to an increasing degree – specified in the franchise agreements.

Key measures of quality include reliability (cancellations) and punctuality (lateness). The metric used to measure reliability and punctuality in Great Britain, the Public Performance Measure (PPM), is roughly the same in 2016 as in 1998 (Figure 2), though passenger-km have nearly doubled and train-km have increased 30% over the period. There was a substantial performance reduction after 2000 following the Hatfield accident which led to considerable disruption and

ultimately led to Railtrack, the privatised rail infrastructure manager being placed into administration. Following considerable effort across the industry, performance has recovered since then, though in more recent years it has started to slip back marginally. It should be noted that the most recent 2016 data is affected by the industrial dispute on a single, large franchise (Thameslink, Southern and Great Northern) – see section 6 below.

Figure 2: Public Performance Measure (PPM) All Operators – 1998 to 2016



Source: Office of Rail and Road (ORR) National Rail Trends Data Portal

The PPM measure reflects the performance of both Network Rail and that of the franchisees. Network Rail has an incentive regime as well as regulatory targets for performance. The franchised operators likewise have performance targets within their franchise agreements. Since 2008/09 Network Rail caused delay minutes have risen by around 8% whilst those caused by TOCs have risen by just 3.5%. Per train-km, Network Rail caused delay minutes have fallen by 1.5% and TOC-caused delay minutes by 5.5% over this period (2008/09 to 2015/16; see ORR National Rail Trends Data Portal).

It is clear from the above that quality, as measured by PPM, has remained broadly flat over the period, though with a significant dip for several years after 2000. Some parts of the network are congested and thus improving performance is a considerable challenge whilst train-km and passenger-km continue to grow. Nevertheless, taking the period as a whole, keeping PPM broadly constant, whilst growing traffic and passenger-km strongly could be seen as a qualified success.

As noted above, franchise agreements have been made more specific since privatisation on other, softer measures of quality such as train cleanliness. Considerable investment (by Network Rail) has also occurred to improve stations. There has also been considerable new investment in rolling stock with the average of rolling stock falling to around 13 years at one point, though this

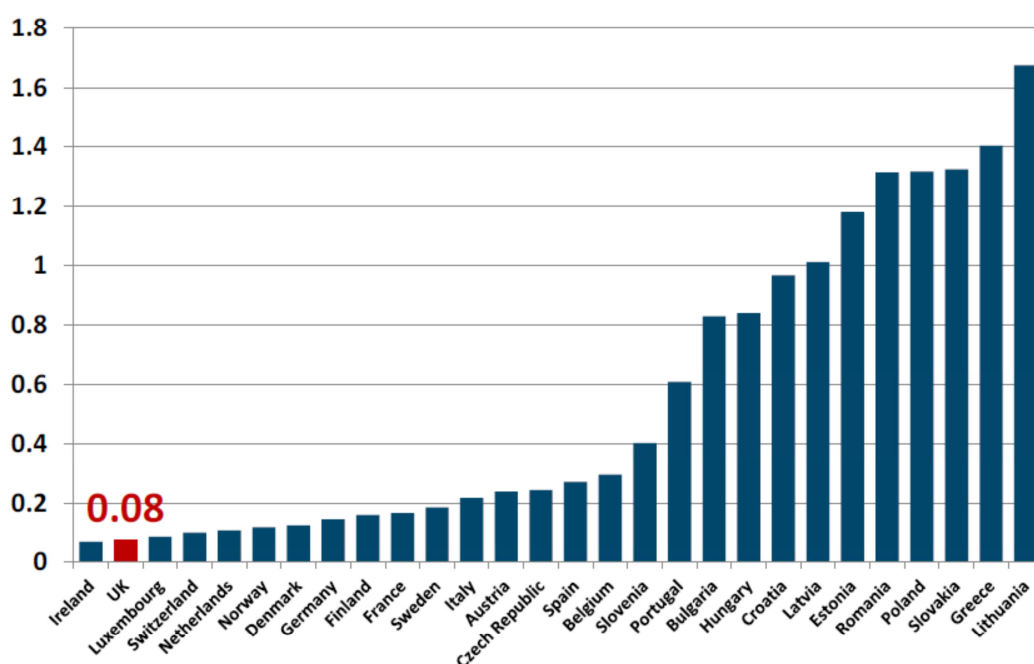
has since risen again to similar levels to those seen in the 1990s (though this does not take account of refurbishments). It appears from the data that despite the introduction of new rolling stock, this aspect of costs has not risen, as noted above.

Finally we note that a key concern arising from vertical separation and the introduction of private operators is that safety may deteriorate. Whilst international comparisons may be problematic, Figure 3 shows that Great Britain's railway is amongst the safest in Europe. Previous statistical research (e.g. Evans, 2007) shows that privatisation has not led to a deterioration in safety on Britain's railways. Of course, since 2002, the rail infrastructure has been run by Network Rail (formerly a not-for-dividend company) and now a public company.

Figure 3: Number of Fatalities and Serious Injuries per Million Train-km – Europe (2010 to 2013)

Number of fatalities and weighted serious injuries per million train kilometre – Europe, 2010 to 2013

Average number of fatalities and weighted serious injuries per million train km (2010-2013)



Source: Rail Safety and Standards Board (RSSB)

5.3 The evidence on fares and government support

The very substantial increase in train operating company costs, together with cost increases on rail infrastructure, have led to a substantial increase in government subsidies, despite rising patronage. Table 4 shows the overall level of government support to the railways with a split between payments to train operators and to Network Rail. It should be noted that the data on

overall government support to the railways, and in particular its allocation between train operating companies and rail infrastructure, is greatly complicated by the fact that the track access charges that train operators pay for the infrastructure have also been highly variable over this period. Further, accounting changes over the period make it hard to make exact comparisons, and there are lags between increased costs (which may be funded by Network Rail borrowing; not included in the data) and increased government support.

Table 4: Government Support to the Railways 1993-2015 (£m, 2015 prices)

£m, 2015 prices	Net payments to/from train operating companies *	Direct rail support to Network Rail * *	Total Government Support (excluding major projects)
1992-93	2,390		2,390
1993-94	1,959		1,959
1994-95	3,747		3,747
1995-96	3,511		3,511
1996-97	3,447		3,447
1997-98	2,863		2,863
1998-99	2,396		2,396
1999-00	2,039		2,039
2000-01	1,686		1,686
2001-02	1,521	1,003	2,525
2002-03	1,767	1,662	3,429
2003-04	2,455	2,312	4,767
2004-05	1,706	3,191	4,897
2005-06	1,580	4,394	5,974
2006-07	2,213	5,584	7,798
2007-08	1,725	4,420	6,145

£m, 2015 prices	Net payments to/from train operating companies *	Direct rail support to Network Rail * *	Total Government Support (excluding major projects)
2008-09	669	4,927	5,596
2009-10	873	4,120	4,993
2010-11	167	3,838	4,005
2011-12	88	3,989	4,077
2012-13	-265	3,907	3,642
2013-14	143	3,487	3,630
2014-15	-679	3,802	3,123
*Includes Central Government Grants and Passenger Transport Executive (PTE) grants for services in the main conurbation outside London.			
**Also includes payments relating to the High Speed 1 Route.			

Source: Office of Rail and Road (ORR) National Rail Trends Data Portal

Although the above caveats need to be borne in mind, Table 4 represents the published data on government support to the sector. It can be seen that support to the industry rose considerably in 1994/95 as the industry was restructured and the payments set such that the individual parts of the industry were all profitable (and of course, government received substantial proceeds from privatisation of those profitable businesses, as well as taxes on profits, which are not shown in Table 4). There was then an apparently golden period, over which the data are also relatively easy to interpret because of stability in the way the funding flows operated, which saw subsidies decline from around £3.7bn to £1.7bn (all data in 2015 prices). These reductions were driven by franchise payment reductions promised (and delivered) by train operating companies; these being predicated upon planned revenue growth and cost reductions. At the same time, track access charges paid by train operators were falling because of the RPI-X style regulation being applied to Railtrack.

However, as discussed earlier, the projections made by many TOCs, particularly during that early period in regard to cost reductions, did not materialise. Moreover, after 2000/01 TOC costs and, in turn, subsidies started to rise (as noted above, roughly half the sector either re-negotiated their original franchise agreements or were placed onto a management contract for a prolonged period). At the same time, the Hatfield accident and cost over-runs on a major intercity upgrade



project (West Coast Main Line) precipitated large cost increases and in turn the demise of Railtrack, and its replacement by Network Rail.

The ensuing period thus saw very large increases in government support, simply to keep the current railway running, thus hindering attempts to invest in new lines, upgrades and new services. Following considerable regulatory pressure in respect of Network Rail's costs, and driven also by continued passenger growth, subsidy levels to the industry are now returning to more normal levels. However, it remains a complex picture because of the interaction between expenditure, Network Rail borrowing and how this feeds through (with a lag) into public subsidy. Further, Network Rail's efficiency performance has been deteriorating in the last two years (2015 and 2016) and therefore the current position may not improve further and could deteriorate potentially.

Table 5 offers a different perspective which ought to be more comparable across countries. It shows total government support as the sum of subsidies to franchised train operators plus support made to the infrastructure manager, Network Rail, to enable it to cover operations, maintenance and renewal costs (OM&R). Support to Network Rail is computed as OM&R costs less track access and the company's property income; and thus represents how much money the company needed from government sources to cover these costs. Enhancements are excluded as they involve the creation of a new or enhanced asset. This series produces broadly the same picture as in Table 4, though the series differ in some years when Network Rail's costs are rising and thus are reflected immediately in the series in Table 5; but with a lag in the official statistics. Overall Table 5, like Table 4, shows a very sharp rise in support that by 2015 had fallen back to the levels seen at the start of the privatisation process, or even a little below. As noted above, this position could deteriorate in the coming years.

Table 5: An Alternative Measure of Government Support to the Rail Sector

£m, 2015 prices	Net payments to/from train operating companies	Support to Network Rail for Operations, Maintenance and Renewal*	Total Government Support (excluding enhancements)	Total support per train-km (£)
1996-97	3,447	0	3,447	9.05
1997-98	2,863	0	2,863	7.27
1998-99	2,396	0	2,396	5.79
1999-00	2,039	0	2,039	4.78
2000-01	1,686	0	1,686	4.05
2001-02	1,521	3,631	5,152	12.06
2002-03	1,767	4,490	6,256	14.39
2003-04	2,455	5,431	7,885	17.70
2004-05	1,706	4,494	6,200	13.96
2005-06	1,580	4,044	5,624	12.37
2006-07	2,213	3,151	5,364	11.79
2007-08	1,725	2,953	4,678	10.21
2008-09	669	4,084	4,753	10.14
2009-10	873	3,136	4,009	8.23
2010-11	167	2,626	2,793	5.64
2011-12	88	2,621	2,710	5.36
2012-13	-265	2,734	2,479	4.90
2013-14	143	3,341	3,485	6.88
2014-15	-679	3,320	2,641	5.15

* This is Network Rail Operations, maintenance and renewal costs less income from track access charges and property income. It is zero for the first few years as during this periods the infrastructure was run by a private company, Railtrack.

Source: Author's own Analysis Based on TOC Subsidy Data from the Office of Rail and Road (ORR) National Rail Trends Data Portal and Network Rail Cost and Income Data from Network Rail Regulatory Accounts and Annual Returns

Table 6 shows that, in respect of the TOCs, many pay premium payments to DfT (11 out of 19⁶). The majority of the subsidies that are paid go to TOCs in Scotland, Wales and the North.

Table 6: Franchise Subsidies* / Premium Payments by Train Operator (2014/15)

Franchised Operator (in order of Subsidy received)	Subsidy/(Premium) Payment (£m)	Subsidy/(Premium) Payment Per Passenger Journey (£)
ScotRail	289	3.1
Northern	249	2.6
Wales and Borders	93	3.0
Merseyrail	81	1.8
West Midlands	59	0.9
Trans Pennine Express	44	1.5
Southeastern	26	0.1
Essex Thameside	-18	-0.4
Chiltern	-29	-1.2
Cross Country	-66	-1.9
East Midlands	-74	-2.9
Great Western	-100	-1.0
West Coast	-105	-3.0
Thameslink Great Northern **	-175	-1.2
Greater Anglia	-182	-1.3
Southern**	-202	-1.2
East Coast	-233	-11.3
South Western	-380	-1.7
All Franchised TOCs***	-659	-0.4
* These figures reflect subsidies / premia (Including PTE payments) relating to franchised train operating companies (TOCs) only. Whilst TOCs pay substantial access charges to Network Rail, these are not sufficient to cover Network Rail's costs, and therefore Network Rail receives direct support (see Table 2)		
** These franchises were merged in the ORR Data Portal Passenger Journey data so a single (overall) premium payment per passenger journey has been calculated for these two		
*** This number differs marginally from the £679m reported in Table 2. This reflects a small difference between reporting between the different sources.		

Source: GB Rail Industry Financial Information 2014-15, Office of Rail and Road (ORR) and ORR National Rail Trends Data Portal.

⁶ There are 20 franchises in total but in some data sources sleeper services to and from Scotland are not itemised separately.

Of course, growing patronage was part of the reason for TOC cost increases – though as noted, still unit costs measured per train-km or vehicle-km (the main determinants of TOC cost variation) have increased hugely. Whilst this unit cost was partly overcome by growing patronage, the government has also progressively moved towards passing on more of this increased cost to passengers. The initial fare regulation formula at privatisation saw those fares that are regulated (representing roughly 45% of total revenue) falling in real terms. This formula later changed to index regulated fares in line with inflation and then, in turn, to real terms increases in fares (though since 2014, the policy in England and Wales has moved to an RPI+0% arrangement).

Table 7 shows how rail fares have changed since 1995. A clear picture emerges in which unregulated fares have increased considerably faster than those that are regulated, even given that the latter have been growing above inflation as a result of government policy over recent years. The rationale for unregulated fares is that some services, particularly inter-city services, face competition from other transport modes. Nevertheless, unregulated fares have outstripped inflation over the whole period. In part this approach is a means of achieving a surplus (or covering fixed costs) in the most economically efficient way by charging fares on the basis of willingness to pay and in this way also controlling demand in the peak (typically business users are paying the highest first class and unregulated standard class fares).

Table 7: Rail Fare Trends 1995 to 2016)

All Train Operators	1995 January	2016 January	Annual % Change Nominal terms	Annual % Change Real terms
First Class unregulated	100	287.9	5.2%	2.3%
Standard class regulated	100	188.0	3.1%	0.3%
Standard class unregulated	100	233.6	4.1%	1.3%
All standard class	100	211.3	3.6%	0.8%
All tickets	100	218.7	3.8%	1.0%
RPI (all items) (R)	100	177.1	2.8%	

Source: Office of Rail and Road National Rail Trends Data Portal.

Overall for regulated and unregulated fares, taking the whole period together, rail fares have risen by 1% above inflation for each year since 1995. As noted above, the resulting revenue growth, combined with increased patronage, has fed through into a lower burden to the public purse. The sustainability of this policy is questionable however; and the recent changes to cap regulated fares at RPI+0% shows the political issues associated with passing on cost increases to users. It should also be noted that – if we are comparing the post-privatisation era with the pre-



privatisation period, the former saw larger real terms increases in rail fares. Between 1979 and 1994 (under British Rail) fares increased by 262% in nominal terms, as compared to inflation (RPI) of 154%, thus resulting in a real terms increase of 43% or RPI+2.4% every year over that period (see Gourvish, 2002).

The post privatisation period has thus been much more benign in terms of real fare increases than under British Rail (at least over 1979-1994). Under British Rail, a policy was often adopted of raising fares to manage demand.

6. Possible solutions to past problems

As set out above, by far the greatest problem affecting Britain's rail franchising reforms has been the failure to get costs down, with unit costs actually increasing by around 25% per train-km (16% per vehicle-km) since privatisation. There have also been associated problems with overly-optimistic bidding, initially regarding the scope for cost savings, but more recently with regard to revenue projections. In addition, there are concerns over the appetite for companies (existing and new entrants) to take on the financial risks associated with rail franchises in Great Britain, with the number of competitors for franchises starting to fall (in some recent franchise competitions the number of short-listed bidders has been as low as 2).

As already noted there have been many attempts to reform the rail franchising model. Below, we set out some suggestions that may contribute to solving the problems that have been observed to date.

6.1 Sharing of risks in rail franchises and incentivising cost reductions

Gross cost contracts are much more common in Sweden and Germany, both of which appear to have been more successful than Britain in reducing costs (Nash, Nilsson and Link, 2013); see also Smith et. al. (2010) for a review on rail franchising internationally. Such contracts appear to make sense where a regional authority is planning and marketing services as in London Overground and increasingly other regional franchises (Rail North, Wales, Scotland); and where the degree of subsidy is relatively high. In such cases strict conditions or incentives are needed regarding quality of service. Here, a move away from net cost contracts – where revenue growth is an important, and perhaps dominating, element - could lead to increased focus on cost reduction (as noted, this has been the experience of Sweden and Germany). Such contracts can also be relatively short in principle if the franchising authority provides the rolling stock.

As noted in section 2, gross-cost type contracts have been introduced for some rail franchises, though there is little evidence yet on the cost impacts of these arrangements. In one such case, Thameslink, Southern and Great Northern (TSGN) franchise, anecdotal evidence suggests that this arrangement has indeed produced greater pressure for cost reduction. A particular, and highly political issue that has emerged, concerns the franchise commitment to introduce driver-only-operation on trains on this franchise. This proposed change has led to industrial action and severe disruption to services.

It could be argued that in these circumstances a gross cost contract is more likely to be effective as the train operator is insulated from the lost revenue implications of a prolonged industrial dispute. However, the outcome remains to be seen, and net cost contracts do exist (for example on the Northern franchise) which likewise have a commitment to introduce driver-only-

operation (though in that case the farebox revenue is a much smaller proportion of total revenue).

For more commercial services, longer, net cost contracts are, in principle, more desirable if franchising is the chosen model. Such contracts should give incentives for development of the market and also potentially giving a longer time period over which to achieve cost savings. Longer franchises may also increase incentives for investment. However, such benefits need to be balanced against the resulting increased risk and reduced flexibility.

Of course, as noted there have been multiple problems with overly optimistic bidding on such franchises; and the majority approach for commercial services across Europe is open access competition, albeit with a dominant, state-owned company running most services (see section 6.3). In section 7 below we comment on the possibility of introducing a greater role for open-access competition.

6.2 Provision of rolling stock: cost and innovation

The half cost train project (see Nash et. al, 2014) contrasts the experience of the civil aircraft industry in respect of innovation and cost reduction with that of the rail industry. This research focused on the incentive aspects that may be limiting innovation. The research found that the current franchise length in Britain is too short for provision of rolling stock to be efficiently left to TOCs. The perspective of operators in this environment is too short term and risk averse for life cycle costs to be minimised and innovation to take place. Where innovation has occurred, this has been mainly through publicly led procurements (e.g. Crossrail).

As rolling stock costs is one of the key categories within the TOC cost base – and with limited opportunities as noted for operators to influence these – finding the right incentive mechanism to bring about innovation and reduced cost in this area is crucial in getting costs down. The conclusion of Nash et. al. (2014) is that to achieve greater innovation / cost reduction in respect of rolling stock, either there is a need for longer franchises (perhaps combined with more open-access competition) or for government to take the lead in rolling stock procurement, ideally through an arms-length body to procure rolling stock (for example, as in Sweden).

6.3 Dealing with overly-optimistic bids

A number of attempts have been made to deal with this problem as noted in section 2. Cap and collar arrangements turned out to be ineffective and have been replaced with a formula that adjusts franchise payments depending on changes in GDP or employment. The idea of insulating operators from exogenous risks that they cannot control is in principle sensible. However, given the problems noted earlier with regard to modelling rail demand, there is considerable uncertainty over the GDP / employment elasticity that is needed to calibrate such arrangements. It has been argued that this could increase risks to operators.

Other approaches include increasing operator capital requirements to deter operators submitting overly-aggressive bids and then handing back the franchise. Such requirements are linked to the extent to which DfT regards the bid as risky. However, this approach ran into very significant difficulties when applied to the West Coast Mainline franchise, resulting in a suspension of rail franchising for a time. It should be said, however, that the problems resulted from weaknesses in DfT's in-house capability and other procedural issues, rather than being fundamental to the approach (see Brown, 2013).

Brown (2013) noted the (stated) unwillingness of parent companies to inject large amounts of capital into rail franchises; though a situation in which greater capital injection is required has not been explicitly tested in the market. Nevertheless, there are also signs of waning interest for recent franchise competitions as noted. This development raises questions as to whether a combination of the high cost of bidding (estimated at around £10m per bidder) and the high capital requirements that may be imposed by DfT to try to incentivise sensible bids, is deterring existing and new entrants.

The twin objectives of maintaining a high level of competition and encouraging new entrants, whilst also ensuring that operators are incentivised to submit and then deliver on sensible bids through increased capital requirements, are hard to reconcile. However, a solution may be found by looking again at the size of rail franchises; a policy that naturally fits also with increased open access competition. We now turn to discuss these two points in turn.

6.4 The size and structure of rail franchises

As noted above, rail franchises in Britain are larger than elsewhere in Europe. Recent research (Smith and Wheat, 2012 and Wheat and Smith, 2015) finds that there are strong economies of density in franchised train operations. This finding, on its own, suggests that avoiding franchise overlaps may well be desirable from a cost perspective; which may also imply larger franchises in general. As noted earlier, in Britain, the number of franchises has fallen from 25 to 20 since privatisation, and Britain's franchises are much larger on average than franchises elsewhere in Europe.

However, the research also finds that the ability to exploit economies of density may be limited by the extent to which operators use different types of rolling stock for different service types (e.g. intercity, commuter or regional services). Thus, having an increased number of smaller (in some cases, overlapping) franchises, where each franchise provides a distinct service, may not result in the loss of significant economies of density in practice. When combined with the evidence suggesting constant or perhaps decreasing returns to scale (Smith and Wheat, 2012 and Wheat and Smith, 2015), the balance of the current evidence is that moving to smaller franchises, with increased overlaps, may not increase costs. This finding results because the losses in economies of density may be mitigated as noted, and because of the evidence that franchises may be too large (decreasing returns to scale). Smaller franchises could potentially



actually reduce costs if the diseconomies of scale dominate. It should be noted that the research above uses econometric models that represent approximations to reality and more detailed modelling on a case by case basis is needed when considering changes to the size and structure of rail franchises.

In relation to the question of franchise risk and capital requirements, smaller franchises should also reduce risk and encourage new entrants. The capital requirements needed would also be smaller. A policy of increased open-access for inter-city services would naturally fit with a move to smaller franchises, as intercity franchises would then be smaller and potentially therefore lower risk from the perspective of bidders and new entrants in particular. There are of course other benefits of smaller franchises in terms of stimulating on-rail competition between overlapping franchises; a policy that again goes hand-in-hand with developing more open-access competition.

Overall it appears that smaller franchises may be a way of reducing risk, mitigating the problems of overly-optimistic bidding, and encouraging increased competition for franchises; whilst also opening up the increased possibility of on-rail competition between overlapping franchises. Such a policy may also complement a move to increased open-access for intercity services, to which we now turn. It should be noted, however, that increased open access, and the introduction of an increased number of franchisees, does raise the risk that co-ordination issues between infrastructure and operations could become problematic.

7. A greater role for open access?

A key objective of open access competition is to improve quality, increase competition on fares and stimulate efficiency improvements (to the extent that open-access operators have a lower cost model, which in turn puts pressure on the incumbent). The evidence suggests that in Britain, where open-access competition exists, there have been significant benefits to passengers in terms of fares, service levels and quality (open access operators score very highly in terms of passenger satisfaction). Open access operations have also resulted in new destinations gaining a direct service to London, with the overall market growing substantially as a result. Similar benefits have also been delivered elsewhere in Europe where open access competition is present (for a review of studies, see CMA, 2015). Key issues though remain the impact of open access on incumbent operators (or in Britain, franchisees) which affects public finances.

Returning to the issue of costs, given the lack of progress in delivering cost reductions through the franchise process, increased open access competition is a natural alternative to consider. However, a key concern is whether splitting up the market into multiple operators might risk losing important economies (relating to scale or density).

The CMA commissioned Wheat and Smith (with Rasmussen) to undertake research comparing the costs of open access operators with those of franchised train operators (see Rasmussen, Wheat and Smith, 2015). Given the evidence on economies of density, and the small density (and size) of open-access operations, it might be expected that, purely from a cost perspective, open-access operators would be more expensive on a unit cost basis. This research compared operators on a like-for-like basis, utilising an established econometric model to adjust for the fact that open-access operators do not operate stations.

It was found that, in general, this is not the case and that open-access operators have unit costs that are around the same as franchised inter-city TOCs. Such operators have lower input prices (rolling stock and staff) and also appear to operate a lower cost business model. This evidence supports the case for open access competition from a cost perspective. What is less clear is how the cost comparisons would change if open-access operators took on a more significant role. On the one hand they would benefit from economies of density (though franchised operators would then lose such economies if the open access growth was at the expense of the franchisee); on the other hand open access operators may lose some of their input price / business model advantages as they become bigger. Further research is required in this area. We also note that there are other considerations such as making best use of capacity and developing a sensible timetable that are very important when considering the future shape of competition in railways.

8. Conclusion

As of 2014, Rail franchising in Great Britain has not succeeded in the objective of improving efficiency and getting costs down; quite the reverse. Britain's experience contrasts in this regard to that of rail franchising elsewhere in Europe which has seen substantial efficiency gains of the order of 20-30%. In general competitive tendering, combined with privatisation, has also produced such gains in a multitude of other industries. The evidence shows however that it has been a qualified success in respect of demand, fares and quality. Owing to the strong rise in passenger demand – part of which might be regarded as exogenously driven, rather than being the result of the reforms - subsidy per train-km was lower in 2014/15 than at the start of privatisation despite the unit cost rises. In the intervening years, however, this measure of subsidy almost doubled before falling back and the future direction of subsidy levels is uncertain.

The size of Britain's franchises means that, when a new franchisee takes over a franchise, they take over an existing company, thus inheriting the staff and rolling stock. Given this fact, combined with the approach of using relatively short, net cost franchise contracts, means that franchisees have very limited incentives to tackle the cost base. This results because an industrial dispute would lead to substantial loss of revenue for an operator, which may not have sufficient time to recover over the remainder of the franchise. At the end of the franchise it would not then be able to keep the benefits as any improvements to the cost structure would be available to new bidders, who would inherit that cost structure.

Solutions to this problem may include increased use of gross cost contracts. These would increase operator focus on cost reduction and would also insulate operators from revenue loss during an industrial dispute. 2016 has seen a major industrial dispute on Britain's largest rail franchise, Thameslink Southern and Great Northern (TSGN). A key factor in the dispute is the introduction of driver controlled operation of trains. The TSGN franchise is a gross-cost contract, that passes all revenue risk to DfT. It is perhaps the case that this type of approach is needed on a wider part of Britain's network for a time to enable an increased focus on cost reduction. Of course driver only operation is partly about increasing revenue through freeing up on-board staff to deal with customers, as opposed to door operation. Nevertheless, it clearly offers greater flexibility to run trains even when a second member of staff is not available and should contribute to lower cost in the longer term. This approach was recommended in the McNulty Value for Money study in 2011 but has seen little extension to date.

Other strategies to reduce costs could include the use of smaller franchises – this would enable new entrants to bring their own rolling stock and staff when taking over a franchise as occurs in some cases in Germany. However, Britain's franchises are so much bigger than franchises elsewhere in Europe that this approach is unlikely to be practical. However, the current evidence on economies of scale and density does suggest that modest reduction in franchise

size would not cause costs to rise and may reduce them. Smaller franchises would have advantages in increasing competition where franchises overlap which should benefit consumers; and making franchises smaller and less risky could also contribute to reducing the incidence of franchise failure and encouraging new entry.

Whilst gross cost contracts may be desirable for regional and to an extent commuter TOCs, intercity services are more amenable to net cost contracts given that they are profitable and may be run commercially. However it is on such franchises that franchise failure has been most prevalent. Future policy might therefore focus on splitting franchises up, thus reducing risk and in turn the probability of failure. This approach would also increase competition and could be combined with making franchises longer (to increase incentives for cost reduction) and / or increasing the role of open access operators. The evidence presented in this chapter shows that open access operators are surprisingly cheap (per train-km particularly, but even per vehicle-km). They may therefore have an increased role to play, putting pressure both on costs, with further benefits in terms of fares, services and quality of service as the evidence suggests.

The evidence also suggests that there have been limited incentives in the industry for innovation or cost reduction in respect of rolling stock. Possible solutions to address this problem include longer franchises (possibly combined with more open-access, which gives the private sector greater freedom over rolling stock choice). Within the franchise model there is a question though as to how long franchises would need to be to create the right incentives. Therefore, at least in respect of franchise operations, it may be that government needs to take the lead in procurement, ideally through an arms-length body as in Sweden.

The evidence suggests that selection of the right combination of reforms in railways is not straightforward. International evidence suggests that closer co-ordination between infrastructure and operations is particularly important on densely used railways. Some of the suggestions above, including the use of smaller franchises and greater open access could run the risk of exacerbating co-ordination problems at the operations-infrastructure interface. Changes to the access charge regime to ensure that open access operators contribute towards avoidable costs and compensate franchise operators (and in turn the public purse, through some sort of public service obligation levy) are also likely to be needed.

That said, given the very substantial rises in both TOC and infrastructure costs in Britain it does not appear that current approaches are working. There is also limited evidence that alliances between monopoly operators and Network Rail on individual routes have yet brought about cost reductions. It could therefore be that now the time is right to embark on further reforms, perhaps combined with strong route-based regulation of Network Rail, to bring about a step change in the cost performance of Britain's railways.



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