



Changes in transaction costs over time – The case of franchised train operating firms in Britain

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A B S T R A C T

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The significant effects of competition, franchising and vertical separation of rail infrastructure from train operation on the level of transaction costs are often anecdotally described in the literature. Although it has been shown that franchising has an effect on total costs, there is very little empirical evidence on whether franchising has an impact on the level of transaction costs over time. One reason for this is, of course, the limited systematic work on the measurement of transaction costs in railways. This paper builds on recent work that applied a top-down approach to transaction cost measurement to identify the size of the transaction sector within rail firms in different EU countries. In cross-country comparison particularly, British train operators turned out to be associated with high levels of transaction costs. However, since the previous work focused on a single fiscal year it did not show any longitudinal effects within one institutional environment or country. Therefore, this paper focuses on British franchised passenger train operating firms and aims to reveal how the transaction sector within those firms has changed over the period 1996/1997–2007/2008 and whether the franchise contract details, such as contract length or the franchising regime, matter. It also aims to estimate the resulting changes in the level of transaction costs and their share in total operating costs for the first time.

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1. Introduction

The role of transaction costs (such as information, negotiation or monitoring costs) for effective and efficient contracting in the transport sector is increasingly recognised in the literature (e.g., Hensher, *in press*; Yvrande-Billon & Ménard, 2005). It is generally acknowledged that contracts are incomplete and since there are a variety of contracts and forms of organisation of transportation firms available, it is interesting to analyse which type of contract or form of organisation is best in terms of transaction costs. For the railways, there is a growing debate on transaction costs with regard to vertical separation of rail infrastructure management from train operations (for example, Pittman, 2005; Preston, 2002). Along with the change in European (EU) legislation (91/440/EEC and 2001/12–14/EC), the EU governments changed the organisation of their railways significantly. The primary objective has been to promote competition on the rail networks, especially in the freight sector, in order to make the railways more competitive against other modes of transport and to create a truly European rail market. It appears that most rail reforms in Europe have at least some beneficial effects. However, in general, all

reforms are seen as a compromise between introducing competition and minimising transaction costs (Nash, *in press*).

In the fully-separated rail system of Britain, most of the passenger train operation is associated with the franchise model, where franchise contracts for specific routes on the network are awarded through competitive tendering to private operators who either pay a premium or receive subsidies for operating services on these routes. The rolling stock is leased from rolling stock companies and when the franchise terminates, all assets and most of the staff (but not the top management) are transferred to the following franchisee. Franchising and competitive tendering have become the preferred European approach for introducing competition for the market, where competition in the market is considered to be undesirable. Although other countries have introduced franchised train operations, particularly in Britain, there have been concerns that the chosen franchising model would not provide sufficient incentives for the franchised passenger train operating companies (TOCs) to keep costs under control. Although there is growing evidence that franchising has an effect on total costs in Britain (for example, Nash & Smith, 2007), the importance of transaction costs in this equation is less clear. One reason for the latter is, of course, the very limited systematic work on the measurement of transaction costs in railways.

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This paper draws on recent results of a transaction cost measurement analysis for the railways (Merkert, *in press*). In this first study of its kind, it has been shown that transaction cost measurement is possible, even in today's commercially data-sensitive rail industry. It has been further established that the degree of vertical separation has an impact on transaction costs but that their magnitude in relation to total operating costs is relatively low. Nevertheless, in this first transaction cost cross-country comparison, particularly British train operators turned out to be associated with high levels of transaction costs. Since this previous work focused on a snapshot of 2006/2007, it is questionable whether these transaction costs, as an indicator of the internal efficiency of the newly emerged organizational structures, have changed over time.

With regard to the British case, it is firstly interesting to analyse whether transaction costs had been at a very high level just after the major restructuring of the British rail system¹, as a result of substantial uncertainty and intense negotiation of new and complex contracts where previously transactions have been managed within the one rail company of British Rail. It is then interesting to establish whether these initially high transaction costs have declined over time, for instance, as a result of learning effects and developing strong informal partnerships between the different relevant parties. In addition, since it has been shown that the costs of train operation have been spiralling as a result of the aftermath (new safety culture, management contracts etc.) of the train accident in Hatfield (see Smith & Wheat, 2007), it is appealing to measure the extend of which transaction costs have contributed to the substantial increase in total costs. It is, finally, worth examining whether contract details, such as length and remaining years of the franchise contracts, have an impact on the level of transaction costs. In the transaction cost economics literature it is generally argued that long-term contracts can reduce the level of transaction costs (see for example, Joskow, 1987) and it is interesting to analyse whether this is also the case for British TOCs.

To sum up, the aim of this paper is to determine whether transaction costs change over time, which should be particularly so in the case of British franchised train operating companies over the period from 1996 to 1997 until 2007–2008. The paper is structured as follows. Section 2 presents the general framework for transaction cost measurement that is used in this paper. Section 3 details the methodology and the data. The results are presented and discussed in Section 4, whilst Section 5 offers some conclusions.

2. Framework for transaction cost measurement

Besides the literature on Williamson's concept (see for example, Williamson, 1998, 2005) of indirect transaction cost measurement (the higher the asset specificity, frequency and uncertainty of a transaction, the more transaction costs will arise if this transaction is not appropriately governed) other methods of more direct transaction cost measurement have emerged. The entire concept of transaction costs has been extended to various disciplines and according to Wang (2007) different sources of transaction costs resulted in diverging streams of approaches of transaction cost measurement. All the approaches assume that transaction costs are not zero but the literature is far from finding a universally-accepted definition of either the term 'transaction' or the term 'transaction costs'. The literature provides a huge variety of types of transaction costs, from the macro level of "cost of running the economic

system" (Arrow, 1969, p. 48) to the micro level of costs of establishing and maintaining property rights (Allen, 1991) or establishing and running businesses (Benham & Benham, 2004) from ex ante to contracting or ex post-transaction cost, from market to managerial or political transaction cost (Furubotn & Richter, 2005) and most relevant to this paper, also costs associated with the preparing, negotiating, enforcing and monitoring of contracts (Coase, 1960). Although there is neither an universally-accepted definition of the term 'transaction costs' nor a standard approach to estimating transaction costs, it is widely-accepted now that their level changes over time. Langlois (1992), for instance, has revealed learning effects regarding probabilities of future events which make parametric uncertainty associated to the relevant transactions less important over time. Initially the high transaction cost of new environments can hence decrease over time. On the other hand, as markets and services become more complex, transaction costs can also increase over time.

The first attempt to measure specifically the level of transaction cost was made by Wallis and North (1986), who tried to estimate the transaction cost of the US economy and its change through time. Although they admitted they were unable to observe the level of all transaction costs (Wallis & North, 1988), they estimated a fundamental part of it (which amounted to 50% of GDP), the so-called "transaction services", which are transaction costs embodied in marketed services. Besides measuring the size of transaction industries (for example, finance and insurance), the size of the "transaction sector" within firms of non-transaction industries was also revealed. In this macro top-down approach, the transaction sector of firms is computed by estimating the wage payments to employees with transaction occupations (for example, managers or staff working in legal, finance or HR departments). The units of analysis in this literature are the transaction sectors of economies or firms.

The methodology has been successfully applied to a number of economies in several studies (for example, van Dalen & van Vuuren, 2005), to the US banking industry (Polski, 2001) and recently it has been also applied to the European railways (Merkert, *in press*). In the first systematic quantitative work on the measurement of transaction costs in the rail industry, Merkert identifies the transaction sector within both train operators and infrastructure managers in three EU countries for the financial year 2006/2007. The results suggest that the transaction sector, or in other words, the overall transaction costs of rail firms in Europe, are at the most, 10% of operating costs. Although this suggests a relatively low importance of the transaction costs in terms of total costs, it has been also shown that Britain had in that specific year, compared to the other analysed countries, a comparatively large transaction sector. However, since no longitudinal data has been used so far, it is still unknown whether transaction costs of rail firms change over time and whether this year has been exceptional for the British rail system. This paper aims to shed light on these unresolved questions. Although Wang (2007) points out that the transaction sector view is missing, the so-called non-marketed transaction cost of individuals using the market (own transaction activities rather than transaction services), the approach can be still seen as useful to reveal transaction costs of institutional environments such as rail firms in an innovative and more cardinal scale compared to the indirect indication of transaction attributes within Williamson's concept.

3. Methodology

This section contains two parts. The first details the transaction cost measurement approach used in this paper and the second illustrates how the impact of contract details on the level of transaction costs is estimated.

¹ In 1994/1995 the British rail system has experienced a major privatisation campaign and, perhaps for this paper, more relevant, the introduction of competition along with vertical separation of train operation from rail infrastructure management and further fragmentation across the industry.

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