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Exploring the effects of passenger rail franchising in Britain: Evidence from the first two rounds of franchising (1997–2008)

Andrew S.J. Smith [a,b,*], Phill E. Wheat [a], Chris A. Nash [a]

[a] Institute for Transport Studies, University of Leeds, UK
[b] Leeds University Business School, University of Leeds, UK

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A B S T R A C T

This paper provides an up-to-date review of the previous literature concerning the impact of passenger rail franchising on productivity and costs in Britain, and also presents important new evidence. In particular, the extension in time of previously-used datasets offers the first opportunity to study the impacts of re-franchising. The previous literature emphasised the failure of franchising to produce sustained productivity gains, with a sharp deterioration in productivity after 2000. The new evidence presented offers a somewhat more positive view of the British experience. It suggests that part of what was previously considered to be falling productivity may in fact be due to exogenous changes in diesel prices. Further, new data suggests that the recent increases in costs have resulted in higher quality of service. Finally, competitive re-franchising, and the associated unwinding of short-term management and re-negotiated contracts, seems to have led to improvements in productivity between 2006 and 2008. Nevertheless, it remains the case that passenger rail franchising in Britain has failed to reduce costs in the way experienced in many other industries and in rail in other European countries. The evidence is that somewhat larger franchises, avoiding overlapping and optimising train density and length, should reduce costs. We also speculate that the major increase in wages and conditions of staff might be moderated by longer franchises, although that remains to be proved. This re-appraisal of the British case is important in the context of the wider international interest in the use of franchising in passenger rail, and its relevance to the current review of ways of introducing competition into the domestic rail passenger market in Europe.

1. Introduction

Franchising (or competitive tendering) has become an important method for introducing competition "for the market" where competition "in the market" may be undesirable. Starting with the 1991 European Commission Directive 91/440, Europe has embarked on a process of deregulation in the rail sector, progressively opening up rail markets to competition (both in and for the market). Though not currently required by legislation, a number of European countries have utilised competition for the market in order to improve the efficiency with which passenger rail services are delivered (see, for example, Alexandersson & Hulten, 2007). This method of procuring passenger rail services has also been adopted elsewhere, most notably Melbourne and South America.

There is therefore considerable interest in understanding the impact of competitive tendering in passenger rail around the world, and learning from the varying experience in different countries. In Britain in particular, in late 2009 both the Office of Rail Regulation (ORR) and the Department for Transport (DfT) initiated reviews of the rail service delivery model in Britain, based on learning the lessons from passenger rail franchising around the world. Looking forward, the European Commission is reviewing options for the introduction of competition into the domestic rail passenger market (see Nash & Matthews, 2009). Thus, understanding the impact of passenger rail franchising, and the relative success of alternative approaches, will become even more important from a policy perspective.

Against the background set out above, this paper aims to review and update the current state of knowledge concerning the impact of passenger rail franchising on costs, productivity and efficiency in Britain. Its contribution in the context of the previous literature is as follows. Firstly, the paper provides a comprehensive review of the previous literature, also bringing it up-to-date to incorporate recent studies. Secondly, new evidence is presented, including the addition of new data to cover the years 2007 and 2008 (the most recent study did not extend beyond 2006).

The addition of two additional years of data is important because it gives us greater insight into the impact of the re-franchising

* Corresponding author. Institute for Transport Studies, University of Leeds, UK.
E-mail address: A.S.J.Smith@its.leeds.ac.uk (A.S.J. Smith).

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process – which started in 2004 – during which most of the British franchises let at privatisation were again opened up to competition. Given the policy interest in Britain, and also internationally, with regard to rail franchising, its effects and optimal ways of implementation, it is important to have a comprehensive statement of the evidence on British rail franchising, based on the most up-to-date data. Further, given the problems experienced during the first round of franchising it is also particularly important to explore whether re-franchising has begun to turn the situation around. In competitive tendering experience more widely, it is often the case that the early rounds of franchising raise problems that are resolved in subsequent rounds (see, for example, Domberger, Meadowcroft, & Thompson, 1987).

Overall, the new evidence presented in this paper indicates a more favourable interpretation of the impact of passenger rail franchising in Britain on costs and productivity than the previous literature suggests. The remainder of the paper is organised as follows. Section 2 sets out the scope, coverage and methods adopted in the previous literature, with the key findings with respect to the cost, productivity and efficiency impact of British rail franchising detailed in Section 3. Section 4 describes the data and presents the new evidence. Section 5 concludes.

2. Literature review: scope and methods

There is an extensive literature analysing the efficiency and productivity performance of vertically integrated railways around the world (see Oum et al., 1999; Smith, 2006). However, there has been relatively little work looking at the efficiency performance of the passenger train operations sector in Britain, these being: Affuso, Angeriz, and Pollitt (2003); Cowie (2002a, 2002b, 2005 and 2009); Smith and Wheat (2009) and Smith, Nash, and Wheat (2009). Preston (2008) provides a review of, inter alia, previous cost studies of the British rail sector. Below we briefly discuss the methodology and data sources used in those studies. It is important to understand the methodological and data issues in order to interpret the key findings set out in section 3.

The first point to note is that the papers have utilised a variety of methods including non-parametric DEA (Affuso et al., 2003; Cowie, 2009) and index number approaches (Cowie, 2002a; Smith et al., 2009), as well as parametric estimation of cost functions (Cowie, 2002b; Smith & Wheat, 2009), production functions (Cowie, 2005) and distance functions (Affuso et al., 2003). Secondly, of the previous TOC cost studies, only three cover the important period after 2000 when TOC costs started to rise substantially, these being Cowie (2009), Smith et al. (2009), and Smith and Wheat (2009). Cowie (2009) covers the period to 2006, whilst the latter two papers cover the period to 2006.

Thirdly, the four papers by Cowie all include some measure of infrastructure input in the analysis. This in turn raises two important and related problems: (1) the infrastructure input is hard to measure; and (2) the inclusion of this input turns the analysis into an assessment of rail industry performance, rather than being targeted on the TOCs. As Cowie (2009) notes, route-km is a poor proxy for the infrastructure input. However, the alternative measure – access charges – adopted in Cowie (2009) is also a poor proxy, since fixed access charges have changed substantially since privatisation as costs have risen after the Hatfield accident in 2000; and also as the mix between the infrastructure provider's charges, grants and borrowings has changed. The allocation of fixed access charges between TOCs is also subject to a degree of arbitrariness due to the presence of joint costs.

The above problems are particularly apparent in Cowie (2002b), where a total cost function (including fixed infrastructure charges) is estimated, which implies a total (rail industry) cost minimisation assumption. Also, in Cowie (2009), which includes access charges as one of the inputs, the DEA methodology could mean that the efficiency scores are computed with reference only to infrastructure inputs and not TOC inputs (since the DEA method often gives zero weights to some inputs). Clearly, with infrastructure inputs included, the conclusions in Cowie (2009) concerning changes in TOC productivity after 2000, will also be affected by the substantial changes that were occurring to fixed access charges over that period (which had nothing to do with TOC performance).

In their study, Affuso et al. (2003) produce two models: one including the infrastructure input, and one not. The results differ as a result, although this problem is less severe during the early period after privatisation (which the study covers), since access charges and infrastructure costs were fairly stable during that period.

Whilst there are good reasons for capturing the infrastructure input in a study of TOC performance, to capture the possibility that this input affects the TOC transformation function, Smith and Wheat (2009) argue that, given the measurement problems noted above, infrastructure inputs are best left out of the analysis. The dependent variable in their paper is thus defined as TOC costs, excluding fixed access charges. Route–km is also included as an explanatory variable in their model, not as a measure of the infrastructure input, but to distinguish between scale and density effects.

Finally on data, there are issues with the consistency of data from year to year and TOC to TOC, given the data sources used in some of the previous studies. In particular, most studies utilised the data in TOC accounts to determine the cost of network access. However investigation of the accounts reveals inconsistencies across TOCs and over time as to what elements of access charges are itemised under this category of cost. Also the series on train-km derived from the Office of passenger Rail Franchising (OPRAF) and National Rail Trends contains unexplainable step changes over time for some TOCs, indicating that this series may be unreliable. Smith and Wheat (2009) take a step forward in terms of data quality, sourcing access charge data (which is crucial to computing TOC own costs) and train-km and vehicle-km directly from the British infrastructure manager.

3. Key findings from the literature

This section reviews the findings from the literature on the productivity and cost impact of British passenger rail franchising, and the impact of different aspects of government policy in respect of the franchising approach adopted. The purpose is to set out the current understanding prior to the addition of the new evidence presented in Section 4. We start by outlining the evidence from the literature on how productivity has changed since privatisation. We then look at the explanations for these post-privatisation trends, and the impact of government policy in this area.

3.1. The impact of British passenger rail franchising on productivity and costs

The most up-to-date study of the productivity impact of British passenger rail franchising is Smith and Wheat (2009). They report the trend in passenger train operating company (TOC) costs over the period 1997–2006 (see Fig. 1; adapted from Smith & Wheat, 2009). The cost base used in that paper is total TOC costs, including rolling stock costs and the costs of electricity for traction (EC4T), but excluding payments to Network Rail for access to the network (so it excludes, fixed and variable access charges, station access charges and infrastructure-related performance payments).

Fig. 1 shows a story of falling costs in the first few years after franchising (falling by 15% between 1997 and 2000), followed by a very sharp rise thereafter (by 45% in total). Whilst train-km