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Conference Paper

High speed rail service and socio-economic transformations in space, a review

50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden

Provided in Cooperation with:

European Regional Science Association (ERSA)

Suggested Citation: Bazin, Sylvie; Beckerich, Christophe; Delaplace, Marie; Blanquart, Corinne; Vandenbossche, Lidwine (2010) : High speed rail service and socio-economic transformations in space, a review, 50th Congress of the European Regional Science Association: "Sustainable Regional Growth and Development in the Creative Knowledge Economy", 19-23 August 2010, Jönköping, Sweden, European Regional Science Association (ERSA), Louvain-la-Neuve

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**ERSA 50th conference
Jönköping (Sweden), August 19-23, 2010
Sustainable Regional Growth and Development in the Creative Knowledge
Economy
ERSA-NECTAR Special Session on
High-Speed Rail as a new transport network**

**High Speed Rail Service and socio-economic transformations in space, a
review**

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Work in progress

There are many existing High-Speed Rail projects in Europe and elsewhere in the world. In 2009, there were 10.739 km of High-Speed Rail Lines in the world. 13.469 km of High-Speed Lines were under construction and 17.579 km are planned in the world by 2025. Just in Europe, in 2009, there were 5.821 km of High-Speed Lines, 3.256 km were under construction and for 2025, 8.501 km are planned in Europe. Projects are underway in the three continents (Poland, Portugal, France in Europe) Morocco in Africa, India, China in Asia and Argentina, Brazil, Canada, Mexico City in America (6).

These projects are now realized in a context of sustainable development, and their ambition is first and foremost to limit or counter the continued growth of passenger road transport. However, this ambition is accompanied by many other expectations in connection with this new offer of High-Speed Transportation.

Nevertheless, their effects are a very controversial subject. A gap remains between such literature called academic, printed in scientific journals and / or discussed in academic and non-academic literature produced in response to an order of territorial stakeholders.

For academic researchers, the myth of the existence of a linear causality between transport infrastructures and spatial, social and economic transformations has been challenged for a long time. In fact, science shows that regarding economic dynamism, no significant effect results from infrastructures for their own sake (7, 14, 15, 62, 55, 61, 62, 86).

On the contrary, the non-academic literature (reports, newspaper articles, political speeches, etc.), in particular the *ex ante* studies, describes positive effects such as economic dynamism, the settling of a new population and firms, the development of office and corporate real estate programs around the central station, tourism expansion and so on. Sometimes, but less frequently, they also anticipate some negative effects (decreasing population of territories that hasn't be provided with, dormitory towns, etc.) because High-Speed Rail modifies the accessibility of the connected territories in a more or less important way. The aim of the paper is to present a review of all the literature, the academic literature but also the non-academic one to highlight and to explain the existing gap between academic and non-academic knowledge.

We will show in particular that the variation between the two types of scientific production doesn't differ so much.

Beyond the obvious justification of the investment choices that encourages territorial stakeholders to present an optimistic view of the impact of public spending, it would seem that the effects of infrastructure are far from being a closed debate in academic literature. We show with a review of the literature on High-Speed Rail that academic literature indirectly contributes to spread the myth of the economic effects of transport infrastructure, even if these works are beyond the linear causal relation between High-Speed Rail services and the appearance of effects.

In the first part, we will highlight with the academic literature the relative proximity of stockholders expectations in the territories. We emphasize, however the more general characteristics of non-academic literature which, by its nature and purpose, appears to be a first explanation of the sustainability of the myth.

In addition, we will show in a second part that the academic work identifies some extremely diverse and often more precise conditions, which are partially presented in non-academic literature. The territories stockholders omit the territories and the largely contextualized effects and conditions.

I. The lesson of a confrontation between the academic and non-academic literature relating to the effects of the High-Speed Rail services

The stake of the article is to abandon a reducing vision between an academic literature, which would have a clear position on the question of the effects of High-Speed Rail infrastructures, and a non-academic literature less focused which leaves expectations on effects pending.

A review of these two literatures must thus enable us to highlight or to moderate this shift. This review does not claim to be exhaustive, but tries to cover the broadest possible variety of cases of High-Speed Rail services in their form (on High-Speed Rail Line, on traditional railway, in center rail station or in new station, etc), in space (country, but also areas and cities) and in time (of the first High-Speed Rail services in Japan up to these days).

Table 1. The distribution of the studied literature

Academic literature	Non-academic literature
5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 25, 27, 28, 29, 30, 31, 32, 33, 34, 35, 39, 41, 42, 43, 44, 46, 47, 48, 49, 50, 51, 53, 54, 55, 58, 59, 60, 61, 62, 63, 64, 66, 69, 70, 71, 73, 80, 83, 84, 85, 87, 88, 90, 91, 92	1, 2, 3, 4, 8, 21, 23, 24, 26, 36, 37, 38, 40, 45, 52, 56, 57, 65, 67, 68, 72, 74, 75, 76, 77, 78, 79, 81, 82, 89

Source: Realized by the authors.

We indicate by non-academic literature the whole of the productions established at the request of a partner, generally at the request of the authorities (territorial, institutional, political, economic authorities or all of them put together). These authorities accommodate (*ex ante* studies) or will accommodate (*ex post* studies) HSR services on their territory, and/or of the stockholders who finance infrastructures connected to High-Speed Line (local authorities, transport operators, etc). The academic literature is a literature published in academic reviews or works and/or presented in academic conferences.

The examination of these two types of literature reveals that they both identify many effects related to the services of HSR, according to fairly similar categories. It is thus possible to distinguish the effects on transport (1.1), the effects on the space structure of the territories on various scales (1.2), the effects on companies and on economic activity (1.3) and the effects on households and the general one(1.4). We will show nevertheless that the non-academic literature identifies fewer effects on the transport offer whereas the academic literature makes it a condition to the emergence of the effects on the demand.

By eluding this intermediation of the improvement of the offer, considered like implicit, the relation between High-Speed Rail services and traffic evolutions appear to be a causal link. In addition, the non-academic literature seems to be on the majority of the effects much less precise and detailed than the academic literature, particularly if we take into account some main categories, which reduces the complexity of the question of the effects.

1.1 Effects on the demand for transport: the intermediation of offer improvement is unequally taking into account

The two types of literature put the stress on the HSR effects on the evolution of transport offer, in terms of costs or services (cf. picture 2), as well as on the increase of the demand (cf. picture 3). A new high-speed infrastructure allows to improve transport services, in terms of cost or quality, and then generates new traffic. So, the literature deals with the effects of the high-speed services on the generalized transport cost which depends on the reduction of transport time. This reduction generates modifications in the use of other transport modes.

Table 2. The literature on the effects on transport offer

Type of literature	Academic	Non-academic
Effects on generalized cost of transport	22, 32, 33, 70, 85	56
Fall in travelling time between big cities	7, 8,9, 10, 11, 12, 13, 14, 32, 33, 43, 47, 48, 71, 87	8, 23, 68, 74, 8
Drop in the number of accidents	70, 87	
Increase in frequency	32,71	
Increase in capacity	32	
Effects on other means of transport	22, 85	
Reorganization of rail transports	47, 85	
Scope for the development of air capacity	22	
Fall in airport jams	22, 71, 87	
Effects on the supply of destinations		
Improvement in the cities accessibility to other places	20, 31, 32, 33, 47, 58, 85, 87	8, 23, 65, 76
Increase in the accessibility of small cities	85	
Improvement in the accessibility of outlying regions	58	

Source: Realized by the authors

The high-speed service also allows to improve both accessibility and availability of destinations. A lot of effects on transport demand are also identified: new traffic, modifications of the modal split and, sometimes, together with what was previously being mentioned, effects on more qualitative traffic evolutions, (professional, tourist movements, etc.) (cf. table 3).

Table 3. The literature on the effects on the transport demand

Type of literature	Academic	Non-academic
Generating of traffic		
Increase in the demand for rail transport	6, 42, 53, 54, 80, 87	65, 68, 74
Connected effects on traffic in metropolitan activities	42	
Connected effects on air transport traffic	22	56
Change in the distribution of modal shares		
Fall in the demand for trips on conventional rail	32, 47	
Change in the distribution of modal shares	20, 22, 48, 59	
Capturing air traffic	44, 47, 54, 71, 87	56, 67, 68, 75, 78, 79
Change in traffic		
Increase in business trips	20, 47, 48, 71	4
Increase in tourist trips	20, 47, 48	4, 36
Increase in the same-day return trips	33, 43, 47, 71	21
Increase in the use of railway for air pre-transportation	20	
Increase in the number of commuters on the shorter time-spaces		74
Increase in the mobility of some categories of users and of some professions	47	68, 72

Source: Realized by the authors.

The two types of literature put the emphasis mainly on the effects related to the increase of the rail demand and the decrease in air traffic. A strong increase in the rail traffic is expected in relation to modal shift from the plane to train and, for the smallest distances and time, with an increase of the commuters.

However, if the academic literature stresses both offer and demand, it doesn't apply non-academic literature which is more based on the effects of demand. Then the effects on traffic would take place independently from the evolution of transport offer, leading to a determinist representation of the effects of high-speed services on traffic flows. Furthermore, the academic literature seems more precise, while the non-academic literature is only concentrated on the effects on generalized transport cost as far as the offer is concerned. So far, the effects on the demand are only the results of the evolution of the transport costs: a reduction of the transport costs would automatically generate an adjustment of the mobility patterns and thus an increase or a transfer of traffic.

However, a 25 year assessment in High-Speed Train investments in France puts in perspective these results. If time reduction is often linked with an increase of traffic and with modal shift, traffic is often lowered from 10 to 20 % with regard to estimations. Besides, the modal shifts concern particular types of travellers with high income who have given up the plane for the benefit of the High-Speed Train. High-Speed Train mainly benefits the highest and middle socio-professional groups. The consultants and executives have seen their mobility growth increase.

The improvement of the accessibility identified by the two types of literature must be taken into account. On the one hand, the towns on the conventional network can observe a decrease in their accessibility in terms of direct services or frequencies. On the other hand, the towns with High-Speed Rail services do not have all the same services.

Finally, non-academic literature does not identify some negative effects which are nevertheless underlined by academic literature, in particular the decrease in the demand for conventional services in railway traffic.

1.2 The effects on the spatial structure: effects which raise questions

Overall, the two types of literature seem to partially consider the effects on spatial structure, by indicating the potential for consolidation of the major urban centers at the expense of weaker clusters.

Nevertheless, the academic literature insists more and more precisely on the possibilities of concentration of the effects and the modification of the spatial hierarchies.

The questions of non-academic literature focus more on the scale of the city, while taking into account the problems of urban development, changes in downtowns and building neighborhoods station, rather than the whole territory.

This focus can be justified by the fact that sponsors of these researches and studies are local authorities, but it runs the risk of restricting the accompanying actions to a local or micro-local level, while a consideration of issues and constraints of other spatial scales would prove necessary.

Table 4. The literature relative to the effects on the spatial structure at different scales (EU, countries, regions, cities, districts)

Type of literature	Academic	Non-academic
Economic strengthening of cities and of big urban centres		
Strengthening of big urban cities	16, 35, 47, 66, 69, 83	72
Speeding up of metropolization	10, 35, 47, 83	72
Urban development	60	26, 76
Integration of dynamic outlying territories		26
Scattering of population detrimental to big urban centers	69, 71	
Medium cities are at a disadvantage because of low rail services		26, 45
Concentration of effects and of economic activities		
Risks of agglomeration effects	18, 31, 33, 34, 35, 69, 71, 87	26, 37, 65
Improved status of territories situated at the end of HSR Line	83	65
Change in the location of economic activities	39	
Concentration of effects and of economic activities	50	
Change in the spatial hierarchies		
No change in the regional urban framework	16	
Increase in the competition and inequalities between territories		26, 37
Drop in inequalities between city-center and outlying regions	30, 33, 34, 58, 91	
Strengthening of the regional and national role of cities served by HSR	39, 83, 85	65
Strengthening of the metropolitan areas operating according to hierarchical networks	42	
Change in the city systems	39, 58, 85	3
Space distortion	32, 46	
Redistribution of growth inside the regional area	35, 39	
Change in downtown		
Change in the downtown framework	47, 85	3
Change in the social structure of downtown		57, 72, 89
Strengthening of train stations and of surrounding areas		
Development of stations and their area	47, 48, 51, 60, 63	3, 45, 76
Refurbishment of train stations and of business centers		11, 76

Source: Realized by the authors.

1.3 The economic effects (growth, jobs, businesses, economic sectors)

The effects on economic activities are those that are most represented in both types of literature. They refer respectively to the location of new businesses or to the development of economic activities (a), and to the effects on land and property (b).

a) The HSR service and the development of economic activity

Among all socio-economic transformations that are expected of a High-Speed Rail, one of the most positive effects studied in both types of literature refers to economic development (see Table 5).

Basically two types of effects are developed: 1) attracting new firms and 2) improving the competitiveness of existing firms.

Table 5. Literature on the location of new firms or on the expansion of existing economic activities

Type of literature	Academic	Non-academic
Effects on firms and on economic activity	58, 88	
New firms location		
Increase in the attractiveness of territories	44, 47, 88	3, 37
Increase in the attractiveness of big intermediate cities	85	72
Little disruption for firms attractiveness	12	68
Location of new firms	39, 44, 71, 85	3, 37, 40, 81
Location of metropolitan activities	85	
Location of business consultancy activities	85	
Location of research laboratories	92	
Development of business parks		3, 65
Relocation of some activities (offices) towards cities which are served by HSR, particularly larger ones	6, 29, 69, 71, 73	65
Failure of some business parks	27, 71, 84	72, 89
Development of urban projects and additional investments	39	
Improvement in the competitiveness of existing activities		
Improvement of the competitiveness of service industries	17	65
Additional income for the rail industry		65
Widening of market areas		65
Increase in exports	30	
Increase in the office occupancy rate	39	
Increase in productivity and competitiveness	88	65
Development of urban and business tourism and widening of tourist market	13, 31, 39, 47, 50, 71	3, 4, 24, 36, 45, 72, 76, 82
Development of business meetings	47, 85	
Increase in the number of tourists	47, 71	24, 82
Seasonality could be balanced		72
Fall in the number of nights and in the length of stays	8,13, 47, 71	4, 36
Increase in the occupancy rates		36
Widening of the tourist market of big cities		45
In the long term, drop in length of stay (in the short term, increase in length of stay)	17	36
Reinforcement in the competition between tourist destinations	50	

Source: Realized by the authors.

The first category of effects deals with the location of new businesses (37, 3, 37, 39, 44, 69, 81, 85), particularly in leading-edge technologies or tertiary sectors (81), in Europe as well as in the United-States.

The second category highlights an anticipated effect of strengthening of the competitiveness of existing businesses and activities, mainly in the field of tourism and more specifically in the urban and business tourism - an area heavily invested in both by the non-academic literature (3, 4, 24, 36, 45, 72, 76, 82) and the academic one (13, 31, 39, 47, 50, 71).

Again, the effects identified in the academic literature on economic development seem to be more sophisticated and tentative than those studied in non-academic literature, which are more general and systematic. For example, in 1993, Sands wrote “ The TGV was only one factor considered by businesses in the decision to locate in a town or city, and no business relocated primarily because of TGV service”. (71, p. 24, on this topic, cf. also 11, 47, 90).

Moreover, non-academic literature seems to focus on exogenous development related to new High-Speed Rail services, while the academic literature considers much more balanced opportunities for the future, based on endogenous development with existing firms.

The risk is that the economic actors only focus on territorial strategies to attract new firms by offering a range of areas or business parks, thus failing to work on the whole set of features specifically requested by firms seeking an exogenous location.

b) The HSR service and the effects on land and real estate

A High-Speed Rail service is expected to generate a number of effects on real estate. One of the most durable myths in this field, despite the lack of references on the subject, is the increase in prices of residential property in the cities provided with HSR.

This increase would result from greater attractiveness for households of the localities served by the High-Speed Rail. These expectations also lead to predict an economic growth of areas equipped with HSR, as home prices are likely to stimulate economic actors to invest more in these areas and to propose new housing projects and new jobs (12, 74).

Table 6. Literature related to the effects on land and real estate

Type of literature	Academic	Non-academic
Effects on land use and real estate		
Increase in business real estate prices	39	40, 74, 76
Increase in residential real estate prices	25, 31, 58, 71	40, 74, 76
No effect on real estate prices	5	
Uneven effects on real estate prices according to areas	12	
Gentrification of areas served by HSR		57
Uneven increase in residential, business and commercial real estate prices	12, 64	76
Uneven fall in commercial real estate vacancy rates		76
Development of residential real estate	12, 29	21, 76
Development of office real estate	11, 39, 71	21, 76
Development of commercial real estate	35	76

Source: Realized by the authors.

But if the non-academic literature mainly considers a possible increase in property prices, the academic literature does not provide a clear answer: sometimes it points out a lack of effect or shows more contrasting effects depending on the districts. While the increase in property prices is generally presented in the literature as a positive effect of the implementation of a High-Speed Line, this increase could also have negative effects on the location of households.

By producing a gentrification of urban neighborhoods and districts best covered by HSR, this would lead to a rejection of the most vulnerable households to the periphery, far from train stations and neighborhoods that are well connected to the new infrastructure (57). Furthermore, these changes must also be analyzed by the strategies of refurbishment of train stations which are often implemented during the setting up of High-Speed Rail services.

The stations then really become hubs of transportation. These actions often integrate a larger project of urban renewal of the district of the station with the corollary development of residential, commercial and office real estate projects.

The old back parts of the stations are replaced with business districts (11, 63, 76).

1.4 General effects and effects on households

It is frequently supposed that a High-Speed Rail service has a positive impact on the image of the cities provided with, impact in terms of modernity and notoriety. In France, on the arrival of the TGV towns connected with it are usually talked about (24). It induces a “club effect” for the town provided with it (10, 45)¹.

This image effect and the psychological nature of the effects are recognized in both literatures.

Table 7. General effects

Type of literature	Academic	Non-academic
Improvement in social well-being	70	
Change in regional cohesion	9	
Development of regional cohesion	88	
Change in the city image	16, 22, 25, 39, 69, 71, 87, 90	3, 24, 45, 72
Improvement in the quality of life	85	40
Psychological effects	92	
Accompanying or accentuation of contemporary economic changes	41	

Source: Realized by the authors.

Beyond general effects, the two kinds of literature identify a number of effects on households and employment, because of the attraction of population, the employment growth and the evolution of the labor market.

This theme seems to be essential for the sponsors of the non-academic literature. The gap between the two literatures is thus growing: the non-academic literature develops a much more idealistic vision based on the growth of income, the indirect job creation, and modification of the sociology of labor markets in favor of best qualified workers. But it does not deal with the question of the possible loss of jobs for the competing modes of transport.

¹ In France, a High-Speed club of served territories has been created.

Table 8. Literature relative to the effects on households and employment

Type of literature	Academic	Nonacademic
Attraction of population	32, 35, 69, 71, 85	3
Increase in the average income of urban households	71	89
Low impact on GDP (under 1 to 3 %)	64	
Little disruption for the attraction of households		68
Effects on employment		
Creation of indirect jobs		81
Employment growth in cities served by HSR	18, 32, 35, 69, 71	76, 89
Employment growth associated with the construction of the line	31	
Loss of jobs for competing means of transport	18, 31	
Employment growth in outlying regions	30	
Enlargement of the labor market	20, 39	65
Spatial integration of labor markets	35	
Increased and more efficient mobilization of highly-skilled labour	35	
Fall in the demand for not highly skilled workers	35	89
Change in the sociology of the labor market		89
Drop in industrial or lower skilled jobs for executive or high skilled jobs		89
Improved access of rural areas to the labor market	35	89
Increase in local taxes		57

Source: Realized by the authors.

The examination of these two kinds of literature shows that they both continue to identify numerous effects associated with the HSRS by focusing on common fields (economic development, employment, spatial planning, etc.). Therefore, the question of the effect is not abandoned by the academic literature. This provides another element to justify its survival in non-academic literature.

However, the academic literature is more tentative, revealing contrasted or non-existing effects in certain domains.

On the one hand, it develops a deeper analysis, by splitting the major categories of effects and thereby by questioning the mechanisms of emergence of effects. On the other hand, it positions itself on a larger spatial scale, while non-academic literature focuses on the urban scale, as we have already mentioned.

Finally, it identifies the key impact of the improvement of the transport offer on the demand, a role which is not limited solely to the effects of reducing transport costs, but also reflects the quality of service and the improvement of accessibility. The effect, far from being automatic, becomes conditioned.

The non-academic literature also recognizes the importance of some of these conditions, and proposes to develop accompanying strategies in order to satisfy them.

Thus it is interesting to carry out a comparative study of the conditions issued by each type of literature.

II What we learn from a confrontation between the academic and non-academic literature about the conditions of emergence of the effects

The academic literature is now at a disposal enough hindsight to put into perspective the effects of HSL. If it does not always put into question these effects, it considers that their appearance depends on different elements, whether they may be cyclical, endogenous or exogenous.

Thus, a number of conditions are discussed so that positive effects associated with the arrival of a HSL will occur. Some of these conditions are taken into account by non-academic literature, which highlights in particular the need for accompanying strategies to encourage certain effects.

We will show here that the consideration of the conditions remains insufficient, leaving aside the demand, the economic situation or the characteristics linked to the line or to the High-Speed Rail service (2.1). The conditions linked to strategies are partially taken into account. But the non-academic literature focuses on the accompanying strategies of the rail service or more generally of the transport offer at the expense of strategies based on the cooperation of different actors (2.2). Finally, the fact that numerous conditions are linked to the intrinsic characteristics of the territory, which is implicitly present in the academic literature, seems to be insufficiently taken into account by the non-academic one (2.3).

2.1 An insufficient consideration of the conditions by the non-academic literature

The academic literature highlights several conditions to observe effects. The review of the literature shows that those related to macro-economic situation, or to the HSL or HSR service characteristics or to the existence of effective demand are often hidden by non-academic literature.²

Thus, the use of High-Speed Trains and the effects depend on economic conditions (19, 20, 28, 32, 68, 85) and on economic growth (35, 54). Indeed, the demand for passenger transport, regardless of the mobility motivations, varies according to these elements. The public and private actors' strategies and their own investment ability are linked to the economic situation. The level of competition and the costs of flights will impact the distribution of market shares between High-Speed Rail and air transport on medium and long distances (58).

Characteristics of the HSL or of the HSR service also impact on the use and the effects. Among these characteristics, travelling times (32, 33, 85, 88), time-savings and the distance between the cities served by HSR (32, 39), the frequencies (20, 28, 59), will partly determine transport demand. The quality of the offer, the operating speed and the type of network will also determine the existence or not of effects.

² However, it is important to note that non-academic literature which is very often an ex ante literature, does not always lead a prospective analysis incorporating these conditions.

Table 9. The conditions linked to the economic situation and to the kind of HSL and HSRS

Type of literature	Academic	Non-academic
Macro-economic situation		
Economic situation	19, 20, 28, 32, 35, 43, 47, 71, 85	68
Air deregulation which encourages the drop in air costs	58	
Characteristics of the HSL or HSRS		
Line characteristics		
Design features of the train station	85	3
Type of HSR	32, 85	65
Number of stops	20, 28, 32, 87	76
Creation of new dedicated lines	53, 64	
Distance between cities served by HSR	32, 39	
Service characteristics		
Travelling time	32, 33, 85, 88	
Speed	6, 54, 85	
Improvement of frequencies	20, 59	57, 77
Prices	20, 44, 53, 58, 59, 85	
Pricing incentives	20	
Special prices for tourists		82
System to purchase tickets without booking	20	
HSR tickets sold downtown	20	
Quality of the transportation service	53	68
Marketing policy of other means of transport (bus)	20	

Source: Realized by the authors.

The creation of a High-Speed Rail link leads to a change in market shares between air and rail for distances between 200 and 700 km or for travelling times between one and three hours. The use of this HSR service is the main consequence of modal shifts (68) and to a lesser extent, of new traffic.

Consequently pre-existing traffic is needed to attend traffic flows in accordance with expectations (18) and to produce effects (20, 59, 70, 85).

The marketing strategy of the operator of the high-speed network is also a crucial precondition for success.

Table 10. Conditions linked to the existence of a real transport demand

Type of literature	Academic	Non-academic
Existence of a real demand	54, 91	65
Sufficient demand for mobility within a 300 to 600 km-radius	70, 85	
Existence of a specific demand for distance (from 200 to 700 km) and for time (from 1 to 3 hours)	20, 59, 88	
Real previous demand	44	
Traffic which matches the expectations	18	
Existence of modal shift		68

Source: Realized by the authors.

Indeed, an increase in travel cost (increased ticket price) can follow the implementation of the service and this increase can be offset by lower travelling time, by increased speeds (57, 77) but also by increased frequency of service. The operator should improve the quality of transport services (53, 68), should make it easier to purchase tickets (20) or should propose specific prices for different users to encourage them to use the service. This is the case for families, because the HSR is often more expensive than the use of private cars.

2.2 An unequal recognition of the accompanying strategies.

When the effects are not automatic but linked to conditions, there is a need for accompanying strategies. This need is recognized by the non-academic literature, which lays the emphasis on the improvement of the road service and of the transport offer (2.2.1).

Nevertheless, on the one hand, the academic literature more precisely describes the strategies of accompaniment of the transport infrastructures and service, and on the other hand, highlights the importance of the context in which these strategies have been made.

It is the case of the strategic context relating to the actors' cooperation, to the existence of frameworks of cooperation or suitable institutions (2.2.2).

2.2.1 An almost equivalent recognition of the strategies of accompaniment of the service

The strategies associated with the transport offer which are described by both literature, mainly stress two major actions: improvement of the interconnection between the modes and the reinforcement of the station accessibility.

a) Improvement of the interconnections

The frequentation of a High-Speed Rail service and its effects are dependent on the improvement of the interconnection between the modes (2, 52, 68, 72, 75).

Table 11. The conditions related to the improvement of interconnections

Type of literature	Academic	Non-academic
Investment in infrastructures and services	30, 31	
Improvement in the interconnection between different means of transport		2, 52, 68, 72, 75
Good interconnection of HSR with airports and usual train stations	5, 20, 22, 69, 76, 83, 88, 71, 87	82
Interconnection with public transports	54, 71, 83	
Interconnection of HSR with motorways	35	
Good rail servicing from cities served by HSR	30, 33, 85	3, 57, 77
Quality of the new service	30, 43, 47, 88	3
Quality of the pre-existing rail service	6, 30, 71, 85, 87	
Moderate competition with other means of transport	80	65
Management of the transshipment when the station is not in downtown	92	

Source: Realized by the authors.

Indeed, this interconnection allows to develop the demand for High-Speed Rail service which is positive for the territory by limiting the constraints related to the correspondence in the stations, the airports (5, 20, 22, 69, 76, 83, 88) and with the highway and motorway networks (35). This accompanying policy is even more important for the station located in suburbs (92).

In this field, the two categories of literature seem to draw up quite similar analysis.

b) An improvement of accessibility

The improvement of the accessibility of a city (or a region) with other cities following the implementation of a High-Speed Rail service also proves determining (cf. table 12).

Table12. Conditions related to the improvement of accessibility

Type of literature	Academic	Non-academic
Improvement of interconnection between cities		
Good interconnection between big cities	33, 54, 83, 87	
Improvement in the accessibility of small and medium cities	34, 88	
Improvement in the interregional accessibility	20	40, 76, 81
Integration of intermediate cities in corridors	85	
Interconnection of markets		40
Improvement of the accessibility to the city and to the train station		
Accessibility to the city	83	
How to deal with traffic jams around cities	18	
Improvement of the accessibility to the train station	19, 20, 59, 60, 69	76,
Location of the train station	35, 47, 54, 64, 71, 83, 85, 88	3, 72, 81, 89
Degree of insertion of the station in the urban fabric	83	

Source: Realized by the authors.

It depends on the nature of the rail service, the quality of the interconnection between the cities served by HST (33, 54, 83), the organization of the accessibility of small and medium cities and more generally of the territory provided with (20, 40, 76, 81, 34).

The location of the train station and its accessibility (19, 20, 59, 60, 69, 8, 76) are conditions found in both literatures: it is necessary to improve the accessibility to the station by developing public transport, pedestrians and cycling paths and car parks.

Within the cities, a good connection with public transport is essential if we want to observe some possible effects (54, 71, 83).

The accessibility to the station proves to be crucial and this from whatever point in the city: it is indeed important that the access times to the station do not cancel the positive effect of the time-savings resulting from the use of High-Speed Lines (18, 83, 92). The analysis finally agrees about the great advantage of the stations located in downtown area that are well connected to the whole territory (3, 35, 54, 64, 72, 81, 83, 85, 88, 89).

These conditions directly related to transport allow a good use of the High-Speed Rail service. If the strategies related to the accompaniment of the transport service are recognized in the two categories of literature, it is not the same for other strategies.

2.2.2 A different integration of the strategic context and of strategies indirectly related to the railway service

The two types of literature are both talking about the strategic context and the nature of the implemented strategies.

The cooperation between local actors seems to be very important in the two types of literature, but the broader strategic context for this cooperation is not mentioned by the non-academic literature. When it is, it is only from a local view point whereas the strategic context needs to be analyzed from a broader point of view. Thus the political weight of an area is likely to influence its capacity to benefit from a High-Speed Rail service.

Table 13. The conditions related to the strategic context

Type of literature	Academic	Non-academic
STRATEGIES	18, 50, 53, 64	2, 37, 45, 68, 72, 89
Strategic situation		
Actors' consultation		1, 37, 68, 89
The cooperation of all public and private actors	7, 13, 31, 85	3, 4, 8, 21
Existence of scopes of cooperation		3
Political weight of the region	85	
Existence of appropriate institutions	85	
Coherence with the strategies of firms and with the labor market	69	
Existence of preliminary urban projects	85	
Nature of the strategies		
Anticipation / accompaniment of the transformations in employment leading by wilful public policies in terms of higher education, training, ...		89
To accompany (or anticipate) (needed) changes in real estate after the arrival of an HSR line		21, 37, 40
To promote the specificities of territories		21, 38, 89
Strategies for the development of business and urban tourisms	13, 50, 71	4
Differentiation of touristic products	13, 50	
Marketing policy from local authorities	11, 13, 85	21
Liberating land use downtown	71, 85	
Reorganization of stations	60	
Public investment around stations	20, 71	21, 76
Concerted planning of the station area	48, 71	21, 45, 89
Development of new urban projects	85	3, 21

Source: Realized by the authors.

The restructuring of the station and its surrounding district is also found in the two types of literature. Thus, before the implementation of the High-Speed Rail service, the stations are renovated and sometimes transformed into hubs for various flows of transport or into commercial centers. The station districts also are concerned by these evolutions. Indeed, surrounding areas are often considered as not very

recommendable and not very safe. Then, one part of the public policies linked to a High-Speed Rail service consists in trying to improve the image of these districts. Many projects of rehabilitation and rebuilding of the real estate are carried out. Often, these districts are transformed into business or commercial centers. These evolutions can improve the frequentation of these areas and their accessibility. Carried out on the initiative of the local authorities, other public and private actors are also involved in these policies through common projects (45, 89). However the academic literature highlights conditions related to the success of accompanying strategies but they are not mentioned in the non-academic literature. For example, the development of the surrounding of outlying stations is often seen as a failure, but the academic literature doesn't take it into account. The town centers are usually preferred by businesses to come. In the same way, the strategies aiming at locating HSR stations in downtown area are also recognized by the academic literature.

2.3 The constraints related to the characteristics of the territory: a contextualisation of the effects not mentioned by the non-academic literature

The analysis of the academic literature is also related to the intrinsic characteristics of the territories. They are linked to the cities and their location (2.3.1), or to the existing economic resources or related to the population (2.3.2).

2.3.1 Conditions depending on the type of city and location

If there are many conditions about the type of cities in the academic literature, only a few references in the non-academic literature take into account the size of the city and its location as prerequisite conditions. Moreover, these specific conditions are much less accurate.

So if non-academic literature takes into account the size and location of cities (2, 64, 72), it is not the case for the distance between these cities no more as the proximity of larger urban centers.

Table 14. The constraints related to city types and their location

Type of literature	Academic	Non-academic
Type of cities and distance between them		
To be a major urban centre	69, 87, 88	
Density of city population	32, 44, 80, 85, 91	
Image of the city	85	
Cities which belong to the same administrative region	85	
Size and location of cities	32, 64, 85	2, 72
Travelling distance contained between 200 to 500 km	43, 44	
Travelling-time to a city less than or equal to 2 hours	69	
Central or peripheral location in Europe	34, 88	

Source: Realized by the authors.

2.3.2 The conditions related to land resource

In this area the gap between the two types of literature is important.

Table 15. The constraints connected to the resources of the territory

Type of literature	Academic	Non academic
Economic resources		
Size of the city markets	88	
Degree of agglomeration of activities to enable economies of scale	69, 88	
Firms with international market	47	
Presence of economic activities based on informational exchanges	35	
Presence of universities	35	
Existence of services of quality	85	
Preliminary existence of economic links	30, 39, 47	
Existence of dense, central business centers	80	
Existing and adapted to the train tourist resources	17, 47, 50	
Sufficient levels of productivity	30	
Dynamic local economy	18, 31, 32, 43, 47, 71	
Existence of an economic potential and of economic activities on the territory	69, 71	36, 68, 72
Accessibility to towns with a large volume of economic activity	33	
City image and attractiveness	63, 85	
Characteristics of land use		
Real estate costs	12, 85	
Downtown land availability	11, 12, 71	3, 21, 76
Competition between residential and office real estate	5	
Resources associated with the population		
Type of inhabitants	29	
Share of metropolitan activities	42	
Lower wage costs	85	
Existence of a skilled workforce	30	

Source : Realized by the authors

The diversity of the special conditions outlined by the academic literature has a significant heuristic value. Indeed, it clearly highlights the difficulty to build a single scheme, an economic law to describe the links between high-speed service and local economic development.

The listed conditions are factors limiting transferability of the findings related to a given context to other areas or other territories. For example, in the field of tourism, it highlights the importance of recognized specific resources. The HSR is indeed used by tourists to visit places that are already known and which benefit from a certain reputation (13, 47).

But if the academic literature establishes specific and multiple conditions necessary to observe HSR effects, the non-academic literature, less accurate on the specific characteristics of areas only keeps those related to the existence of what is called an “economic potential” on the territories receiving this service.

Conclusion

This paper presents a confrontation between the academic literature and the non-academic one to highlight and to explain that the myth of structuring effects of a HSR still exists.

We have shown that the academic literature does not remove the myth and, to some extent, even contributes to its maintenance. It continues to identify the effects, even if these effects are complex and dependent on conditions that are specific to the territories provided with a High-Speed service.

If this complexity and many important conditions are sometimes not taken into account by the non-academic literature, it is not sufficient to explain why the myth of structuring effects still exists.

Indeed, if this could be the first element of explanation, we would also like to emphasize that putting in perspective the effects does not really question the effects. The conclusions of the academic literature are that: in a specific case, if the conditions are present, the effects will then occur. The myth of the effects can then continue to exist. But there is a risk to generalize conclusions that are linked to particular cases in terms of economic situation, of geographical location, of quality of the service, of attendance, of specific resources of every territory and of the actors' strategies, etc.

So the analysis of the conditions in both types of literature allows us to put forward another conclusion according to the expected effects of High-Speed Lines in the non-academic literature: there is always hope to succeed in meeting all the conditions needed and defined by the academic literature. But these conditions are not sufficient.

Except by producing an accurate analysis of the contextualization of these effects, the academic literature can also be considered as a way to maintain the hope for potential effects.

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