
AIR TRANSPORT AND HST

THE SPANISH CASE

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- ✈ **Between 2000 and 2012 air passenger traffic in Spain increased by 44.2%.^[1]**
- ✈ **In 2012 Spain was the fourth country in the world and the second in Europe in terms of air passenger traffic.^[1]**
- ✈ **Madrid Barajas is the fifth European airport in terms of passenger traffic and aircraft movements, and the first in terms of domestic flights.^[1,2]**
- ✈ **The Barcelona–Madrid Barajas corridor is the first intra-EU airport pair in passenger transport.^[2]**
- ✈ **Spanish airspace is among the more expensive in the EU.**

References: [1] - www.fomento.gob.es
[2] - EU Transport in Figures 2013

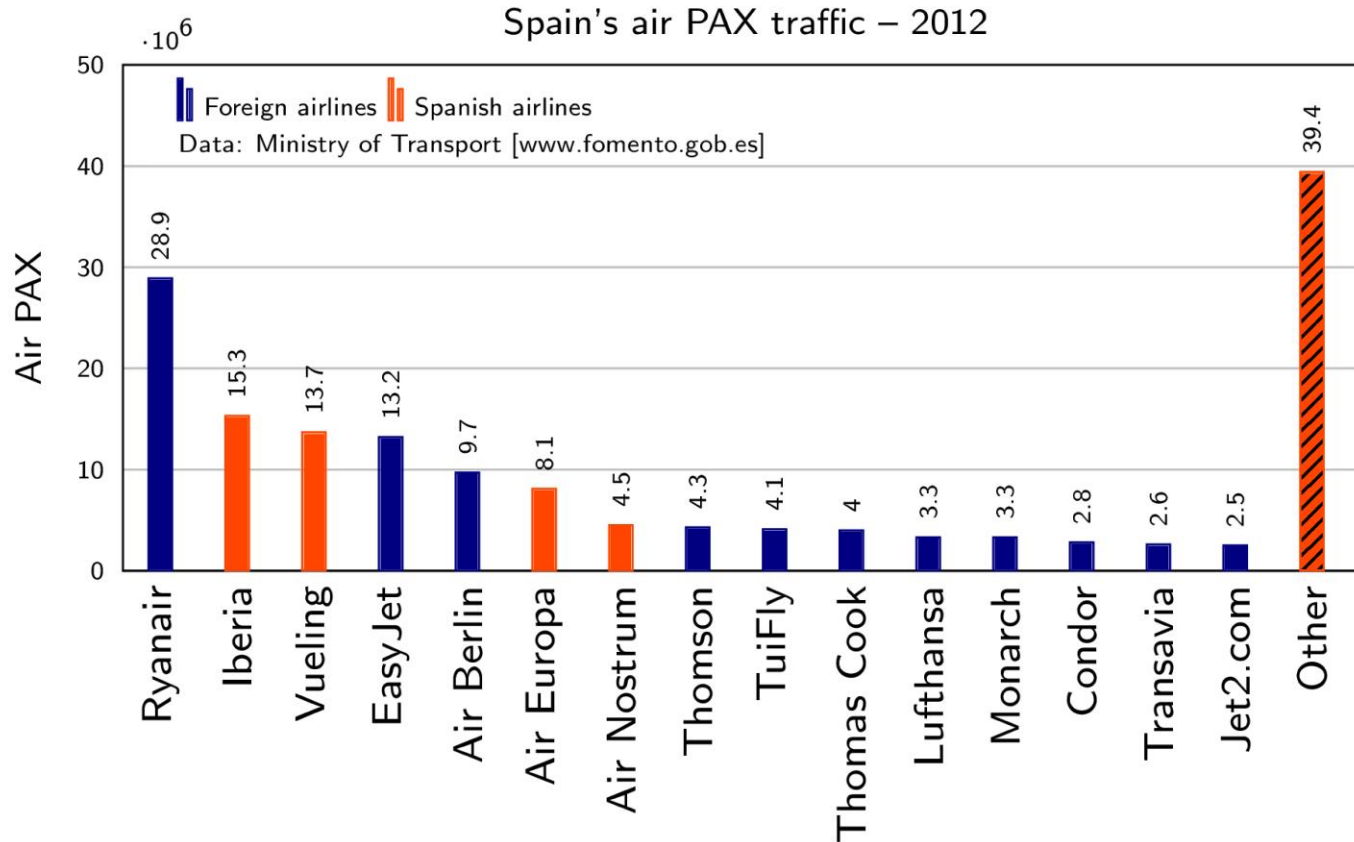
AIR TRANSPORT IN SPAIN

✈ With 49 airports open to commercial traffic Spain is one of the EU countries with the largest number of airports. Four airports handle more than 10 mPAX each year. Intermodal HST transfer stations are planned in Madrid and Barcelona.



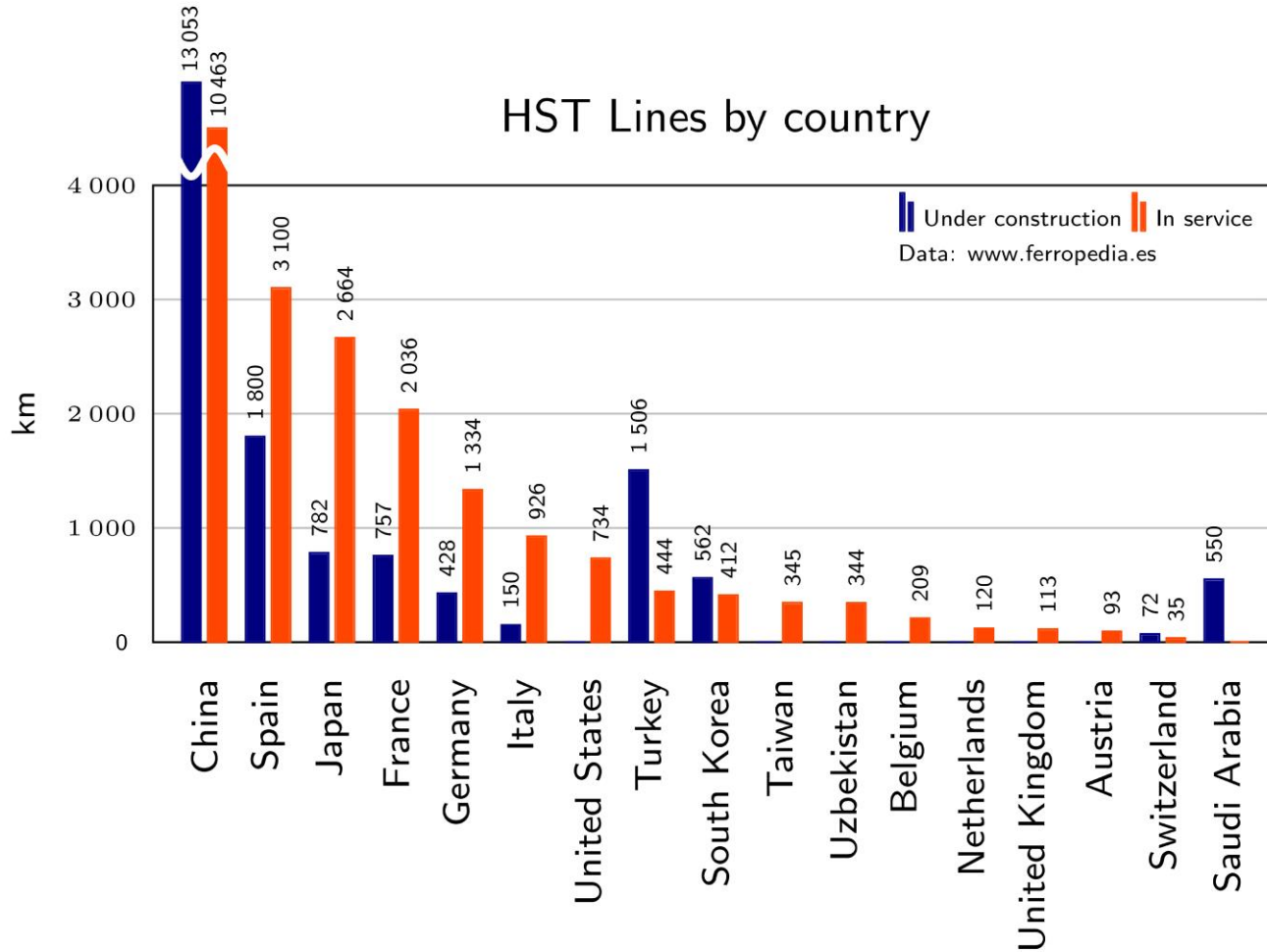
AIR TRANSPORT IN SPAIN

✈ Spain is the UE country with the most point-to-point operators. The first domestic operator in Spain is Ryanair, Madrid is the only EU hub to host bases of point-to-point operators who are gaining market share at the expense of Spanish hub operators Iberia and Air Europa.



HIGH SPEED TRAIN IN SPAIN

Spain is a world leader in terms of the extent of HST lines. The first line, Madrid-Sevilla, was opened in 1992.



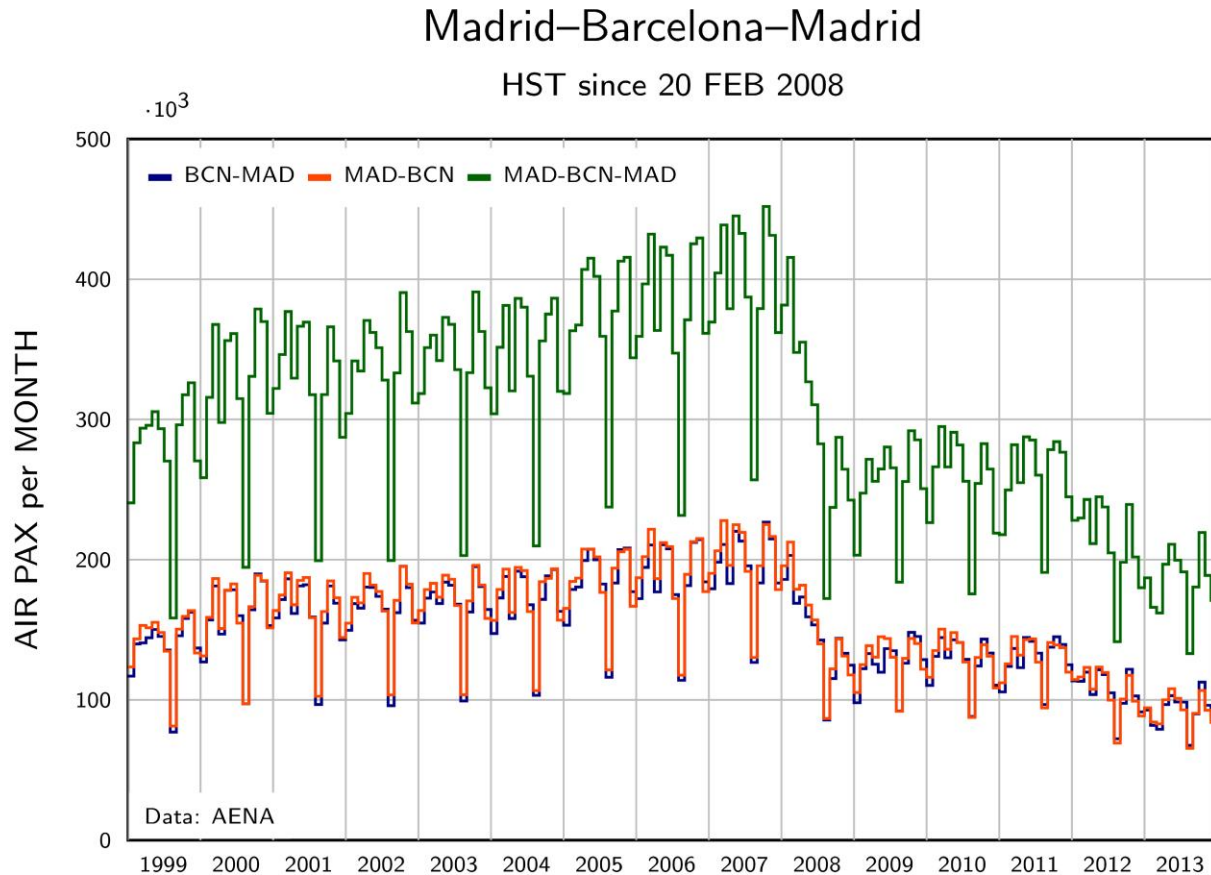
HIGH SPEED TRAIN IN SPAIN

Since 1992 the HST network has expanded, reducing travelling times and revitalizing the local economies. Its network mirrors the structure of air routes connecting the Spanish seaboard and Madrid.



HST AND AVIATION

- ➔ HST offers an alternative to air travel. Since the opening of the HST Madrid-Barcelona link, the number of air passengers on the route has nearly halved. The same trend is also observed in every route in which HST is competing with air transport.

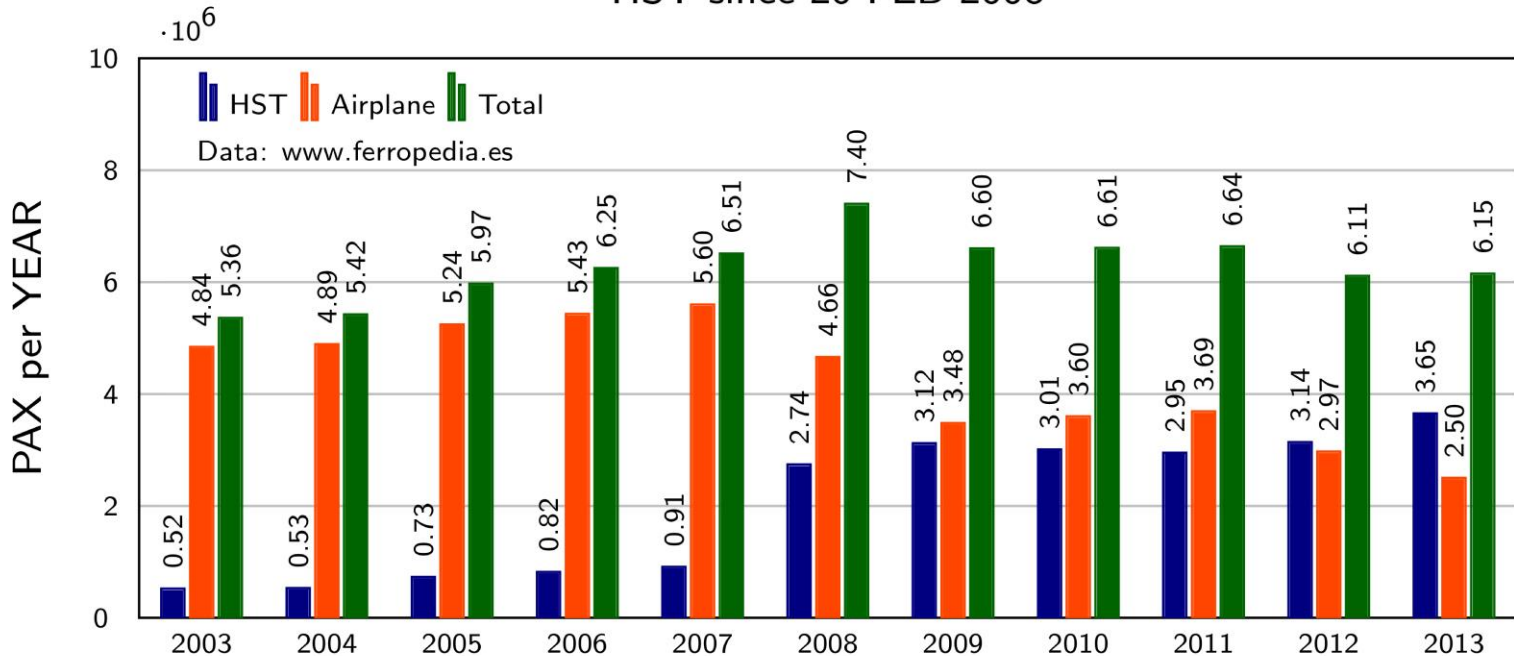


HST AND AVIATION

➔ HST is increasing its share and reducing the profits of airlines on this and similar routes.

PAX on the routes Madrid-Barcelona-Madrid

HST since 20 FEB 2008



HST AND AVIATION

- ➡ In short to medium distances (400-500 km) operational speeds of aircraft and HST are of the same order. Taking into account access times from airports to city centres, in these distances the HST is faster than aircraft.

Route	Operational Speeds							
	Airplane					HST		
	Time (a)	Distance	Speed (b)	Speed (c)	Speed (d)	Time	Distance	Speed
min	km	km h ⁻¹	km h ⁻¹	km h ⁻¹	min	km	km h ⁻¹	
Madrid-Barcelona	50	567	680	486	296	150	621	249
Barcelona-Madrid	56	567	607	447	281	150	621	249
Madrid-Valencia	39	411	632	418	237	95	397	251
Valencia-Madrid	39	363	558	369	209	95	397	251
Madrid-Alicante	47	506	645	453	271	140	486	208
Alicante-Madrid	45	478	637	441	261	140	486	208
Madrid-Rome	120	1584	792	679	514			
Rome-Madrid	129	1484	690	597	459			

Notes – (a): Time from take-off to landing

(b): Based on distance and time (from take-off to landing)

(c): Based on distance and time (from take-off to landing + 20^{min} of ground movement)

(d): Based on distance and time (from take-off to landing + 20^{min} of ground movement + 45^{min} of boarding)

Data: Own elaboration (Airplane) and www.ferropedia.es (HST)

- ▶ In the past airports catchment areas did not extend beyond metropolitan areas that fed the airport by surface transport.
- ▶ Spoke-hubs enlarged airport hinterlands beyond metropolitan areas to encompass other cities whose passengers used the hub to make connections.
- ▶ Hubs have been fed by surface transport from their metropolitan areas and, in the absence of other options, by airplane from other cities.
- ▶ The arrival of the HST has changed this scenario and as in the past metro/com-muter trains competed with road transport to connect airports with their catchment areas the HST now competes with aircraft to connect hub airports with their new enlarged catchment areas up to distances of 400–500 km which as HST top speed increases will also increase to 700–1 000 km.
- ▶ Due to the advantages of HST over those distances, point-to-point passengers are shifting from air travel to HST, reducing load factors and profitability of flights that feed hub airports and leads to a reduction of frequencies or a discontinuation of flights.
- ▶ The development of HST in Spain shows that when given a choice between air and rail most short haul point-to-point passengers opt for rail, this clearly calls for a rail/air intermodality without which airlines will not be able to profitably operate many routes that feed their hubs.

Thank you
