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Rail access charges and internal competition in high speed trains[☆]



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ABSTRACT

This paper develops an ex ante analysis of the introduction of on-track competition in High Speed Rail (HSR) lines. The distinctive elements of our analysis are the consideration of: (i) the vertical structure of the rail sector; (ii) operators that compete in prices and number of services, and (iii) access charges for the use of the rail infrastructure that are endogenous. We provide simulation results for three Spanish HSR routes. The socio-economic viability of entry is found to depend on whether infrastructure and rail operations are integrated or separated, and also on the policy rule to set rail access charges. Firstly, separation without entry is not an appropriate good policy: the reduction in prices is followed by a reduction in the number of services that leads to lower consumer surplus and lower industry profits. Secondly, marginal cost pricing, that would entail losses to the infrastructure manager, would make entry profitable because access charges are much lower; welfare gains would be in the range of 6–9% higher than in the pre-entry scenario. This conclusion holds for large increases in rail traffic. Thirdly, the consideration of a more realistic scenario (where the entry of a new operator would lead to a modest rise in the whole rail traffic), while encouraging entry, would imply welfare losses yet consumer surplus would go up as long as access charges are set to marginal cost pricing.

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1. Introduction

European rail policy has long been concerned with developing a strong and competitive rail transport industry. Over the years, the rail sector has undergone notable restructuring in the separation of rail infrastructure from operations, and the various Railway Packages and directives have, among other things, steadily encouraged a market-opening process in the supply of rail services.¹ Liberalization plans, in

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¹ Contrary to legislation until then, the Fourth Railway Package by the European Commission launched in 2013, represents a qualitative change regarding the separation in the management of railway infrastructure and services. It allows a certain level of flexibility in choosing the vertical structure as long as the necessary independence of activities is preserved (see the decision by the European Parliament, 26 February 2014). Very recently, at the meeting of the Council of Transport Ministers, 8 October 2015, the proposal of vertical integration of operators was accepted, under certain conditions and safeguards.

high speed rail (HSR) lines in particular, have been implemented, or about to be, in several European countries. HSR lines are expensive and so it is understandable that governments seek to recover part of the infrastructure investments through rail access charges. How these are set becomes crucial for an effective competition within the rail sector. Thus, some countries follow social marginal cost pricing (comparable to an integrated structure comprising the infrastructure manager and the operator); others set a markup over the social marginal cost (a situation that would naturally arise when there is separation, particularly if firms obey some kind of profit maximizing behavior and are willing to eliminate state compensations). In this framework, which industry structure may favor the entry of a new operator remains an open research question. It is therefore important to quantify the impact of HSR charges on prices, number of services and traffic which will ultimately determine the social desirability of specific structural changes.

We propose an ex ante analysis of the introduction of competition in HSR lines, which may be helpful for informed policy making in rail passenger transport. The distinctive elements of our analysis are the consideration of: (i) the vertical structure of the rail sector, (ii) operators that compete in prices and number of services, and (iii) access charges for the use of the rail infrastructure that are endogenous. After building a model with these elements, we proceed to calibrate it for several Spanish HSR

routes. Then we simulate how structural changes, that result in different access charges, affect market entry conditions. From a transport policy perspective, it is our purpose to provide a contribution that allows for a more efficient exploitation of the HSR services.

In June 2012, the Spanish government announced plans to boost the liberalization process in the rail system. Through the passing of the order in the summer of 2012 (R.D. 22/2012) about liberalization of rail passenger transport in Spain, the Government approved a plan to introduce competition in commercial or profitable lines. The way to introduce competition in these services would consist of the introduction of new rail operators competing with the incumbent operator RENFE. This plan was better specified by the order in 2013 (R.D. 4/2013); the government approved to tender the right to offer the rail service in the corridor Madrid-Levante (Government Resolution of June 27, 2014). Such right would be achieved in a tendering process, and the new operator could supply its services competing with the incumbent operator. The new operator would be allowed to fix freely the prices and the number of train services. After different announcements the Minister of Transport set the end of 2015 to begin the entry of the new operator, but the tendering process has not been undertaken yet, and the whole process is being significantly delayed. Still, questions related with the access pricing policy by the infrastructure manager naturally arise: Will it follow a first best pricing policy? What would happen if the Spanish public entity that owns and manages the rail infrastructure (ADIF) followed a profit-maximizing rule? What would be the implications of different and non-discriminatory access pricing policies if there were on-track competition between different rail operators?

Recent news on different media has noted the tensions between RENFE and ADIF. The latter has historically complained about the imposition of very low access charges by the public regulator. In fact, ADIF has got a significant revenue increase for its charges by 16% with respect to 2013 and by 58% with respect to 2012. Even so, ADIF attained losses of €230 million in 2014. At the same time, RENFE has recently objected to these recent increases by stating that such charges are inefficient: they are clearly above the marginal infrastructure costs and they are reducing the optimal rail traffic. This debate is on the rise due to the opinion of the potential entrants who support the incumbent's position, and add that high infrastructure charges will make entry more difficult. Finally, public administrations are being forced to introduce break-even constraints, and even the privatization of ADIF has been suggested as a possible measure. In view of the preceding arguments it is understandable that HSR, and any plans associated with it, has lost political and social support.

Rail liberalization has been widely examined in the transport literature – see Beria et al. (2012) for a European comparison and the references therein. There are few experiences of “competition in the market” in the rail passenger industry. Franchising systems have been the most usual policy to foster competition in this market. However, in some countries such as the UK there has been competition in the market when franchises overlap or run parallel to each other. Overlapping franchises are defined as those where more than one operator serves passengers on a flow using the same track. But potential benefits coming from this type of competition are limited because the conditions of the service (mainly price and number of services) are set in the franchise.² Most of this on-track competition has occurred between companies offering services of different quality, usually an inter-city operator and a regional or commuter operator, with the latter offering slower and less comfortable services at lower fares.

On the contrary, our paper is interested in ‘Open Access Operators’, OAOs, that is, operators of passenger services whose right to operate is derived not from a franchise awarded by the government, but from awarding of the right to access the network on certain routes for a specified time. In the UK, there are currently just two OAOs, Grand Central (owned by Arriva UK, which is itself a subsidiary of the German national rail operator Deutsche Bahn, and which operates certain franchises) and First Hull Trains (a subsidiary of First Group which also has franchise operations in Great Britain). These operate a small number of services on specified routes in competition to the franchisee on the East Coast main line, but jointly they represent less than 1% of passenger miles.

This competition has developed in a number of other European countries, in particular in Austria, the Czech Republic, Italy and Sweden. This competition is produced in long-distance and commercial services where the new operator competes with the service supplied by the incumbent operator. A first review of these experiences can be consulted in Steer Davies Gleave (2012) and Competition and Markets Authority, CMA (2015). In most of the routes the new operators seem to have achieved a relevant market share without hardly reducing the market for the incumbent. However falling average fare prices have posed serious financial challenges for some of the new rail operators (see Barrow, 2015).

The most similar experience to the case analysed in our paper is the Italian HSR service in the route Milan-Rome-Naples. The Italian passenger market experienced the entry of a new operator, Nuovo Trasporto Viaggiatori (NTV), which competes with the incumbent operator, Trenitalia, in several city-pair markets. Bergantino et al. (2015) provide a thorough analysis of the Italian case. They find that the incumbent has not reduced its supply and that entry has led to a greater utilization of the network. The two railway companies do engage in strategic pricing; besides, intra-modal competition has had a moderating effect on the fares charged by airlines, the competing mode.

We develop an imperfect competition model where strategic interaction among the different transport operators will be considered in a differentiated products long distance route. The initial situation considers intermodal competition between private transport (car) and rail transport. It is assumed that car transport is the result of a competitive market, where prices are exogenously determined, meanwhile the rail transport operator sets prices and number of services; rail access charges are also endogenous. Next we consider the entry of a new rail operator competing on the track with the rail incumbent. The different scenarios will be solved in a three-stage game where: first, the infrastructure manager chooses the access charge per service, second, the rail operator(s) select the number of services, and finally, the rail operator(s) set final prices. Besides we compare the results of the entry process depending on the vertical structure of the rail market, that is, depending on whether infrastructure and rail operations are integrated or not and also considering whether the access charge follows a marginal cost rule or is set to maximize infrastructure manager profits. Vertical separation implies, in this context, a disadvantage due to the double marginalization inefficiency, which reduces entry profitability since access charges are set above infrastructure marginal cost unless a marginal cost rule is enforced. This emphasizes our point that access charges and entry should be jointly considered.

Once the formal analysis has been presented, the model is calibrated for the Spanish HSR services between Madrid-Barcelona, Madrid-Sevilla and Madrid-Valencia using the available data on elasticities, prices, traffic levels, and operating costs. That is, we use the available data to construct compatible values for the unknown parameters of the model. We may subsequently simulate how structural changes affect market conditions, regarding

² CMA (2015) reports a list of competition between overlapping franchises.

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