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Competition and the provision of rail passenger services: A simulation exercise

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ABSTRACT

This paper presents the results of simulating the effects of introducing competition on a long distance international rail passenger route where there is also a strong domestic market served by high speed trains. We are aware of a number of proposals to introduce new services in such circumstances. It has allowed for the fact that on such a service seat reservations are likely to be compulsory and yield management practiced, so that whatever is initially assumed about fares there will be further endogenous changes in average fares to maintain high load factors. It is found that on-track competition has benefits to consumers, in terms of fares and services, but that it would reduce the profitability of the incumbent and that it would be difficult for the new entrant to attain profitability unless its costs were significantly lower than those of the incumbent. A large part of the revenue of the entrant on this route would come from the domestic market, and if open access competition were permitted then the entrant might seek to run a frequent service offering head on competition on this part of the route. However, again it would appear that both operators would make heavy losses in this situation. One way of restoring profitability might be to reduce track access charges, but that would require additional government subsidy to the infrastructure manager, as the additional train kilometres run would not compensate for the lower charges. An alternative way of seeking to achieve the same result as on track competition in terms of reduced costs and innovation whilst preserving economies of density would be to award a monopoly franchise by means of competitive tendering. Franchising has generally succeeded in raising rail demand and reducing costs, although in the one example where inter-city services were franchised – Britain – costs have actually risen. Thus unless this is due to peculiarities of the British situation which would not exist elsewhere, on track competition may still have a role in reducing costs.

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1. Introduction

The policy of the European Commission is to introduce competition within the rail sector, and this has already been implemented for freight services. In the case of passenger services, as from January 2010 open access has been required for cross border services, including the right for them to carry domestic passengers, provided that the primary purpose of the service is to carry international passengers, and it does not disturb the financial equilibrium of a service subject to a public service contract. Although there is currently no requirement to open up the domestic passenger market to competition, the European Commission is considering proposals for this (Nash, 2009), and a number of countries have already done so, by means of two alternative mechanisms. Firstly in a number of countries new entrants are legally permitted in the commercial market to compete directly with existing operators, although some barriers to entry have remained. Until recently actual levels of entry to date have been low, and mainly confined to

niche markets, but in the last year new entrants have introduced frequent services operating in head on competition with the incumbent between Vienna and Salzburg, and on the new Italian high speed line between Milan and Naples. There are a number of other cases where major operators such as the state owned railways of Germany and Italy are known to be interested in entering the international market. Secondly, in Britain, Sweden, Germany, and to a lesser extent in a number of other countries, competitive tendering takes place for the franchises to operate some or all services. Britain is unique in that this tendering extends to virtually all commercial services, which pay a premium, as well as subsidised services, although the Netherlands also used competitive tendering for operation of its new high speed line.

The aim of this paper is to contribute to the understanding of the likely consequences of new entry into the commercial passenger market both on international and domestic routes. To do this we have applied the PRAISE software tool to both an international route and the domestic portion of that route. PRAISE was developed by our Institute to estimate the revenue, costs and benefits of different levels of services and fares provided by competing companies, allowing for the exact choice of train made by the user and incorporating a feedback whereby the level of crowding in each individual

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train influenced the choices of the passengers. For the purposes of this study, we enhanced the PRAISE model to allow for compulsory seat reservations and to incorporate a yield management system, which dynamically adjusts fares in line with remaining available seating capacity. To our knowledge this is the first disaggregate rail forecasting model to incorporate this facility, which is of great importance in analysing high speed rail services.

In Section 2, we review the literature on passenger market competition, both via competitive tendering and open access. In Section 3, we present the enhanced PRAISE model, and we outline the results of the new modelling exercise in Section 4. Finally, we reach our conclusions in Section 5.

2. Competition in rail passenger markets

As noted in the introduction, there are two forms of competition to be found in rail passenger markets in Europe. The most common one is competition via competitive tendering for the contract to run a specific set of services. This is generally the only form of competition possible for the large proportion of the rail passenger network which requires subsidy. One would expect that, since only a cost efficient company can expect to win a tender, competitive tendering would drive down costs to an efficient level. Whether it will lead to enhanced services may be expected to depend on the nature of the contract; if services and fares are completely specified by the tendering authority under a gross cost contract, then whether services improve will depend entirely on their decision (but it may be that cost reductions will free the resources to allow such improvement). By contrast, a net cost contract, in which the operator bears revenue risk but has at least some freedom regarding services and fares, will give incentives to attract more revenue, particularly on more commercial services where revenue is reasonably high compared with costs. In practice, the evidence is that services have improved (Nash et al., forthcoming; Lalive and Schmutzler, 2008) and costs been reduced (Alexandersson, 2009) in all countries which have practiced competitive tendering with one exception. In Britain, the one country which has introduced competitive tendering for all services, commercial and subsidised, train operating costs have actually increased significantly such franchising was introduced (Smith et al., 2009).

The reasons for this failure for franchising to reduce costs in Britain appear complex (Smith et al., 2009), associated with a number of factors including the market power given to the unions by the fragmentation of the rail system, with no single dominant operator, the willingness in the past of the British government to renegotiate where franchises proved unprofitable and the general disruption to the rail sector caused by the events associated with the bankruptcy of the infrastructure manager, Railtrack. Of particular interest in the current context however is the difference from the labour market situation in other countries which practice competitive tendering. In Britain the incumbent, British Rail, was not allowed to bid for franchises and ceased to exist as a train operator, but in order to ensure a smooth transition, whoever won the franchise was obliged to take on existing staff at current wages and conditions. This has encouraged franchisees to compete in terms of wages and conditions for scarce skilled labour, knowing that when the franchise is relet their competitors will face the same wages and conditions as they do. In both Germany and Sweden, the state owned operator is allowed to bid, remains a major operator and often retains its own staff even when it loses a franchise. Competitors are free to recruit their own labour and to set their own wages and conditions. As a result the threat of competition from lower cost companies serves to restrain the power of the unions more in these countries than in Britain. Perhaps the British approach is inevitable where all services are franchised, as the

transition problems of new companies needing to recruit staff on the necessary scale would otherwise be formidable.

With open access competition, this issue does not arise and a new entrant will certainly be able to determine its own working practices, wages and conditions. One might therefore expect a new entrant to have lower costs, and in turn to put pressure on the costs of the incumbent. As against this, there is strong evidence of economies of density in train operating companies (Wheat and Smith, 2010), which a small entrant will be unable to exploit (but as noted above, new entry is not always on a small scale). If new entry simply reduces load factors then their unit costs will rise. But of course this may be countered by fares reductions by both entrant and incumbent. The question then is to what extent this fares reduction will reduce profitability and whether it is sustainable.

At the same time, new entry may improve services, both simply by providing a wider choice of departure times and by incentivising improvements in comfort and on board service. As against this, if tickets are not interchangeable, then for passengers who desire flexibility in departure times frequency will not improve, and if the incumbent is forced to cut services it may actually deteriorate. Moreover, there is evidence that a planned integrated timetable with good connections gives benefits which may be lost if the timetable is determined by competing operators (Johnson et al., 2006).

At the time of writing there is very limited experience of open access competition in passenger markets. In Germany, open access for new entrants who wish to operate commercial services has been authorized by law since 1994, but there has only been a very limited amount of new entry, and what has taken place has been in niche markets; usually routes not otherwise served by through train services, but also sometimes involving special services such as sleeping cars. Mostly, these services have been provided by existing operators of regional services, who can thus share staff and rolling stock between commercial and subsidised services (Séguret, 2009). There are a number of reasons identified in the literature for the low level of entry, including the low profitability of many routes, relatively high infrastructure charges, the advantages of an integrated passenger network, and lack of capacity on key routes and at the busiest times of day. There have also been allegations of continued barriers to entry. In Germany, the main operator and the infrastructure manager remain part of the same group, which is also the main provider of services such as maintenance, cleaning and information, and it is alleged that this position has been used to try to prevent entry.

In Britain, new entry is only permitted if the Regulator is satisfied that it will attract new traffic to the rail network rather than mainly divert traffic from existing (franchised) services (Griffiths, 2009). The small number of services now running all provide through services to London from places not otherwise so served (or only served once per day in the case of Hull) but do compete directly with frequent franchised services between some places on the main line. Although open access services have been started by small companies, all those now running are provided by big groups (namely DB and First) who also provide franchised services, and most of the interest in further open access operation is coming from one of these groups (DB, through its subsidiary Arriva). Studies (Lalive and Schmutzler, 2008) have shown that the existing open access operations offer lower fares and benefits to users, but it has been argued that by running shorter trains they are not optimising the use of scarce track capacity (they only pay track access charges based on short run marginal cost and which do not include a scarcity charge).

On-track competition has also occurred in Britain between different companies where services are franchised and franchises overlap (Jones, 2000). Indeed there has been much debate as to whether franchises should be deliberately designed to promote

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