

Open Access Passenger Rail Competition: the case of Italy

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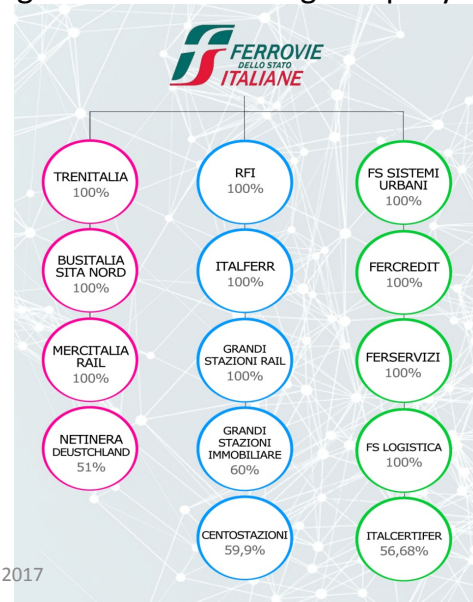
Concurrence et régulation: Quelles perspectives pour le transport ferroviaire?
Paris, 29th June 2017

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Open Access Policy: The divestiture

- The vertical divestiture (pre-NTV):
 - In 1985, FSI (Ferrovie dello Stato) ended being a Department of the Ministry of Transportation;
 - In 1992, FSI became a SOE (Stated Owned Enterprise);
 - In 1998, FSI became an holding group with forms of separation:
 - RFI: new Infrastructure Manager (IM), responsible for allocation of capacity, safety, maintenance of infrastructure, traffic management;
 - Trenitalia: rail operator;
 - FSI works as a holding group.
- *Legal unbundling* as form of vertical separation.
- The IM is managerially autonomous, but integrated in the Holding company....



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A brief history of HSR in Italy: the network

- First HSR network is “The Direttissima” over the *Rome-Florence* Route (completed in **1992**)
- Major investments over the 2000s with a consolidated cost of 32 billion of euro
- The modern HSR Network was completed between 2006 and 2009
 - *Rome-Naples* and *Turin-Novara* were completed in 2006;
 - *Milan-Bologna* in 2008;
 - *Naples-Salerno*, *Milan-Novara* and *Florence-Bologna* in 2009.
- ...but the network is still being developed.
 - In December 2016, HSR on *Treviglio-Brescia* (39.6 Km) over the Milan-Venice HSR route (245 km) which is still under construction for the Brescia-Padova component (152 km). Expected to be completed by 2020.
- New projects in Southern Italy (which suffers a long-term infrastructure gap):
 - *Bari-Naples-Rome* line, works started in 2016 and are expected to be completed by 2026.

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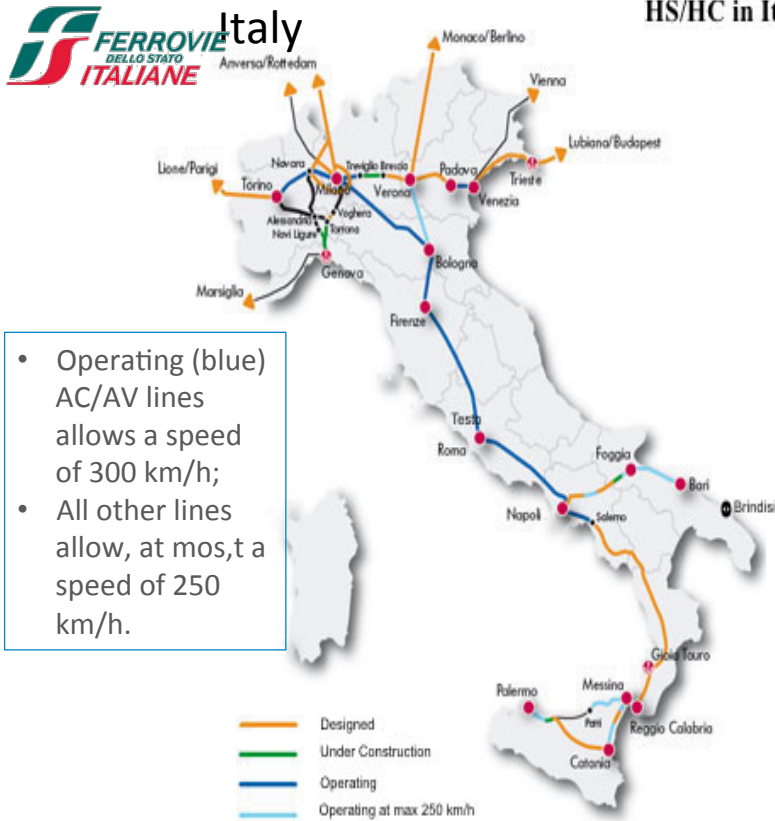
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Current HSR network in Italy



Italy

HS/HC in Italy



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FSI Industrial Plan 2017-2026

- Investments in rail services for **62 billion of EUR**
- 24 billion for HSR (**38,7%** of the total)
- **North:**
 - Terzo Valico, Brennero, Torino-Lione, Milano-Venezia
- **South**
 - Napoli-Bari, Palermo-Catania-Messina, Salerno-Reggio Calabria, Upgrade on the Adriatic line (Lecce-Bari-Bologna)



A brief history of HSR in Italy the entry of NTV

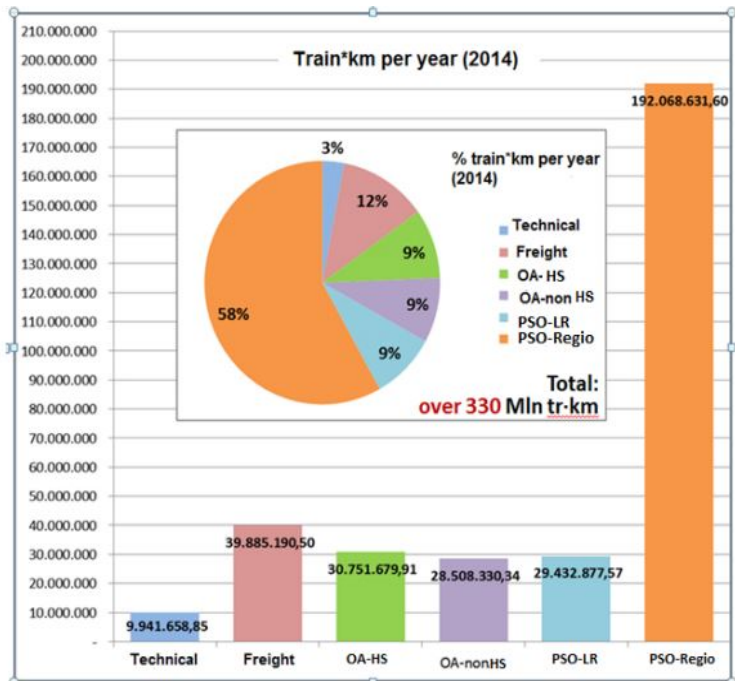


- Italy is the first country in Europe to **open its HSR network** to «***on track competition***»;
- Nuovo Trasporto Viaggiatori (NTV), first private operator:
 - established in **December 2006**, by a number of Italian private entrepreneurs (Montezemolo, Della Valle, Punzo and Sciarrone);
 - The French national incumbent (SNCF) acquired NTV shares as a “technical partner”, without any involvement in the management (initially 20%; now 1.4% due to an increase in capital);
 - It entered the market in regime of “Open Access” in **December 2012**;
 - The high-speed train of NTV is called “Italo”

The effect of open access in Italy: some numbers

- Market dimension;
- Prices;
- Supply;
- Quality and service differentiation;
- Inter-modal effects

The effect of open access in Italy: market dimension (traffic in train-km)



Technical
Empty runs
Test Trains



Freight



OA-HS
Open Access
High Speed

OA-nonHS
Open Access
Traditional



PSO-LR
Public Service
Long Distance



PSO-Regio
Public Service
Regional



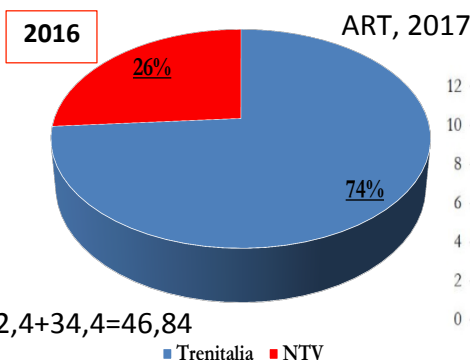
- Net total **pax:** **280.761.517**;
- Open Access: 59.260.009 **(21,11%)**
- **HS services:** 30.751.680 **(10,95%)**

The effect of Open Access: Demand (1)

Italian HSR: NTV and Trenitalia's market shares					
	2011	2012	2013	2014	2015
Passengers (million)					
Trenitalia	23.4	25.1	26.2	29.1	31.2
NTV	0.0	2.0	6.2	6.5	9.1
Share of passengers					
Trenitalia	100%	92.4%	80.9%	81.6%	77.4%
NTV	0.0%	7.6%	19.1%	18.4%	22.7%

Source: ART first Annual Parliament Report (2014, p.70); EC (2015); Trenitalia; F. Crocchio.

Expo effect: in 2015 Italo's pax increased by 2.6 million (+39.5% of growth rate) and Trenitalia by 2.1 million (7,2%) mainly on the routes directed to Milan. **Ryanair left the market!**



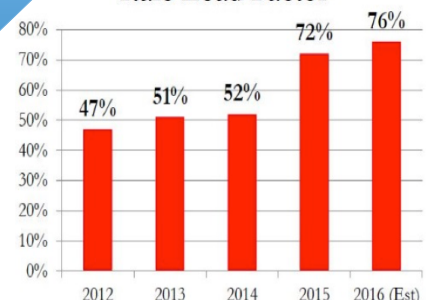
Italo Passengers



2016

NTV continues to grow

Italo Load Factor



The effect of Open Access: Demand (2)

- From air to HSR. Substantial modal shift.

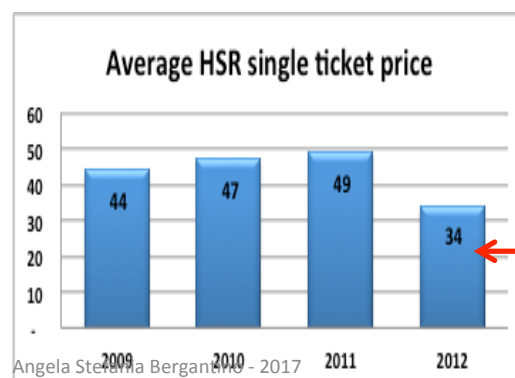
Route ROME-MILAN	2008	2012	2014	2016*
Plane	50%	32%	24%	15%
Train	6%	58%	65%	74%
Road	14%	10%	11%	11%

Source: ART 2016; Trenitalia, NTV, Crozet (2016)

In 2015, **Ryanair**, operating on Rome-Milan Orio al Serio moved out of the market.

The effect of Open Access: Prices (1)

- Competition pressured prices down...
 - effect of price discrimination strategies (promotional fares and new price structures), **PRE ENTRY**:
 - On the Milan-Rome (MI-RM) route, one-way fares reduced an average of 31% between 2011 and 2012 (the year of entry into operation of NTV; Cascetta and Coppola, 2014; p. 184)



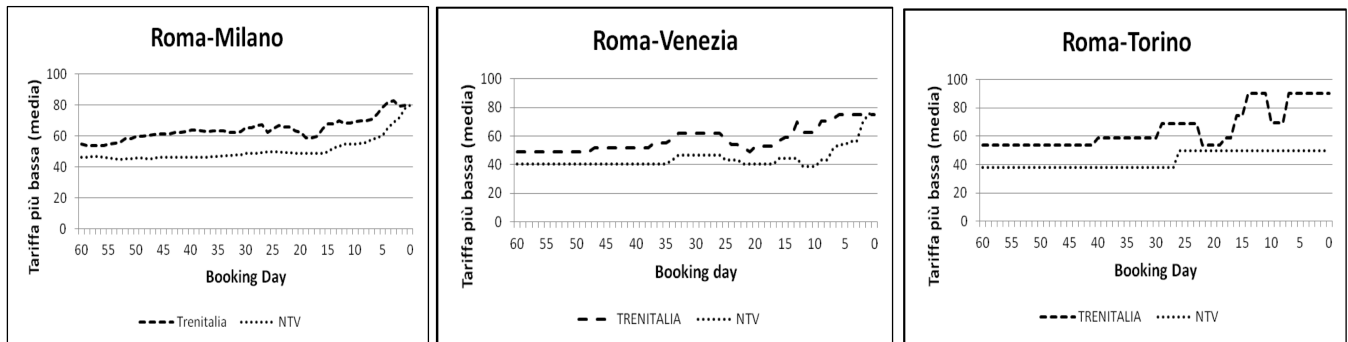
Strategic behaviour: -31%

The effect of Open Access: Prices (2)

- Competition pressured prices down....but **the incumbent did not trigger a price war AFTER ENTRY:**

1. Main routes:

- Considering the lowest fare on the three main HS routes, in 2013 the incumbent's tariffs were 30-35% higher than those of NTV (Bergantino et al. 2013; 2015); (RM-MI 29.92%; RM-VE 30.50%; RM-TO 34.67%)



Source: Bergantino et al. 2013, 2015
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The effect of Open Access: Prices (3)

- Competition pressured prices down....but the incumbent did not trigger a price war **POST-ENTRY:**

2. Minor route:

- On the Milan-Ancona (MI-AN) route*, Trenitalia reduced the average cheapest 2nd class fares applied for advanced-booking by about 15% but not for the business class.
- On this route (opened in 2013) NTV started its activities being the cheaper operator but **“ended up being more expensive for comparable services”**.

Table 2

Trenitalia price variations after the entry of NTV on the Milan-Ancona service. T-test performed on the single price differences between the two comparable periods in 2013 and 2014. *** indicates a statistical significance (p-value) lower than 0.001.

Day in advance	Economy			Business		
	Average prices 2013 (€)	Average prices 2014 (€)	Delta (€)	Average prices 2013 (€)	Average prices 2014 (€)	Delta (€)
1	51.16	43.09	-8.07***	75.89	75.94	0.05
7	47.08	39.69	-7.39***	75.95	76.01	0.06
15	41.00	35.04	-5.96***	75.98	76.01	0.03
21	36.68	32.00	-4.68***	75.97	76.01	0.04
30	31.88	29.14	-2.73**	75.96	76.00	0.04
Period						
14/09-14/10	45.62	37.32	-8.31***	75.99	76.02	0.03
15/10-14/11	44.31	37.45	-6.86***	75.89	76.00	0.11
15/11-14/12	43.06	38.64	-4.42***	76.00	75.99	-0.01
All prices	44.39	37.84	-6.55***	75.96	76.00	0.04
No. of observations	1032			1032		

*not
HS

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Source: Beria, 2016

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The effect of Open Access: Supply (1)

The entry of NTV led to a large increase in the overall supply of HS train services for two main reasons:

- 1) The newcomer' supply
 - NTV entered the market with 25 trains (Alstom ETR575) and 21 connections in 2012/2013 (Bergantino et al. 2015) which remained the same until now with only a modular change (Bergantino, 2016).
- 2) The incumbent increased the number of services offered (starting just before the entry of NTV):
 - Trenitalia's HS services were 49 in 2009/2010, 79 in 2013 (+ 61%; Bergantino et al. 2015), 88 in 2016 (Bergantino, 2016)

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Rail service provision.

	Trenitalia								NTV			
	2009/2010		2011/2012		2013		2016		2013		2016	
	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)
ROME-MILAN												
FrecciaRossa (No Stop)*	16	3	17	3	17	2,55	15	2,55	3	3,03	7	2,55
FrecciaRossa**	14	3,3	19	3,3	21	3,2	31	3,2	13	3,3	9	3,2
Total HSR	30		36		38		46		16		16	
FrecciArgento					1	4,15						
FrecciaBianca	1	6,4	2	6,4	1	6,4						
IntercityNight					2	7,3	2	7,55				
Intercity	5	6,4	4	6,4	3	6,4	2	6,4				
Espresso	3	7,1		7,1								
other services	9		6		7		4		0		0	
Total	39		42		45		50		16		16	
ROME-TURIN												
FrecciaRossa 1000 (less stops)							6	4,05				
FrecciaRossa 1000							6	4,3				
FrecciaRossa (less stops)	6	4,2	10	4,2	8	4,05			3	4,1		
FrecciaRossa					6	4,3	3	4,3	2	4,17	6	4,4
Total HSR	6		10		14		15		5		6	
FrecciaBianca					1	6,45						
Intercity	3	7,1	2	7,1	1	7,15						
IntercityNight					1	10,04	2					
Espresso	4	8	1	8								
other services	7		3		3		2		0		0	
Total	13		13		17		17		5		6	
ROME-VENICE												
FrecciaRossa (less stops)							1	3,1				
FrecciaRossa							9	3,45	5	3,35	4	3,45
Total HSR							10		5		4	
FrecciaArgento	13	3,5	18	3,5	17	3,45	9	3,45				
Intercity					2	6,05	2	5,4				
other services	13		18		19		21		5		4	
Total	13		18		19		21		5		4	

NTV entered the market with **26 connections** whereas Trenitalia had, on the same routes 81 connections of which 52 HS (65,20%)

Source: Bergantino et al. 2015; Bergantino 2016

Authors' elaboration on operators' timetables

*in 2016, 13 services are FrecciaRossa1000 noster.
**in 2016, 18 services are FrecciaRossa1000.

There are no differences in time but the FrecciaRossa1000 are new and the base tariff is 6 euro higher (35 instead of 29 euro)

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Rail service provision.

	Trenitalia								NTV				
	2009/2010		2011/2012		2013		2016		2013		2016		
	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	
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other services	9		6		7		4		0		0		
Total	39				45		50			16		16	
ROME-TURIN													
FrecciaRossa 1000 (less FrecciaRossa 1000)							6	4,05					
FrecciaRossa (less stops)	6	4,2	10	4,2	8	4,05			Italo (less stops)	3	4,1		
FrecciaRossa					6	4,3	3	4,3	Italo	2	4,17	6	4,4
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Espresso	4	8	1	8									
other services	7		3		3		2		0		0		
Total	13		13		17		17			5		6	
ROME-VENICE													
FrecciaRossa (less stops)							1	3,1					
FrecciaRossa							9	3,45	Italo	5	3,35	4	3,45
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FrecciArgento	13	3,5	18	3,5	17	3,45	9	3,45					
Intercity					2	6,05	2	5,4					
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Overall

- The overall supply on the RM-MI route increased from 39 to 61 (45+16) services (+60%) over the period between 2010-2013 and to 66 in 2016 (+69%).

Source: Bergantino et al. 2015; Bergantino 2016

Rail service provision.

	Trenitalia								NTV				
	2009/2010		2011/2012		2013		2016		2013		2016		
	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	Services (n)	Time (h)	
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FrecciArgento	13	3,5	18	3,5	17	3,45	9	3,45					
Intercity					2	6,05	2	5,4					
other services	13		18		19		21		0		0		
Total	13		18		19		21		5		4		

NTV entered the market with 26 connections whereas Trenitalia had, on the same routes 81 connections of which 52 HS (65,20%)

Overall

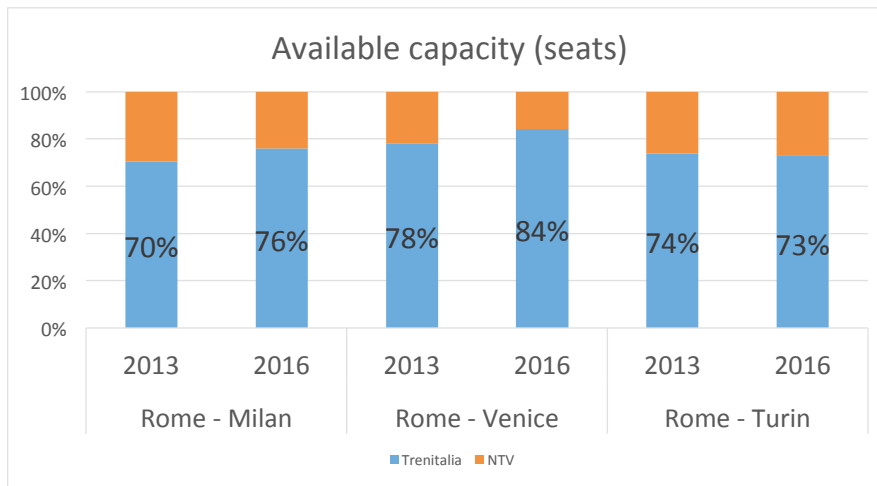
- The supply on the RM-MI route increased from 39 to 61 (45+16) services (+60%) over the period between 2010-2013 and to 66 in 2016 (+69%).
- Specifically, the growth rate of connections reached its peak in 2011/2012 (+6) just before the entry of NTV.

Source: Bergantino et al. 2015; Bergantino

The effect of Open Access: Supply (4)

	2009	2013	2016	variation 2013-2016	variation 2009-2016
RM-MI	17.220	22.244	22.777	2%	32%
RM-VE	5.616	7.344	9.628	31%	71%
MI-TO	3.444	8.036	7.206	-10%	109%

Largest growth is between pre and post entry

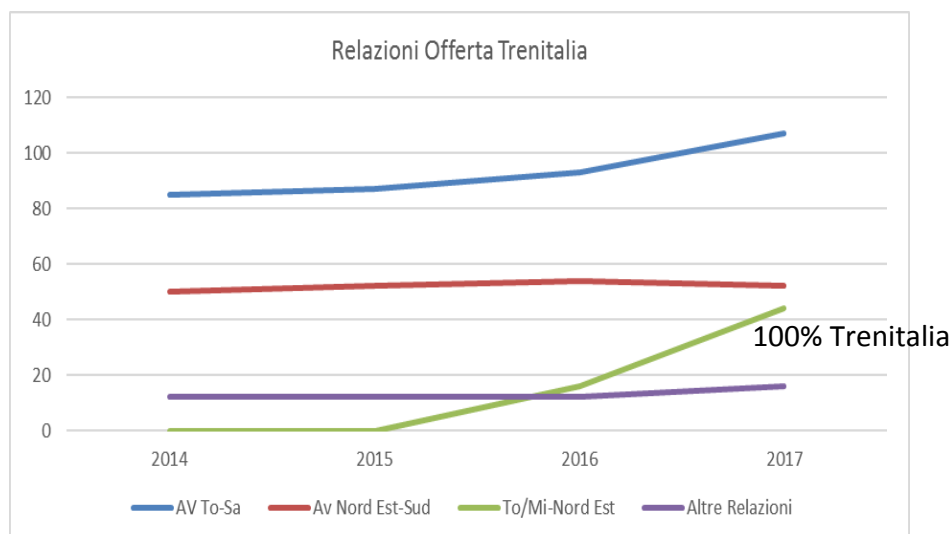


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The effect of Open Access: Supply (5) (differentiated) growth rate per route

- Trend in different routes



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The effect of Open Access: Supply (6)

- To summaries:

- The main routes experienced a **change in the structure of supply**:
 - The **number of HS connections on RM-MI grew by 80%** over the period 2009-2013 (from 30 daily connections in 2009 to 54 in 2013) and by almost **110% over the period 2009 to 2016** (with a total of 62 daily connections);
 - Instead, the **number of conventional rail services fall by 22%** (from 9 daily connections in 2009 to 7 in 2013) and by 44% in 2016 (only 4) → **substitution effect (create demand for HS)!**
- It seems that Trenitalia implemented an **entry-deterrence strategy by increasing its supply** (as Alitalia did for the airline industry), with the purpose to **pre-empt the rival about the allocation of slots**.

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The effect of Open Access: Quality

Investments in quality differentiation

- Services as free Wi-Fi, the on-board entertainment and working environment improved (Desmaris, 2016)
- NTV started collaboration with Eataly for “Italobox”, with 8 different types of menu.
- In 2015 Trenitalia concluded the restyling of the “Bistrò coaches” over all Frecciarossa.
- Trenitalia started introducing new rolling stock (Frecciarossa 1000) able to run up to 360km/h.
- In 2016 both NTV (Italobus) and Trenitalia (FrecciaLink) started offering inter-modal solutions (bus+HSR) to extend their network (e.g. Matera, Potenza, Perugia)
- Car rental services in main cities (car-sharing)

Overall quality competition arising from (Cascetta and Coppola 2014):

- schedules and frequency,
- services in the stations of origin and destination and intermediate stops;
- differentiation of tariff levels and quantity packages;
- level of comfort and other on-board services.

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The effect of Open Access: Inter-modal competition

- HS effects:
 - HS **exerts competitive pressures on other alternatives** (Bergantino and Capozza, 2015).
 - Empirical evidence shows **significant downward pressure on airline fares**.
 - The **presence of an HS service in the same timeslot of the flight** (i.e. the presence of direct competition of HSR services w.r.t. air connections) has the following effects (Bergantino et al. 2015):
 - **15.5%** reduction of fares on the Rome Fiumicino–Milan Linate route (13,26 euro average saving per consumer);
 - **29%** reduction on the connection Rome Fiumicino–Milan Malpensa (9,90 euro average saving per consumer).
- It is also shown that **travel time directly affects airline pricing strategies**. On average, higher rail travel time increases airline fares, **HS services lowers them** (Capozza, 2016)
- NTV, Trenitalia, Alitalia, Ryanair, Easyjet strategically interact in fixing the tariffs (Bergantino et. al, 2017)

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The effect of Open Access: Financial Situation

Economic Performances						
Economics Highlights (in million of Eur)	2010	2011	2012	2013	2014	2015
<i>Trenitalia*</i>						
Operating Revenues	5.707,8	5.708,0	5.498,0	5.497,8	5.576,7	5.542,3
Operating Costs	4.458,4	4.317,0	4.147,8	4.112,5	4.120,9	4.114,9
<i>NTV</i>						
Operating Revenues	4,5	24,7	102,9	249,6	270	308
Operating Costs**	32,2	66,2	240,1	327,1	320,3	306,2
* Referred to all segments (market and not-market) ** Referred to external costs, labour costs and depreciation and reserves						
Source: author's own elaboration using Trenitalia/NTV Financial Statements and Desmaris (2016)						

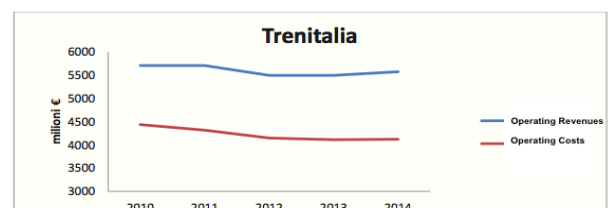


Figura 64. Andamento ricavi e costi operativi Trenitalia: Fonte: Bilanci Trenitalia, elaborazione ART

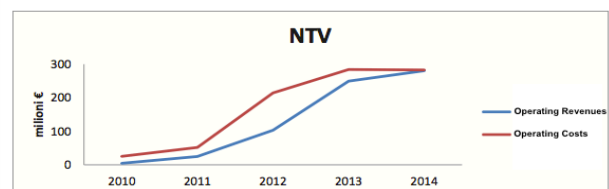
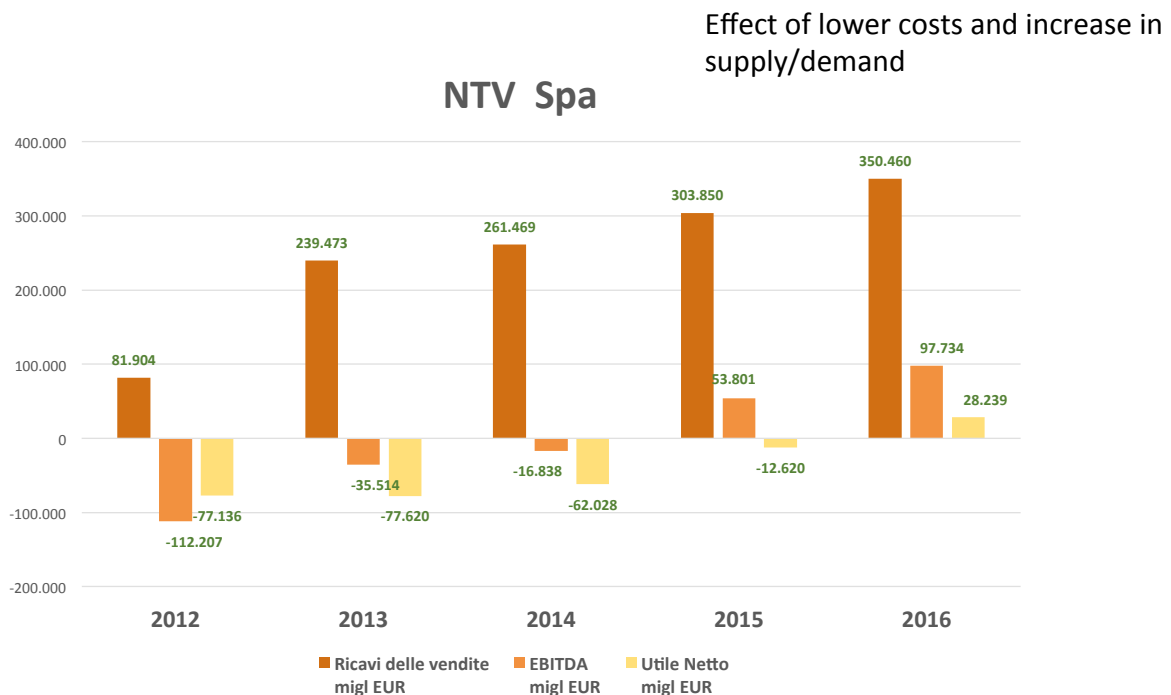


Figura 65. Andamento ricavi e costi operativi NTV: Fonte: Bilanci NTV, elaborazione ART

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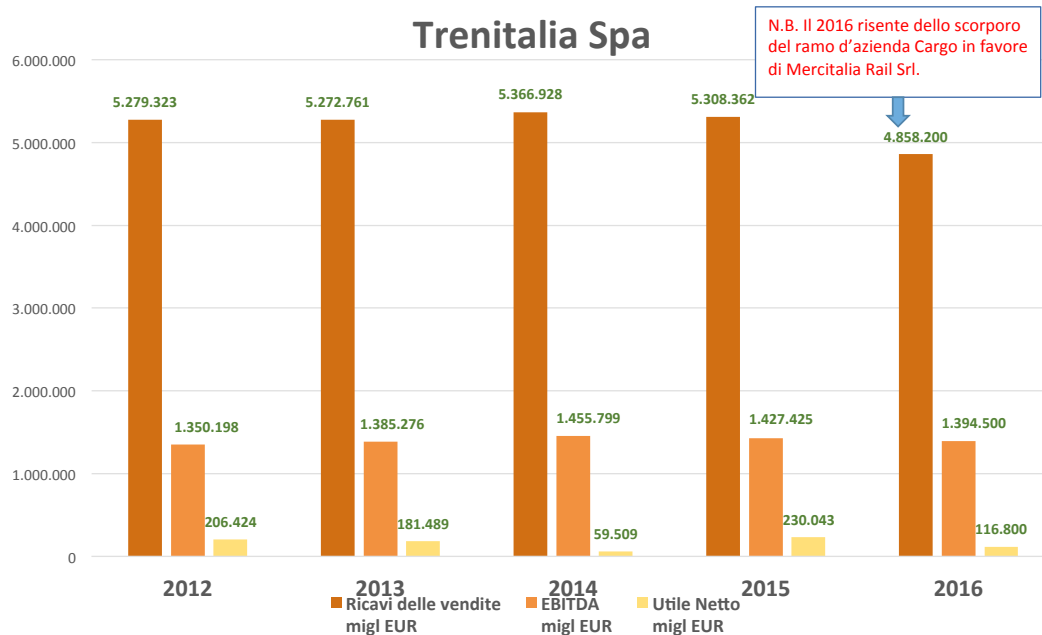
The effect of Open Access: Financial Situation



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For trenitalia the analysis is more difficult due to the different sources of entry (PSO, Open Access basic (Freccia Bianca), International routes; freight, ecc. The Open Access Premium has a strong impact on the final results (compensating for losses in other sectors)



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New challenges....liberalization of bus services and inter-modal competition

- Liberalization process of Italian long-distances bus market (connecting more than 2 regions);
- In January 2014, full transition **from exclusive concessions to non-exclusive authorisations**;
- This translated in **overall increase in the number of connections** (+33%) and rides (+38%), (Beria et al., (2015)),
 - This lead to larger firms to increase supply whereas some smaller companies were either forced to close some services or extend them.
 - The increase in supply mainly affected Calabria, Basilicata, Adriatic coast and North.
- In 2016, the German *Flixbus* bought Megabus
- Over the Milan-Rome route, intense inter-intra modal competition (Bergantino, 2016):
 - Baltour Srl. offers 9 rides with a price ranging from 16 to 33 euro according to time of departure
 - Flixbus offers 11 rides ranging from 9 to 49.90 euro according to day of booking and time of departure

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Liberalization of bus services and inter-modal competition: some data

Long Distance Bus service and HSR competition				
Bus company	n. rides	Average Price		
		Day after	After 30 days	After 40 days
Baltour	9	€ 23.44	€ 15.33	€ 16.33
1 change	6	€ 23.00	€ 15.00	€ 16.00
No change	3	€ 27.00	€ 16.00	€ 19.00
After 21.00	1	€ 33.00	€ 18.00	€ 27.00
Flixbus*	11	€ 23.63	€ 23.64	€ 15.68
After 21.00	2	€ 41.40	€ 32.90	€ 29.40
<i>HSR rivals</i>				
Frecciarossa	39	€ 89.92	€ 55.28	€ 44.53 (33 rides)
Italo	20	€ 72.24	€ 40.90	€ 41.61

Analysis conducted on the 9th of November 2016 using the lowest fare (without special discount)

* Only No change

Angela Stefania Bergantino - 2017

Source: Bergantino, 2016

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conclusions

- Open access can work...if regulation works;
- It might be beneficial also to incumbent: increase effectiveness (supply), efficiency, quality;
- It is beneficial to rail service consumers: increases frequency (and overall service quality) and it has an impact on prices;
- It is beneficial to travellers: in general increase in supply/presence of HS rail connection exerts significant pressure on prices

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