

High Speed Railways in Italy. Result from a competitive market

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In Italy, major changes have been occurring in the High Speed Railways (HSR) market. The new-generation of HSR trains (running at 300 Km/h maximum speed) was launched in December 2005 on the fast tracks Roma-Napoli and Milano-Bologna. The project had a second step onward in December 2009 when the Milano-Torino and the Bologna-Firenze segments were completed, which led to fully operative HSR services on the 1200 kms backbone of the Italian rail network. Moreover, due to the open access regulatory framework, starting from April 2012 the new HSR private operator "Nuovo Trasporto Viaggiatori" (NTV) enters the HSR market, competing with the incumbent public-owned "Trenitalia". This is the first case in the World of pure competition among HSR operators (NTV and Trenitalia) on the same line (i.e. a single infrastructure managed by the State-owned company "RFI").

This presentation gives an overview of the dual effects of the opening of the new HSR line with a single operator (between 2005-2012) and the effects of a new operator entering the HSR market (2012-onward) on supply, demand and prices, thus inferring the effects of competition in this typically monopolistic market.

The analyses are based on source data (laws and regulations, business plans, timetables, prices) as well as ad hoc extensive surveys, such as on-board counts on the HSR and Intercity trains, retrospect surveys, and RP/SP interviews as well as a complex system of mathematical models used to both monitor the Italian intercity passengers market and to test alternative rail services scenarios.

The integrated modeling system was developed to simulate the effects of timetables/services/prices provided by different HSR operators and competing modes (air/ auto/railways). The modeling architecture consists of the following integrated models:

- the "National demand growth" model, which projects the base year total OD volumes to future years, according to assumed macroeconomics trends;
- the "mode/service/run choice" model, which estimates the market share of different ex-urban transportation modes, including alternative rail services, such as Intercity, High-Speed, 1st and 2nd class and different HSR operators (i.e. competing within HSR mode) characterized by different fares, different timetables, different on-board services and other "brand-related" characteristics;
- the "induced demand" model which estimates the additional HSR demand due to the improvement of HSR level of services;
- the stochastic assignment model which loads the multimodal and multiservice (diachronic) network to estimate the flows on the individual trains and flights.

Some exemplary applications of the model are presented on short-term operational policies, such as fares and timetable optimization. The results suggest that the fine tuning of service timetables and pricing policies is a key factor in decision making.

The empirical evidences from the Italian HSR market show an outstanding increase of HSR passengers and passenger-Km's between 2009 and 2012. This corresponds to about 5 million more passengers for Trenitalia, and to about 2 million passengers carried by NTV in 2012. It is interesting to note that even Trenitalia has further increased HSR patronage in 2012, despite the entry into operation of the competitors NTV.

The above 7 millions of trips consist of 3.1 million trips (44%) diverted from other modes (2.2 million from Air and 0.9 million from highway); 2 million trips (29%) in diversion from other rail services on medium and long distance (mostly Intercity); the remaining 1.9 million (27%) are induced demand. This consists mainly of users moving over short distances, for leisure and visit friends and relatives. It includes also a number of users (i.e. the new "HSR commuters") who, thanks to the fast connections, were able to change their lifestyle, changing place of residence or study, or even working, starting to commute daily or weekly on high-speed trains between the new home and the place

of work or study, and vice versa. Data about modal shares variations both within and outside the HSR catchment area also also presented and discussed , showing a significant increase of the rail modal share in the passengers market.

Due to the competition HSR services expanded over the rail network and in new stations of Rome and Milan (i.e. the main metropolitan area of the Country). Moreover an increase of on-board services offered has been observed, as well as an overall reduction of the HSR fares (-31%) thanks to the new pricing structure and availability of promotional offers.