



## SECONDARY RAILWAYS AND INNER AREAS IN ITALY. URBAN PLANNING AND ECONOMIC OPPORTUNITIES

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### Abstract

The 90s European policy about the railway liberalization, to promoting a modern infrastructure network for railway transportation, aimed to increase competition among national players, to exploit the opportunities related to the new technology opportunities and to make easier and faster all connections between the hinterland and the main cities. Up to today, European investments are focused on the main areas and the high speed railway because, even if the number of users is a minority with respect the overall population, the profitability of the investment is significantly higher with respect to the average of the transportation industry. This strategy has increased the difference between high growth and low growth areas with the former served by efficient transportation facilities and the latter characterized by low quality level transportation services. The lack of good transportation serviced in the hinterland increased significantly the risk of creating new ghost towns because a lot of citizens were obliged to migrate to the bigger cities due to the lack economic opportunities and public services offered to citizens in the area. In Italy population is living mainly in hinterlands served by local railway services that due to the low quality of the service offered are often underutilized and sometimes the railway company decides to stop offering the service. The main target for the future will be to develop a new policy (at European and national level) for supporting the growth of local railways starting from the change of the regulatory framework at Country and European community level. The new infrastructure, urban planning, economic, and social framework has to support the development of local railways in order to revitalize dismissed areas and low density towns and to support their role for the society and the environment. In fact, the railway service is one of the main instrument in order to avoid the exclusion of people living in small towns from job opportunities offering them a solution to commute every day at a reasonable cost and avoiding the risk of urban concentration and sprawling. Local railway services have an impact on the demand of real estate assets in the hinterland for people not interested to live in the metropolis and interested to spend more time every time in commuting in order to have the opportunity to live outside the city. Railway companies working in the passenger transportation are firms that are working in a limited competition market (oligopoly) and may take advantage of public subsidies for reaching their break even. The type of service offered to customer is significantly different with respect to high speed trains because the demand is interested to pay only for basic services and all ancillary services cannot be sold at a reasonable price. The analysis considers all the Italian railway companies that are currently authorized to offer passenger and freight transportation services and evaluates the main difference for local railway companies operating in the passenger services with respect to all other players in the industry. Results show that firms operating in the local railway services have different economic and financial equilibria because they are less profitable but also less exposed to a risk of bankruptcy.

**Keywords:** liberalization; secondary railways; inner areas; economic opportunities

## 1. Introduction. Infrastructures and territory

### 1.1 Introduction

Infrastructures play a fundamental and bidirectional role in the transformations of the structures of the territory, in all its aspects (social, economic, environmental). This concept has been very clear since ancient times, when, already at the time of the Roman Empire, it had led to the creation

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of a dense network of communication routes, to guarantee accessibility to all the occupied territories and the development of trade.

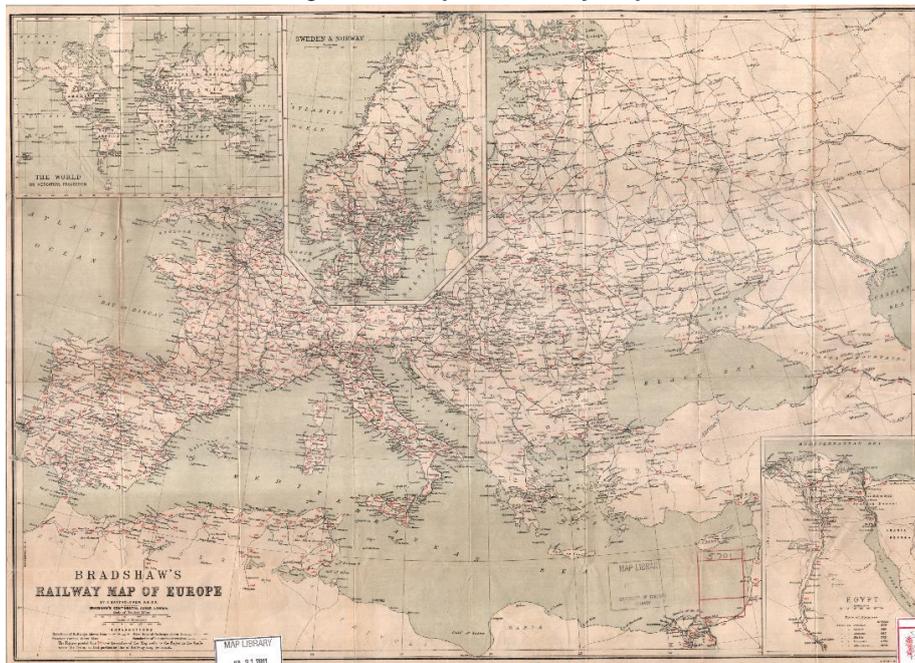
From an economic point of view, it has also been shown that land use patterns generate displacements between the various areas. The need to move (mobility?) creates the demand for transportation which is satisfied through the construction of infrastructures. New infrastructures allow the improvement of accessibility of the territory which consequently increases the values of the areas, which in turn influence the uses of the territory.

The railways are fully part of this dynamic, which is demonstrated also by the fact that, at first, their development took place by private companies, linked to industrial production and mining. Due to the railways the territories, the forms of the settlements, the cities and the mobility models have changed. The potential effects of railways are still unchanged, if not amplified by contemporary socio-economic and environmental dynamics. The railways represent a great opportunity, today, to rebuild and balance the territorial networks, helping to reactivate the dense network of small towns and historic villages, with the same logic that led the construction of the railways in the 19th century.

### 1.2 *The impressive widespread distribution of railways until the first half of the 20th century in Europe*

In the midst of the Industrial Revolution, railways are the invention that significantly changes the structure of the territory. Since their inception, the development of the railway network has been very rapid and affects practically the whole world. The map attached to the Bradshaw Guide of 1913 is impressive for the extension of the network in Europe at the time, at the dawn of the First World War (figure 1).

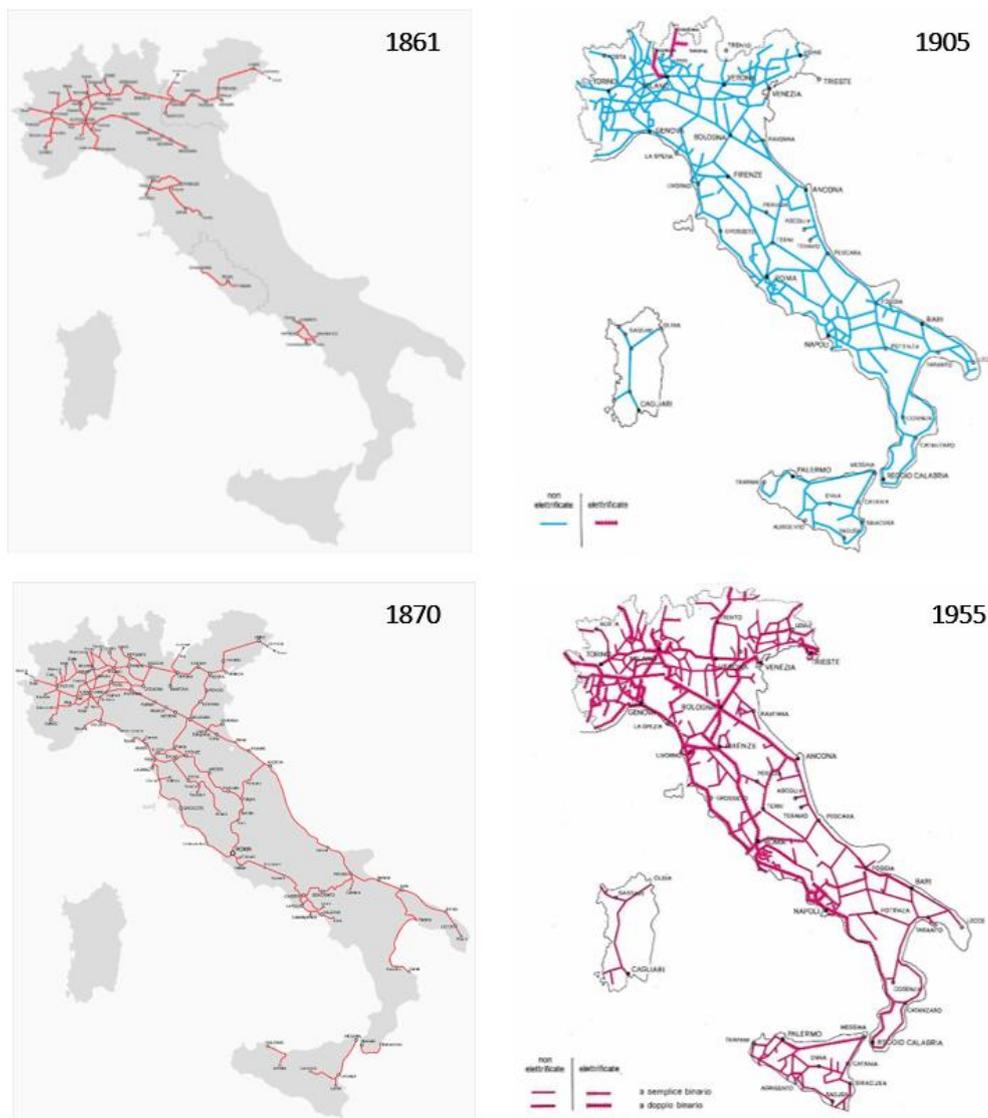
Figure 1. European Railway Map



Source: Bradshaw Guide (1913).

In Italy, in the aftermath of the nation's unification in 1861, the development of the railways was at the centre of the policies of the governments, which, starting with that of Camillo Benso, Count of Cavour, ran the country. The goal was to increase the accessibility levels of the whole national territory - not only the big cities - allowing a balanced development and the inclusion in the European market. In the first fifteen years after unification, the Italian railway network reached 7,000 km in extension, laying the foundations of what will be the current Italian railway network. Network that reached its maximum extension, almost 23,000 km, at the end of the 1930s - when the road network was still largely unpaved (figure 2). The railway network was characterized by relatively low operating speeds, due both to the technologies then available but, even more, to the physical characteristics of the lines, which had to cross hilly and mountainous territories - and which in order to keep costs down followed tortuous paths instead of making the enormously more expensive galleries - but guaranteed levels of accessibility now forgotten.

Figure 2. Evolution of the Italian railway network (1861 - 1955)



Source: RFI.



The railways made it possible to reduce travel times and significantly increased the transport load limits and safety. This radically changed the mobility models and the structures of the territory. Industrial development, the transport of goods and, only later, transport of passengers have been closely linked to the railways, at least until the mass motorization has become widespread.

### 1.3 *The decline of the railways and the depopulation of the Inner Areas*

In the post-war period, in Italy - as in the rest of Europe - the policies for the reconstruction of infrastructures, above all railway ones, involve considerable capital. The bombings had in fact put a significant part of the Italian railway network, stations and trains out of use.

But this phase also coincides with the progressive diffusion of new mobility models, which were closely linked to the diffusion of new cultural models at the level of the western world (Cerasoli, 2016). In the twenty years following the end of the war, infrastructures policies became complicated and often incoherent, endorsing the progressive decline of the railways, especially the secondary ones. From 1945 to the Eighties, the railways were struggling to cope with the changed and increased demand for the transport of people and goods, while the massive highway construction program in fact promoted mass motorization and road freight transport. This accentuated settlement dynamics - therefore demographic and socio-economic - that moved populations in and out of Italy, and caused the abandonment of small towns, especially along the Apennines and in the South.

The Italian countryside and many small towns and rural villages have gradually emptied, as a result of the destruction of communication networks and therefore the difficulty for goods. Initially out of necessity –the search for better economic opportunities. But people left also spontaneously, preferring more comfortable housing situations, even if only symbolically more qualified - to make a social climbing and free themselves from the image of poverty from which they came. All over the world, people were chasing the same dream: a decent job and a home!

But, while the distribution of work and wealth has increasingly diversified and complicated, also settlement models have become more complicated. The big cities - centres of "opportunities" - have since grown dramatically, more or less capable of accommodating these internal and external migratory waves, recording a profound transformation process both in the morphological "rules" of the settlements that, above all, in the "models of living".

A transformation that has transversely affected the whole world which, with the appropriate distinctions, has started a - one-way? – journey towards globalization.

### 1.4 *The liberalization of the rail and high-speed market: effects on the territory*

At the beginning of the 1990s, in order to face the progressive crisis in the railways in the various states, the European Union started a policy to relaunch the European railway market, through the EU directive no. 440 of 1991.

Key points of the EU directive were as follows:

1. Management autonomy of railway companies:
  - status of independence from the State, with reference to management, administration, control, budget and accounting;
  - management according to the principles valid for commercial companies;
  - irrelevance of the public or private ownership of the railway company.



2. Separation of the management of the railway infrastructure and the operation of transport services:
  - mandatory accounting separation;
  - optional organic or institutional separation;
3. Right of access to the rail networks of the various states.

Directive 91/440 needed four revisions and in-depth stages (the so-called four "railway packages" in 2000, 2004, 2007 and 2013), leading to an ever wider opening of the market for international rail services, both freight and passengers – although with some limitations that each Member State can adopt.

But the Directive main weakness was the fact that at the basis of this policy there was a purely economic vision that had not considered the territorial effects of the initiative.

We can also add the fact that almost all European states have only partially followed - or, in some cases, did not apply - the European rules, reason why an infringement procedure was opened practically against all member states of the European Union.

In Italy, among the indirect effects of the implementation of European rules – which was amplified by the construction of the Turin-Milan-Rome-Naples High Speed Railway<sup>2</sup>, which started at the beginning of the 1990s - there is the significant gap between the territories and the cities served by the main railway lines and the High Speed, the so-called "fast" territories - which stand for less than a fifth of the population national -, and those served by secondary and local lines, the "slow" territories (Cerasoli, 2015).

This is a substantial failure of the neoliberal EU policies, which failed to guarantee the creation of a railway market, truly liberalized and revitalized by competition, despite the highly corrective intervention included in the fourth "railway package", in 2013.

In the same last two decades, in fact - the process of emptying the smaller municipalities became dramatic. A process strictly connected to the reduction of the accessibility levels linked also to the progressive reduction of the railway connections on the secondary lines.

For these reasons, the Italian Government tried to remedy by establishing the Territorial Cohesion Agency in 2013 and launching the National Inner Areas Strategy (SNAI) for the revitalization of fragile territories and small municipalities.

## 2. Inner Areas e Small Historical Centres

5,539 of the 7,955 Italian municipalities have a population of less than 5,000 inhabitants and are classified "small centres"<sup>3</sup>. Part of them are in the belt areas of big cities. But most of them are in areas far from the centres offering essential services, such as education, health, mobility, connectivity, and are characterized by depopulation and degradation. Small (historical) centres are normally located in areas geographically uneven, often in mountain, where there are cultural,

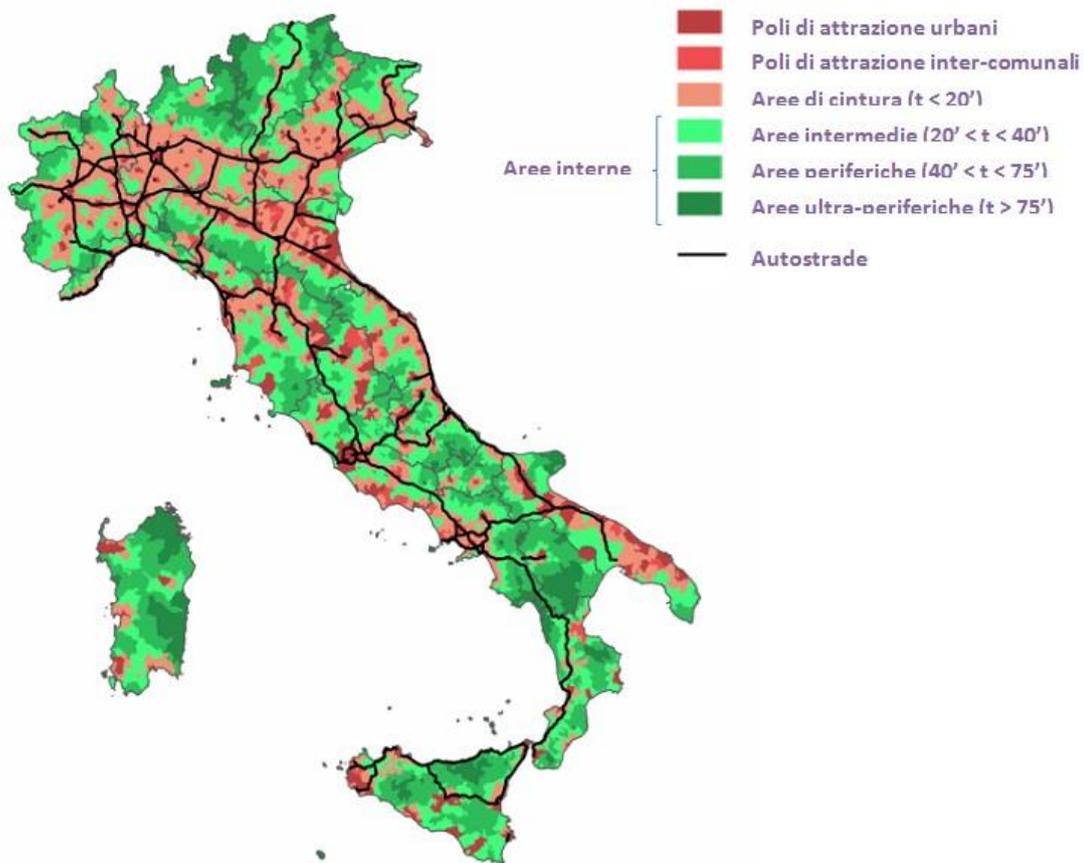
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<sup>2</sup> Between 1992 and 2009, € 30,150,000 was invested for the construction of the High Speed Railway, a little longer than 1,300 km. An expense equivalent to € 23,103,450 per capita in order to travel from Rome to Milan in 2h58' instead of 3h58, which were necessary before 2009. While, for example, from Rome to Pescara, 240 km, you travel nowadays in 3h57', against 3h00' in 1996. The cities served by trains of the AV line have a total of 6,700,000 inhabitants, just over 10% of the total Italian population.

<sup>3</sup> Of these, 3,465 have less than 2,000 inhabitants; 1,940 have less than 1,000 and 845 have less than 500 (ISTAT, 2019).

economic or social marginality, with evident (and gradually increasing) communication difficulties. These centres belong to the "Inner Areas" of the national territory (figure 3).

Figure 3. Italian Inner Areas



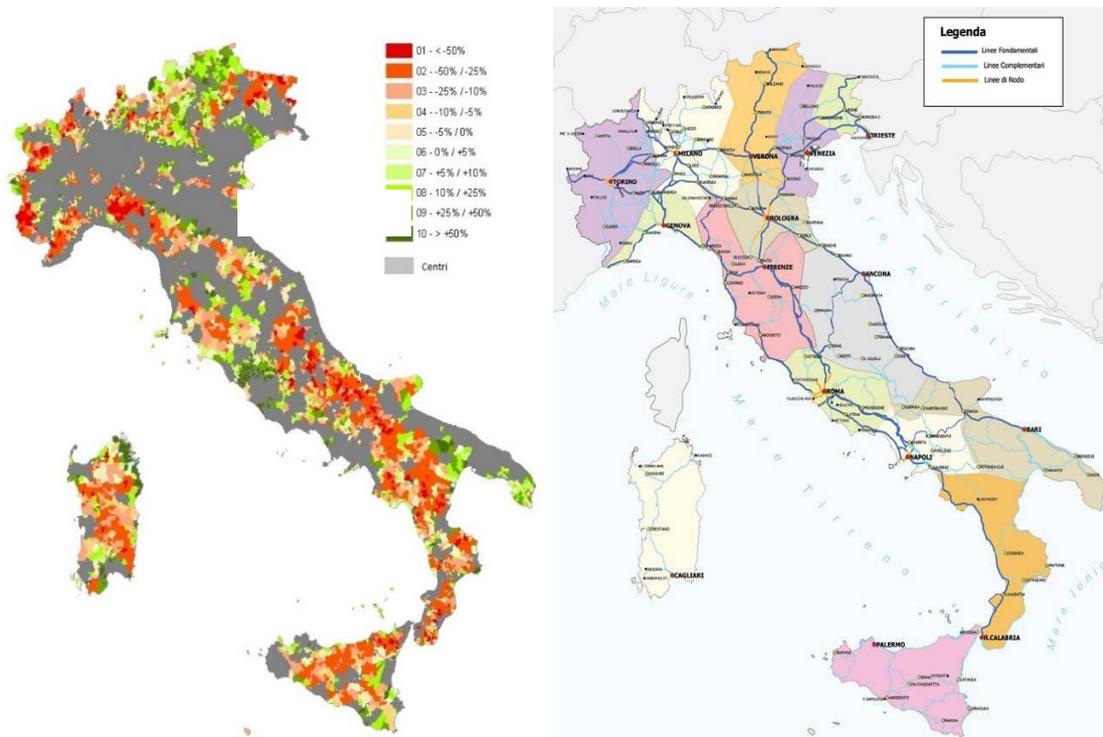
Source: SNAI – Strategia Nazionale Aree Interne, Agenzia per la Coesione Territoriale (2018).

Overall, they account for 69.6% of all Italian Municipalities, involving a territory that corresponds approximately to 54% of all Italy. However, less than 17% of the national population lives in these municipalities. The percentage halved, compared to 70 years ago. In these territories, once served by the railways built between 1861 and 1930, the railway service has often been progressively reduced or even cancelled. Dynamics of abandonment of the smaller towns and inner areas, especially after the Second World War, are due to various reasons.

The first is the crisis of the agricultural economy, which exploded in all its drama in the late 1940s. Crisis that led to the approval of the Agrarian Reform, in 1954, with the aim of solving the critical issues and discontent of agricultural workers through the suppression of the large estates (latifundium) and the allocation of land to the farmers themselves. But the size of the lots assigned and the almost total absence of policies to encourage forms of cooperatives have effectively prevented the relaunching of agriculture and favoured both the abandonment of agricultural territories - by those who have emigrated to large cities or even abroad - and the transformation for building purposes of the territories that were closer to the big cities, with the consequent consumption of land and the spread of informal and dispersed urbanization.

To this, the progressive reduction of the accessibility levels in the Inner Areas (figure 4), linked precisely to the progressive decrease of the population, must be added. Decrease also exacerbated by the European policies of liberalization of the railway market, which certainly did not increase the interest of the operators towards poorly profitable territories. Over the past two decades, rail service along secondary and local railways has steadily decreased. In Italy, this type of service is exercised exclusively by Trenitalia, one of the companies of Ferrovie dello Stato Group - totally State owned. According to Italian regulations, railway service in inner areas is subsidized by the State or Regions. But the Regions, in many cases, have preferred to reduce or totally cancel the service on some local lines, preferring to them the local public transport service operated by bus<sup>4</sup>.

Figure 4. Italian railway network 2018 and Inner areas<sup>5</sup>



Source: RFI; SNAI (2018).

In the small (historical) centres, the critical issues deriving from these dynamics can be summarized in these points (Cerasoli, 2016):

- abandonment by traditional inhabitants (and aging of the remaining population);
- abandonment by economic activities (traditional and otherwise);
- reduction of public services equipment;
- economic imbalances (i.e. excess / scarcity of tourism);
- incompatible or critical vehicular mobility;

<sup>4</sup> In most cases, this choice is motivated by (short-sighted) financial reasons, which is not opposed to any policy for sustainable mobility and the reduction of road accidents.

<sup>5</sup> The left map identifies the municipal areas that have been classified as "Inner Areas" and highlights the demographic processes from 1971 to 2011 (in green the increase in population, in red the decrease in population). The right map shows the current Italian railway network, with the classification of the lines (the *fundamental* lines in blue, the *complementary* ones in blue and the *junction* lines in yellow).

- marginalization with respect to primary mobility routes, poor accessibility;
- building degradation / public space degradation;
- replacement of traditional inhabitants with new ones (immigrants, attracted by the offer of low-cost housing), in the territories bordering the big cities;
- social degradation / absence of a sense of belonging / tensions between groups of immigrants
- gentrification / touristification.

Despite this, these territories represent nowadays the historical urban heritage that characterizes Italy. A heritage of small towns and villages, coinciding in most cases with their historic centres, where architectural, artistic, cultural and landscape resources - envied by the whole world - are concentrated. Small cities that have always guaranteed the network operation of the territory, cornerstones of local economies and interregional - and sometimes international - markets.

Small historic centres can therefore play a decisive role in rebalancing the territory (Cerasoli, Biere Arenas, 2016), reversing the trends (now also historical) for urban concentration and metropolisation, thanks to some exclusive strengths/qualities/peculiarities (figure 5):

- intrinsic urban quality (the historical urban fabric, the product of ancient knowledge and knowledge and the action of the time, combines elements of urban quality rarely found in the contemporary city);
- quality of the architectural and building heritage (both in terms of construction techniques and aesthetic values);
- dimension on the "human scale" (based on human needs - and not on the car);
- general environmental quality (the city-countryside relationship in these contexts has always focused on a great respect for man and nature);
- widespread diffusion across the territory.

Figura 5. **The Historical Centre of Sutri (Viterbo)**



Source: Authors (2020).

In times of great sensitivity to the effects of climate change, an ambitious territorial rebalancing program can start from this vast network of small cities, which can and must be supported by the revitalization of secondary railways (Mattarocci, Scimone, 2018). If on the one hand, there is a "shy" approach to relaunching the latter with Law 128 of 2017 "Provisions for the establishment of tourist railways through the reuse of disused or in the process of being dismantled lines located in particular areas naturalistic or archaeological value", on the other hand the approval of the "Save Villages" ("Salva Borghi") Law of 2018 is an important step in starting a process of relaunching the "fragile" territories.

### 3. An empirical analysis

#### 3.1 Sample

The analysis considers all firms that on the basis of the last official list disclosed by the Italian Ministry of Infrastructures and Transportation are authorized to offer railway services and on the basis of the type of service they offered we classify into freight, local and national passenger transportation. For each of them we collect all the balance sheet published in the last ten years (2009-2018) (Table 1).

Tabla 1. Muestra

	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Freight	16	17	17	17	17	17	17	17	17	17
Passenger local	7	7	7	7	7	8	8	8	7	2
Passenger national	7	7	7	8	9	9	9	9	8	3
Freight & Passenger	5	5	5	5	5	5	5	5	5	4
<i>Overall</i>	35	36	36	37	38	39	39	39	37	26

Source: AIDA Bureau Van Dijk and Italian Ministry of Infrastructures and Transportation data processed by authors.

The sample includes more than 30 firms for the time horizon 2009-2018 and only in the last year (2018) some of the firms do not provide balance sheet data necessary for the balance sheet index analysis. Around 45% of the sample are firms specialized in the freight service, 40% are firms that are offering passenger service and the remaining sample offer both freight and passenger service.

#### 3.2 Methodology

The analysis classifies railway companies on the basis of their core business (freight, passenger local, passenger national and freight & passenger) and compares their balance sheet features by using a set of indexes. The measures considered evaluate the asset and liability features, the performance, the financing choices and the financial risk.

The indexes on the asset and liability features are:

$$L_{it} = \frac{STA_{it}}{STL_{it}} \quad (1)$$

$$\%NWC_{it} = \frac{STA_{it} - STL_{it}}{TA_{it}} \quad (2)$$

$$WCC_{it} = CCD_{it} + WD_{it} - SPD_{it} \quad (3)$$

Where:

- the liquidity index ( $L_{it}$ ) is the ratio between short term assets ( $STA_{it}$ ) and liabilities ( $STL_{it}$ ) and it measure the misalignment between the expiration dates of asset and liabilities.

A value below to one identifies firms potentially exposed to a liquidity risk while companies with values higher than one are investing permanently in some short term assets ( $NWC_{it}$ ) that they finance through long term liabilities;

- the role of the Net Working Capital ( $\%NWC_{it}$ ) is computed as the ratio between the net short term assets ( $STA_{it} - STL_{it}$ ) and the total asset ( $TA_{it}$ ) and it represents the percentage of stable investment in the short term necessary for core business of the firm;

- the working capital cycle ( $WCC_{it}$ ) is computed as the sum of the average customers' collecting days ( $CCD_{it}$ ) and the average time storing in the warehouse ( $WD_{it}$ ) minus the average suppliers' payable days ( $SPD_{it}$ ).

Performance indexes considered are the following:

$$ROI_{it} = \frac{OI_{it}}{NIC_{it}} \quad (4)$$

$$T_{it} = \frac{Sales_{it}}{NIC_{it}} \quad (5)$$

$$ROS_{it} = \frac{OI_{it}}{Sales_{it}} \quad (6)$$

$$ROA_{it} = \frac{NI_{it}}{TA_{it}} \quad (7)$$

$$ROE_{it} = \frac{NE_{it}}{E_{it}} \quad (8)$$

The performance of core business ( $ROI_{it}$ ) is computed as the ratio between the operating income ( $OI_{it}$ ) and the net invested capital ( $NIC_{it}$ ). The value of the index is driven by the net income for unit of sales ( $ROS_{it}$ ) and the asset turnover ( $T_{it}$ ).

As additional performance measures the two indexes considered are the  $ROA_{it}$  and the  $ROE_{it}$ : the former measures the performance of the overall firm as the ratio of the net income ( $NI_{it}$ ) to total assets ( $TA_{it}$ ) while the latter measure the performance for the shareholders as the ratio between the net earnings ( $NE_{it}$ ) and the equity ( $E_{it}$ ).

Indexes on the firms' financing policy are the following:

$$Lev_{it} = \frac{D_{it}}{E_{it}} \quad (9)$$

$$CD_{it} = \frac{INT_{it}}{D_{it}} \quad (10)$$

The leverage ( $Lev_{it}$ ) is the ratio between the amount of debt ( $D_{it}$ ) and equity ( $E_{it}$ ) and it measures risk related to usage of debt. The cost of debt ( $CD_{it}$ ) is measured as the ratio between the amount of interests paid ( $INT_{it}$ ) in the year and the outstanding debt ( $D_{it}$ ).

The financial risk measure is constructed following the approach proposed by Altman (1993) for unlisted firms. In formulas:

$$Z - Score_{it} = 0.72 \times \%NWC + 0.87 \times ROA + 3.11 \times ROI_{it} + 0.42/Lev_{it} + 1.00 \times T_{it} \quad (12)$$

where the score assigned to each firm allow classifying companies as safe if it is higher than 2.90, risky if it is lower than 1.23 and doubtful otherwise. Indexes are computed for each firm in each in order to identify the key differences among railway companies that are working in different sector of the industry.

### 3.3 Results

The balance sheet ration analysis show come interesting differences in the asset and liability features between firms offering local transportation services and others (Table 2).

Table 2. **Asset and liability features of railway companies**

		Average	Median	St. Dev.	Minimum	Maximum
Freight	$L_{it}$	1,46	1,10	1,43	0,00	9,22
	$\%NWC_{it}$	0,00	0,00	0,03	-0,17	0,05
	$WCC_{it}$	-7,70	-35,36	192,73	-395,35	1304,25
Freight & passengers	$L_{it}$	1,33	1,13	0,82	0,00	4,00
	$\%NWC_{it}$	0,00	0,00	0,01	-0,01	0,03
	$WCC_{it}$	49,25	5,96	122,94	-171,04	442,19
Passenger local	$L_{it}$	1,70	1,31	0,97	0,00	4,65
	$\%NWC_{it}$	0,01	0,00	0,03	0,00	0,15
	$WCC_{it}$	4,51	0,00	113,97	-177,74	415,58
Passenger national	$L_{it}$	1,67	1,16	1,63	0,31	6,84
	$\%NWC_{it}$	0,00	0,00	0,00	0,00	0,00
	$WCC_{it}$	24,37	-26,62	99,53	-154,82	289,71

Source: AIDA Bureau Van Dijk data processed by authors.

Railway companies have normally a liquidity ratio higher than one and frequently firms that are offering passenger transportation service (local and national) have on average ratios higher with respect to other type of services.

The role of the net working capital with respect to total assets is not relevant and it role is not changing over time for firms operating in the national passenger service while local railway service companies are those that are characterized by a higher variability of the net working capital over time.

The working capital cycle assumes an average low value for all the railway companies because frequently firms are able to obtain more payment delays from suppliers with respect to the delay offered to customers and the for storing inputs, semi-products and final products in the warehouse. Local railway companies have among the shortest working capital cycle even if it value is significantly variable over time.

The performance of railway companies is affected by the type of service provided and the customers served (Table 3).

Table 3. Performance of railway companies

		Average	Median	St. Dev.	Minimum	Maximum
Freight	$ROI_{it}$	0,04	0,01	0,13	-0,25	0,29
	$T_{it}$	3,98	1,76	4,22	0,00	22,19
	$ROS_{it}$	0,01	0,01	0,11	-0,45	0,16
	$ROA_{it}$	-0,07	0,01	0,36	-3,83	0,32
Freight & Passenger	$ROE_{it}$	-0,01	0,02	0,32	-1,08	0,98
	$ROI_{it}$	0,06	0,05	0,07	-0,07	0,27
	$T_{it}$	2,08	1,42	2,65	0,00	17,80
	$ROS_{it}$	0,04	0,03	0,06	-0,21	0,18
Passenger Local	$ROA_{it}$	-0,01	0,02	0,15	-0,75	0,13
	$ROE_{it}$	0,02	0,03	0,26	-1,26	0,86
	$ROI_{it}$	0,03	0,01	0,08	-0,19	0,29
	$T_{it}$	4,01	2,18	7,90	0,00	30,82
Passenger national	$ROS_{it}$	0,02	0,01	0,05	-0,16	0,24
	$ROA_{it}$	0,00	0,00	0,04	-0,27	0,07
	$ROE_{it}$	0,01	0,01	0,16	-0,63	0,65
	$ROI_{it}$	0,03	-0,01	0,12	-0,18	0,27
Passenger national	$T_{it}$	1,61	1,41	1,11	0,00	3,14
	$ROS_{it}$	0,03	0,03	0,11	-0,31	0,21
	$ROA_{it}$	-0,05	0,01	0,18	-0,57	0,09
	$ROE_{it}$	-0,08	-0,01	0,39	-1,17	0,57

Source: AIDA Bureau Van Dijk data processed by authors.

The core business performance measured by the ROI is higher in the freight and the freight & passenger sector with respect to companies specialized only in the passenger services (national and local). There are significant differences in the return on sales and in the turnover and local railway companies are characterized by above the average turnover and significantly low profit margins for each unit of service sold.

The overall performance measured by the ROA is significantly different with respect to the operating performance and those that are not specialized in the passenger service are those that are characterized by an overall negative performance.

The performance for the shareholders measured by the ROE is significantly lower than the performance of the core business and the higher return for the shareholders are offered by companies that are jointly offering freight and passenger service. Local railway companies are characterized by an average positive ROE that is among the more stable over time independently with respect to the firm considered.

The balance sheet analysis shows some interesting differences in the liability structure on the basis of the type of railway service provided. (Table 4).

Table 4. Financing choices of railway companies

		Average	Median	St. Dev.	Minimum	Maximum
Freight	$Lev_{it}$	10,63	4,76	40,95	0,00	245,71
	$CD_{it}$	0,05	0,04	0,05	0,00	0,19
Freight & Passenger	$Lev_{it}$	11,56	5,01	12,80	0,00	62,32
	$CD_{it}$	0,05	0,05	0,04	0,00	0,14
Passenger local	$Lev_{it}$	16,76	6,28	36,74	0,00	262,86
	$CD_{it}$	0,04	0,03	0,03	0,00	0,15
Passenger national	$Lev_{it}$	6,69	4,03	6,14	0,00	26,13
	$CD_{it}$	0,08	0,07	0,04	0,00	0,17

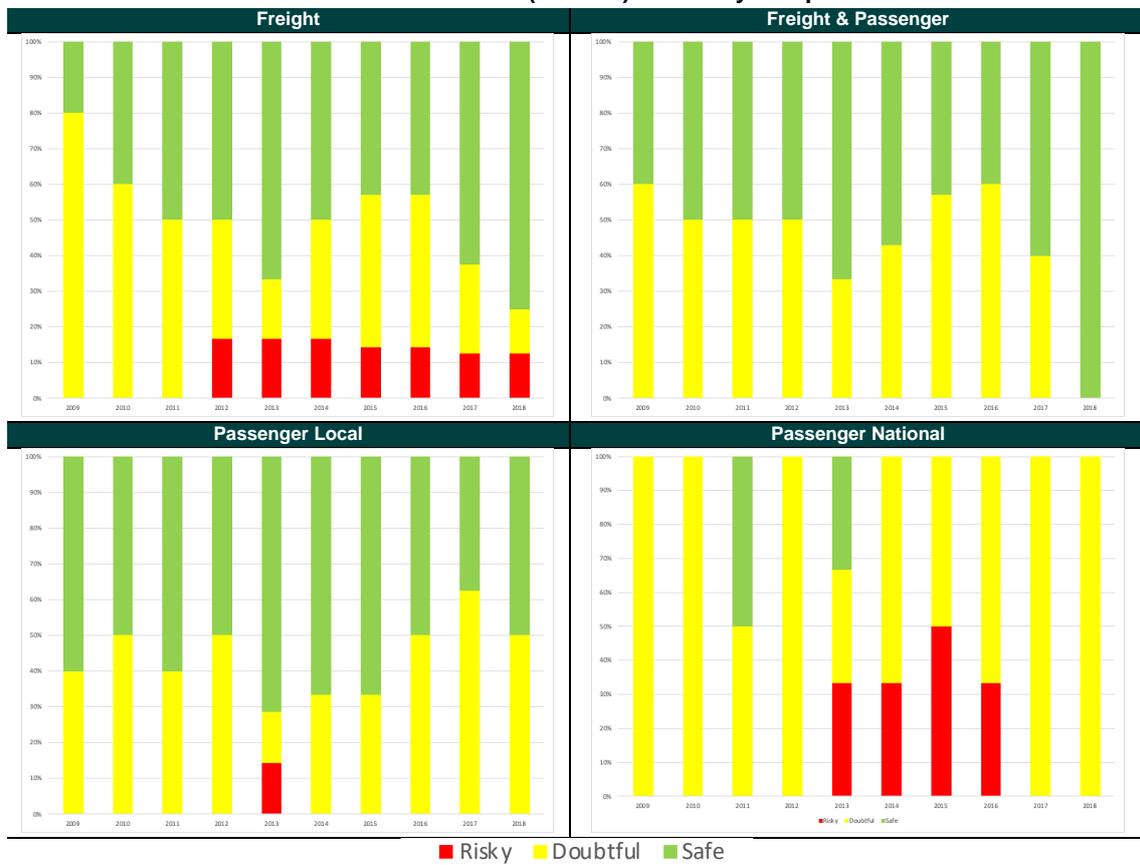
Source: AIDA Bureau Van Dijk data processed by authors.

Railway companies are significantly levered, but there are significant differences on the basis of their core business: local railway companies use more leverage while firms specialized in national passenger service are those that are using more equity for their business.

The cost of debt for railway companies varies from 5% to 8% and local railway companies, due to the high credit standing of the firms, have the lower cost of debt with respect to the other sectors of the industry.

The analysis of the Z-score for the different categories of transport companies allows us to highlight some interesting differences between the different groups (Table 5).

**Table 5. Financial risk (Z-score) of railway companies**



	Freight	Freight & Passenger	Passenger Local	Passenger National
Average	3.29	3.97	3.64	2.31
St. Dev.	0.70	0.69	0.83	0.68

Source: AIDA Bureau Van Dijk data processed by authors.

Firms that are offering only freight services are riskier than those that are offering both type of services and among those specialized in the passenger service local railway companies are on average safer with respect to national ones. Empirical evidence is driven by the lower number of firms classified as risky among those that are working on the local railway and mixed services.

#### 4. Perspectives: towards integrated scenarios? (conclusions)

Revitalization of small (historical) centres can represent today an opportunity to stop the decrease of population in the Inner Areas and the re-enforcement of local railway services can incentive people to not move to bigger cities.

Firstly, the objective of "territorial rebalancing" can be achieved through the reactivation of economies in the small cities and villages of Inner areas.

In the wake of what has already been done by the Inner Areas Strategy (SNAI), since 2013, interventions of protection, recovery and revitalization and of minor (historical) centres should be activated, also with the aim of new technologies (Cerasoli, Biere Arenas, 2016).

Furthermore, it is necessary to plan interventions of mitigation of natural risks, recovery of building heritage, promotion of quality agricultural production and slow tourism, and improvement of accessibility. The role of the secondary and local railway network is decisive in this sense.

In fact, local railways represent an economically sustainable business and low risk profile investors may be interested in investing in this type of business. A new institutional framework is necessary in order to support the growth of private/public initiatives in the local railway sector.

To correct the "weaknesses" of the directives on the liberalization of the railway market, the European Union has recently issued the Fourth Railway Package. But it would be desirable to go further to achieve a true single railway market in Europe which, in addition to meeting the integration objectives (above all technological), guarantees the establishment of a European railway network.

Figure 6. Ronciglione Bridge, abandoned railway Orte-Capranica-Civitavecchia



Source: Authors (2018).

In this direction, the hypothesis of a Single European Manager of the railway network (based on the example of another European Union project, the SES Single European Sky, since 2004) and



the homogenization of national railway regulations, giving greater space also to technological and modal integration (following the example of the *Karlsruher Model*) in order to maximize the potential of railways with "slow" characteristics, typical of internal areas.

In this way, greater flexibility in the use of railway infrastructures could be guaranteed, also opening them up to "alternative", integrated and coordinated uses.

This would allow relaunching the railway network as the territorial framework on which the local contexts are grafted, also recovering the disused lines both as "green ways" for "soft" mobility and for tourism purposes and as territorial "public transport corridors" for serve the urban heritage of inner areas more dynamically.

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