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Towards oversized high-speed rail systems? Some lessons from France and Spain

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Abstract

France and Spain are among the countries which have the most extensive high-speed rail network. Both networks have a similar shape centered on the national capital and connecting to the main cities. They are the expression of national political priorities for territorial organization. Nevertheless, they have distinctive technical and commercial characteristics. This paper aims to make a comparison of two European high-speed rail networks embedded in different political and economic contexts, in order to assess both the endogenous and exogenous causes of the cap on growth that has now become apparent. The analysis will focus on the territorial coverage, the methods of planning and funding, and the commercial policies. Finally, the paper will highlight the models chosen in the problems encountered in tackling the issue of financing the infrastructures and in responding to the rise in intermodal competition. In both countries, high-speed rail is now reaching a threshold that marks the end of the model of development which shaped the establishment of the network.

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Keywords: High-speed rail; France; Spain; Territorial Planning

1. Introduction

France and Spain are among the countries in Europe that have built the largest high-speed rail infrastructures (according to the UIC definition, which only includes infrastructures on which trains can travel at 250 km/h or more), with respectively 2036 km and 2515 km in operation at the end of 2014. Moreover, the Spanish government announced that more than 1000 km of additional track would be in operation before the end of the year (Alonso,

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2015). However, the models of development in the two countries are different: the Spanish high-speed network is distinctive in having adopted European technical standards (in particular a track gauge of 1.435 m) whereas the conventional network is wide gauge (1.668 m). This has produced border effects, which means that high-speed trains and other train categories cannot run on the same tracks. In fact, variable-gauge trains can move between the new and old network at a limited number of points, providing a degree of continuity, but they make up only a very small part of the system. In the French case, there is greater articulation between the new and the old networks, allowing high-speed infrastructures to be built in successive phases and above all ensuring the maximum spread of high-speed trains, most of which use existing tracks.

The late 2000s were marked by signs of crisis in the two countries' rail systems, compromising the ambitious developments previously planned. Spain had planned to build a network of almost 5500 km while the French network was ultimately to cover 5200 km. It seems clear, despite the UIC's continuing display of sections of track in its "long-term planning" category (2014), that this mileage will not be built. The public finance crisis in both countries is one obvious reason, but our argument is that there are now structural reasons why the building programme will not go through to completion.

We therefore propose to re-examine the development models for high-speed rail in the two countries, in order to look for the endogenous and exogenous causes of the cap on growth that has now become apparent. These models are based on a target level of territorial coverage, methods of planning and funding, the commercial policies pursued by the national rail operators within a still largely non-liberalised framework, as well as very tough intermodal competition. They are the expression of national political priorities for territorial organisation.

2. The original strategic national choices

The French and Spanish programs were not launched at the same time, although they share the same configuration of lines radiating out from the national capital. France's TGV (high-speed train) project, which dates back to 1967, was initially much influenced by the Japanese experience, although there was no attempt to make a major technical break with an existing network that was deemed satisfactory. Because of the perfect technical compatibility between the old and new systems, there was no need for major construction works within cities to insert dedicated infrastructures. On the other hand, the TGV's designers did not imagine that so much of it would run on the existing network. It was the customer reaction to the train changes required at Lyon following the opening of the first Paris - Lyon line that prompted the operator to increase its rolling stock and extend services to the Mediterranean coast (Marseille, Nice, Montpellier) then to the Alps (Auphan, 1997; Troin, 1995). The initial objective of the TGV was to reduce congestion on the network's busiest lines, so there was no ambition to achieve full national coverage or to replace all the long-haul trains with high-speed services, as subsequently occurred.

After the full opening of the Paris - Lyon line in 1983, the SNCF (French rail company) was invited by the government to build a Y-shaped, 279 km, high-speed route with a short shared trunk line between Paris, Tours and Le Mans, which would shorten rail links to the Atlantic coast by one hour. It was clear from the start that the high-speed trains would make most of their runs on the traditional network which, though upgraded, was limited to 200 km/h. The decision to build the third sector, radiating northwards from the capital, was made in the late 1980s, with the construction of a line linking Paris to Lille and Calais and to the English Channel and the Belgian border, with the same system of services branching out from a single high-speed trunk line. This was the first international line, built in cooperation with Belgium. In the meantime, the government had decided to extend high-speed rail across the country with the launch of a very ambitious masterplan for high-speed links (published in May 1991) which would both expand the existing infrastructures and introduce additional radial and transversal routes (16 projects for a total of 3172 km). This plan also included a link between the North, East, South-East and Atlantic lines running around the periphery of the Paris metropolitan area and providing interregional services without the need to change trains in the Paris stations, a market segment that the SNCF began to develop very successfully from 1992 (Zembri, 2008). However, the costs of these thousands of kilometers of new infrastructure were essentially borne by the national