Can the High Speed Rail reinforce tourism attractiveness? The case of the High Speed Railway section between Perpignan (France) and Barcelona (Spain)

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Abstract

The transport system plays an important role in the tourism destinations development. A High Speed Railway authorizes the reduction in the transport costs and can be a tool of development of the tourism destinations by allowing the improvement in accessibility. Nevertheless, this improvement is often synonymous with reinforcement of spatial competition between tourism destinations. The new economic geography models show that agglomeration and dispersion forces determine the spatial structure of economy. These two opposing forces are influenced by transport costs. A decrease in transport costs can reinforce the concentration of the economic activities. A prospective analysis investigating the case of the forthcoming South European HSR lines between Perpignan and Barcelona shows that the increased spatial competition may reinforce the phenomenon of the tourism activities agglomeration around Barcelona to the detriment of Perpignan. The tourism products differentiation is one solution for Perpignan to confront the agglomeration forces.

Keywords: Transport facilities effects; High Speed Railway; Spatial competition; Core-periphery model, Tourism attractiveness

1. Introduction

This article is concerned with the way in which transport infrastructure, High Speed Rail line (HSR) precisely, affects both the growth of the tourism activities and the economic development. In particular, the aim of this paper is to establish a prospective analysis of the potential effects of the European Southern HSR on the tourism attraction of the area of Perpignan (France) faced to the tourism supply of the City of Barcelona (Spain) and its region. Theoretically, the article leans on a model of the new economic geography. Empirically, it rests on the analysis of some past experiences.

The application of the spatial competition analysis to the tourism sector was not approached until this article. Nevertheless, in front of the European integration and the globalization, cities and regions enter more and more in competition, in particular as regards their tourism attendance. Consequently, the tourism attractiveness becomes a stake in the competition between areas.

The section 2 provides a theoretical framework of the way in which transport facilities, particularly transport cost, affect regional development. Then the lessons of the new economic geography will be exposed. These models highlight that, although a reduction in the costs of transaction is often regarded as an essential component of any regional strategy, it is also synonymous with reinforcement of spatial competition between areas. The third section is concerned with the effects of transport facilities on tourism activity. The fourth section is interested in the impacts of the HSR on tourism activities. It presents the lessons which can be withdrawn of the experiences coming from cities which have known a HSR implementation. The fifth section presents some prospect elements of the effects of the forthcoming HSR line between Perpignan and Barcelona.

2. Transport infrastructures and regional development: the lessons of the new economic geography

Transport infrastructure has come to have a rather confused role related to economic development, particularly regional development. There is a popular view that the provision of more and better infrastructure is not only a desirable instrument of regional development but is a sufficient instrument. This belief that transport infrastructures projects have significant impacts on the development of regional economies has often been used to justify allocating resources to transport investment. The general approach used by planners in the evaluation of transport investment is the cost-benefit analysis (CBA). This analytical framework aims to assess the costs and benefits of a given project in monetary terms and ascertains that limited resources are being allocated with the aim of maximising the welfare of the society. The criterion which determines the valuation of a project is its present benefit. It represents the economic surplus of all the actors concerned directly with the project (State, owner, competitor operators of the owner, users). User benefits include travel time, vehicle operating costs and safety. These gains could lead to an overall change in accessibility and ease of access between spatial opportunities. The main limit of the analysis is to assume that the distribution of the economic activities is fixed. But in reality, modifications in transport costs could induce changes in location of economic agents.

The models of the new economic geography (NEG) integrate the question of the location of economic activities taking into account the costs of transport and the role of spatial competition. The issue of the NEG is to explain precisely how transport costs affect the decision making of the economic agents and determine the emerging

geographical patterns as a result. The core-periphery model introduced in Krugman (1991) is a framework that illustrates how the interactions among increasing returns at the level of the firm, transport costs and factor mobility can cause spatial economic structure to emerge and change (Fujita and Thisse, 1997). Krugman (1991) shows that a change in transport cost induce a change in the intensity of spatial competition, which in turn influences the location of firms. For a lower transport cost, the agglomeration forces tend to dominate the dispersion forces and firms agglomerate at a larger scale into a smaller number of locations serving an extensive hinterland.

In his seminal paper, Krugman (1991) assumes an economy with two regions, two production sectors (agriculture and manufacturing) and two types of labour (farmers and workers). The agriculture sector produces a homogeneous good under constant returns, using farmers as the only input. The manufacturing sector produces under increasing returns to scale where labour is the only input. Each firm produces a different variety, by using a common technology, and competes with the others in a monopolistic competitive framework (monopolistically competitive markets have the following characteristics: there are many producers and many consumers in a given market, consumers have clearly defined preferences and sellers attempt to differentiate their products from those of their competitors; the goods and services are heterogeneous, there are few barriers to entry and exit). Workers are freely mobile between regions, whereas farmers are immobile, distributed equally between the two regions. Finally, the agricultural good is less costly traded between regions, whereas the interregional trade of manufactures involves a positive transport cost (in an iceberg form, i.e. a part of the good 'melts away' in transit). That is, transport costs are incurred in the good being shipped.

In this model, the immobility of farmers is a centrifugal force because they consume both types of goods. The centripetal force is more complex, involving a circular causation. First, if a large number of firms locate in a region, a greater number of varieties are produced there. Then, workers in that region have a better access to a greater number of varieties in comparison with workers in the other region. Thus (other things being equal) workers in that region get a higher real income, inducing more workers to migrate towards this region. Secondly, the resultant increase in the number of workers creates a larger market than the other region, which in turn yields the home market effect. That is because of scale economies, there is an incentive to concentrate the production of each variety in only one region; because of the transport cost, (other things being equal) it is more profitable to produce in the region offering a larger market and ship to the other. This implies the availability of even more varieties of differentiated goods in the region in question. In short, the centripetal force is generated through a circular causation of forward linkages (the incentives of workers to be close to the producers of consumer goods) and backward linkages (the incentives for producers to concentrate where the market is larger) (Charlot and Lafourcade, 2000).

If forward and backward linkages are strong enough to overcome the centrifugal force generated by immobile farmers, the economy will end up with a core-periphery pattern in which all manufacturing is concentrated in one region. The core-periphery pattern is likely to occur when the transport cost of manufactures is low enough (1), when varieties are sufficiently differentiated (2), or when expenditure on manufactures is large enough (3).

Traditionally, the core-periphery model focuses on the primary and secondary industries of these regions but the interest in the potential of service industries as tourism grows as the tertiary sector rises.

3. The effects of transport infrastructures on tourism activities

The main difficulty of the analysis of transport effects on tourism is related to the apprehension of the structures of the tourism market and industry. Indeed, tourism supply is a complex phenomenon as regards to both the nature of the product and the process of delivery (Sinclair and Stabler, 1997). It concerns:

- the need for the consumers to move towards the product;
- the impossibility for the consumers to experience the tourism product before purchase;
- the strong dependence to the natural resources or the historical sites;
- the immobility of the resources of each tourism destination;
- the existence of many elements which constitute the tourism supply;
- the (often) seasonal character of the tourism activity;
- the large variety and the great number of under-sectors and suppliers implied in this same sector.

The tourism product is a compound product (Caccomo and Solonandrasana, 2001). Tourism is a form of complementary demand for which the main components are transport, food, and accommodations (Morley, 1992).

When we examine the links between tourism and transport facilities, we have to analyse the effects of modification in the transport costs on both tourists' behaviour (3.1) and tourism suppliers (3.2).

3.1. Theoretical framework of analysis of the tourism behaviour and the effects of reduction of transport cost

The model of Rugg (1973) is one of the first rigorous frameworks of theoretical analysis of the consumer's choice of a journey destination. This approach is based upon the 'New approach to consumer theory' from Lancaster (1966). *"A traveler derives utility from being in the particular destination for some period of time. Dwelling in the destination allows the traveler to consume destinational attributes or characteristics, such as a pleasant climate or beautiful scenery, from which the traveler may then derives utility"* (Rugg, 1973, p. 65). The tourist is assumed to maximize its utility. This maximization is done by taking account of a budget constraint and a temporal constraint as well as temporal and monetary costs of transport towards a principal destination (and between destinations). Rugg (1973) assumes that the tourist has a fixed time available for his journey. A short journey passed to a destination cannot give the same satisfaction that a long stay passed to this same destination does. The full cost of any human activity is the sum of its market prices and the value of the time foregone from others uses. Time has thus been viewed as a resource used in the production of activities, and tourism is normally an extensive time user (Bull, 1995). Given a holiday time budget, an individual can allocate time into pure tourism activities (in destinations) and travel to or from destination. A travel is a pure cost: it yields negative benefits or a negative time value, and tourists will therefore trade off time against money in seeking either a closer destination or faster travel means. Thus, an improvement in the transport facilities allows a reduction in the access time to the destination and makes it possible to the tourist, all things being equal, to spend more time at destination and thus to maximize

more its utility. It appears that the introduction of the HSR can improve the utility of the tourists and thus reinforce the tourist attractiveness of the territory.

Prideaux (2000) affirms that although the transport industry provides the link between tourism generating and destination, the role of transport as an agent in destination development has been largely overlooked. If the ability of tourists to travel to preferred destinations is inhibited by inefficiencies in the transport system there is some likelihood that they will seek alternative destinations. Assuming that tourists usually have a fixed holiday expenditure budget and that expenditure on accommodations and discretionary spending is predetermined by the tourist's accommodation preferences and destinations cost levels, the transport access cost will have some effect on the selection of a destination. Prideaux (2000) develops a model which demonstrates the dynamic relationship between categories of holiday expenditure and tourists' point of origin. Increased distance generally leads to increased transport access and represents a significant factor in total holiday cost. The model is based on a total holiday expenditure function which depends on the discretionary spending at destination, the accommodation costs at destination and the transport access costs to destination. The transport access cost to destination is function of the journey fares to destination, of the time of journey to destination, of the comfort of travel to destination and of the transport infrastructure costs at destination. The model is tested by analyzing the role of transport in the development of Cairns as a destination by examining the effect of distance, transport access costs and competing destinations.

3.2. Transport, tourism market structure and tourism spatial competition: the lessons of the core-periphery model applied to tourism

We consider the strategies of the tourism firms and the nature of tourism market to analyse the effects of the transport facilities on tourism activity. Indeed, the framework of the core-periphery model is the monopolistic competition. Is the competition of tourism market monopolistic?

Monopolistic competition is a type of market structure, often associated with retailing, which is intermediate between perfect competition and monopoly.

Debbage and Daniels (1998) stipulate that tourism is a type of industry which basically differs from the other forms of industries of production. Tourism is not a simple product but a vast set of products and services which interact in order to produce an experience with the tourist who includes at the same time tangible and intangible elements. The structures of the tourism markets are very heterogeneous in the measure where they present multiple forms of competition, segmentation of market, degree of differentiation of the products, economy of scale, etc. (Sinclair and Stabler, 1997). For Stafford (1995), these structures of market correspond either to a monopolistic competition, or to an oligopolistic competition. "*In part of tourist industry a monopolistic competition (bottom-of-the-range restoration, for example) dominates with a great number of small companies, weak costs at the entry; competition will be exerted starting from the quality of the services, the differentiation of the products, the localization, the public image aiming at the fidelity of the customers. The other part of tourist industry is characterized by situations of oligopoly […] (airline companies, for example)"* (Stafford, 1995, p. 43).

Thus, we can consider that the accommodation sector (hotels and restaurant) looks like market under monopolistic competition: an industry of small firms, each able to create some consume loyalty by offering a differentiable product, and with relatively few barriers to entry of new firms (Eadington and Redman, 1991). In this type of structure of market, the play of the forces of agglomeration and dispersion can be exerted.

Then, a change in the magnitude of transport cost induces a change in the intensity of competition over space, which in turn influences the location of tourism firms. Namely, given a lower transport cost for goods, the intensity of competition becomes more similar over space, and hence there is a smaller incentive for firms to relocate. On the other hand, given a higher transport cost for goods, the intensity of competition decreases more rapidly as a firm moves away from competitors, and hence they tend to be attracted to a location with less number of competitors, i.e. they tend to disperse over space in order to enjoy the low intensity of competition. Consequently, for a lower transport cost for goods, the agglomeration force tends to dominate the dispersion force, and firms agglomerate at a larger scale into a smaller number of locations serving an extensive hinterland, while for a higher transport cost for goods, they tend to agglomerate at a smaller scale into a larger number of locations dispersed over space serving a smaller hinterland. Then, in the case of tourism industry, an improvement in transport supply can reinforce the agglomeration of tourism firms in the most developed region.

Furthermore, tourism firms derive benefits from clustering and agglomeration by developing firms backward linkages with local. A large resort sustains the operation of tourism input suppliers and ancillary services (such as banks) in the surrounding areas by creating a sizeable demand for their product (Papatheodorou, 2004). However, the

very existence of these providers forms an entrepreneurial milieu that reduces average costs and enhances productivity. Moreover, large resort size can justify major infrastructure projects that improve hygiene standards (new sewerage system) and accessibility (new airport and road network) for both residents and tourists. Consequently, the resort becomes more attractive and the number of tourist increases.

4. The HSR as a tool of development of the tourism attractiveness: lesson of the past experiences

The effects of the new transport facilities do not exist in themselves. Economists called into question the existence of mechanical and systematic effects on the regional development (4.1). Nevertheless, some lessons can be withdrawn in comparison with the analysis of the experiences coming from cities which have known a HSR implementation (4.2).

4.1. HSR and the 'structuring effects'

The analysis of the role of the HSR on the regional development concerns the question of the 'structuring effects' of the infrastructures of transport. By opening the markets and allowing the production and the exchanges, transport was regarded as a source of wealth in all circumstances and for all. This concept was largely called into question. Indeed the research concerning the effects of the motorways, or later on the effects of the HSR disputes the automatic character of the transformations induced by the new infrastructures of transport (Bonnafous, 1987; Plassard, 2003). Since the seventies, the belief according to which the implementation of transport facilities

brought wealth and prosperity was gradually abandoned. This approach was replaced by a reflection that grants an important character to the strategies of valorisation of the infrastructures. Consequently, the supply of transport is not considered any more as a way to cause wealth but a tool which has to be developed by the authorities by adopting measures of accompaniment. The initial determinism becomes thus determinism of intention. In 1990's, many cities set up policies of valorisation in order to attract new activities and to make HSR the driving force of their economic growth. However, these policies did not always have favourable effects. Many examples attest some (Mannone, 1995).

Finally, the transport network has a secondary role compared to the economic and space structure in which it fits. Thus, before being a processing component of the economic relations, the transport facilities make possible functions and permit changes in the pre-existent relations. The effects of the HSR appear in the presence of local potentialities and strategies of actors adapted to these potentialities only. The structuring character does no longer result from the facility in itself, but from the structured space in which it fits. This new definition of the concept excludes any direct relation between causes and effects. The effects depend on both the context of the economic and the space structures of which the HSR forms part. The transformations observed are seldom attributed to the HSR only but to a many factors which converge. Even though they are considered as a direct effect of the new transport supply; the modifications of the practices of travel are themselves the product of a convergence of multiple factors. Recently, some economists are interested in the role of the implementation of the European network of transport on the development of the European areas (Vickerman, 1997).

4.2. Impacts of the HSR on tourism: learning from the past

Since 1980, several high speed railway lines were implemented in France. First, the South-eastern HSR, completed in 1983, made it possible to connect Paris and Lyon which are distant of 460 km in 2 hours (instead of 4h30 by car). The HSR network was extended to the West to connect in one hour Paris to Le Mans in 1989 (200 km), Paris to Tours (240 km) and to the North to connect Paris to Lille (210 km) in 1993. In 2001, the Mediterranean HSR made it possible to link Paris and Marseille in 3 hours (770 km). Since 1990, also starts to set up the trans-European HSR network (Eurostar in 1994 joins Paris to London in 2h40 (415 km), and Thalys in 1996 joins Paris to Brussels in 1h20 (305 km)).

Several empirical studies were undertaken in order to assess the impacts of the HSR (Bonnafous, 1987; Klein, 1997; Mannone, 1995). One of the main results is that the different HSR lines do not present the same configuration. For instance, the axis Lille-Paris-Lyon-Marseille allows connecting the large French cities while the Atlantic HSR looks like a 'commuter belt' which connects middle size cities to the French capital. Finally, the transeuropean network follows another way that is to participate to the European integration by bringing together the European capitals.

Klein (1997) shows that the effects of the HSR are spatially differentiated. For instance, according to the mobility practices, the socio-economic effectiveness of the HSR seems to be more important for locations which are taken away between 2 and 3 hours. Furthermore, whatever the economic sectors, the HSR is a mode which permits the development of activities only if it is well anticipated and configured. In other words, positive effects do not come naturally from the HSR implementation but are boosted by public and private measures of accompaniment.

Some conclusions of the effects on tourism of these lines can be elaborated (Bazin et al., 2004). The Southern HSR line between Paris and Lyon (France) was completed in 1983 permitting to connect Paris in Lyon in 2h00 instead of 4h00. In Lyon, business tourism strongly increased (Mannone, 1995). Business tourism presents considerable repercussions on the economy. It was estimated in 1997 that a fifth of the total tourist receipts concerned this segment in France. The expenditures from business tourist are four times more important than the expenditures from a tourist of leisure. Business tourism is thus a stake for the great agglomerations. The HSR which brings Lyon closer to the French capital had a double effect on this kind of tourism. The business trips increased considerably, but the possibility of making the return in a day reduced the length of the stays (which passed from 2.3 days in 1980 to 1.7 days in 1992). This reduction penalized the business hotel sector in a selective way (it penalized the hotels located far from the business centre). On the other hand, the hotel frequentation and the number of congresses increased. This rise may be explained by reinforcement in the reception facilities in terms of exhibition site, centres congress and hotel capacity and reduction in transport time. In addition, the HSR contributed to popularize the city of Lyon and increased the tourist reputation of the city. Urban tourism recorded a clear progression. But this progression is not only related to the HSR; the success of this form of tourism is primarily the result of an offensive promotion.

More recently, in 1989, the opening of the Atlantic HSR caused projects of valorisation of the tourist activities in the city of Le Mans. In Le Mans, the business tourism developed. The number of congressmen progressed in a significant way. The hotel frequentation increased but there was a decrease in the length of stay. The impacts were not only quantitative but also qualitative. On the one hand, the congresses have a national and international audience while before they had only a regional scale. On the

other hand, business hotel has to be restructured. The HSR contributed to the decline of the hotels in difficulty. But, it allowed the hotels presenting an offer adapted to the needs of the customers to develop.

For the case of the city of Tours, the tourism activities have known an important increase when the HSR was implemented. However, it is difficult to assess the actual role of the HSR in this increase. The impact is undoubtedly visible on the number of Parisians which appreciates the City of Tours since a long time. On the other hand, the impact on the foreign tourist attendance was probably weaker because the foreigners prefer to visit the Châteaux of the Loire which are not directly served by the HSR. This dispersal of the tourism product on a wide area (especially on the countryside) does not encourage the use of the HSR.

Finally, the analyses of the effects of the Mediterranean HSR (between Paris and Marseille, implemented in 2001) on tourism show a change in the behaviours and types of tourism forms more than a notable evolution of volumes. The HSR contributes to change the behaviour of tourists: the increase in the short stays (weekend in particular in second homes), the increase in tourist travel of some categories of people (young people, seniors, high socio-professional categories and foreigners).

It arises from the past that the conditions of appearance of the impacts are related to:

- the existence of the strong local potentialities: the presence of the HSR is insufficient to develop tourism products weakly known;
- the existence of local strategies: the effects of the HSR are not automatic. It is the existence or the development of strategies related to the implementation of the HSR which constitutes a fundamental element and determining for the appearance of significant effects. These effects are related to the development of integrated products, associating multiple partners, public and private. However, it is necessary

that the strategies implemented rest on an assessment of the economic or human potentialities being able to be developed by the HSR;

- in addition, the HSR constitutes an appropriate development of certain segments of the tourism activity such as urban tourism and business tourism. The travel facilities can support the development of urban tourism, especially of short stays.

5. The forthcoming implementation of the HSR and development prospects of tourism in the region of Perpignan

5.1. The international HSR section between Perpignan and Barcelona

The Franco-Spanish summit (Madrid, October 1995) decided on the realization of a bi-national high speed railway between the two cities Perpignan and Figueras (Spanish city near the border). The realization of this project began in autumn 2004 and should be completed in 2009. This section (Perpignan – Figueras) is defined as the 'international section' envisaged with double track and international railway spacing. This section is a part of the Southern Mediterranean Europe HSR project:

- Lyon-Marseille and Lyon-Nîmes (in service since 2001);
- Montpellier-Perpignan (in project);
- Perpignan-Figueras (under construction);
- Figueras-Barcelona (under construction);
- Lleida-Barcelona (under construction);
- Madrid-Zaragoza-Lleida (in service).

The aim of the complete project is to reinforce the European high speed railway network. However, according to the economists, the Montpellier-Perpignan section does

not seem to be socially profitable. Thus, for the moment, the HSR should not be achieved by the French side. It reduces the opportunities for the city of Perpignan.

By attenuating both the geographical obstacle of the Pyrenees and the technical obstacle (the difference in spacing of the railway between the Iberian peninsula and France), the implementation of this HSR will make it possible to widely decrease the travel times: 0h50 instead of 2h45 currently between the cities of Barcelona and Perpignan, 5h35 instead of 9h35 between the cities of Barcelona and Paris.

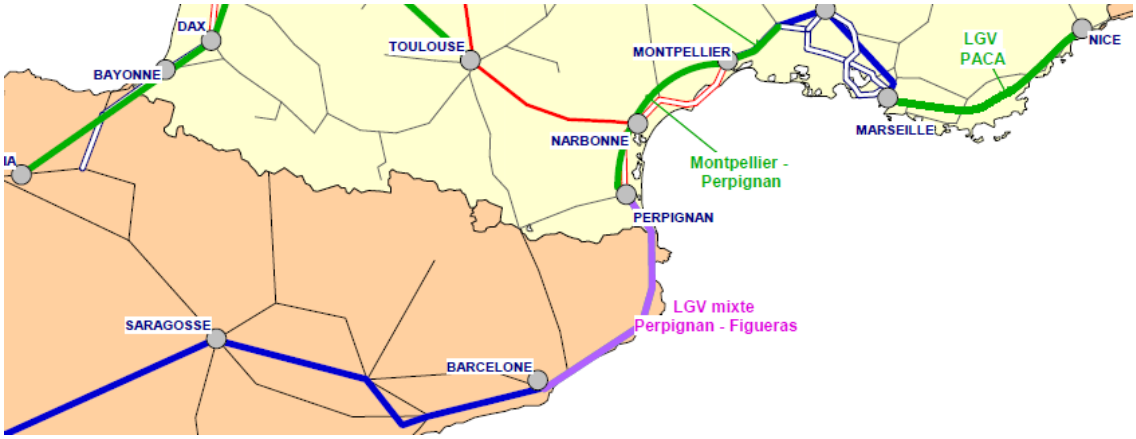

Fig. 1. The HSR line between Perpignan and Barcelona.

The implementation of the HSR will permit to decrease travel time from Perpignan to Spain only, but travel times will remain unchanged between Perpignan and the others cities of France. Thus, the city of Perpignan cannot envisage that this new infrastructure attracts new French visitors. It seems to be interesting to wonder whether the connection with the city of Barcelona (population of the city: 1 673 075 inhabitants, population of the metropolitan area: 5 292 354 inhabitants) will make it possible to attract Spanish tourists towards the city of Perpignan (population of the city: 116 700 inhabitants, population of the urban area: 249 016 inhabitants). On the contrary, is this connection likely to encourage the concentration of the tourist supply in the city of Barcelona?

5.2. Prospective assumptions on the effects of the HSR on tourism

Today, the geographical proximity between Perpignan and Barcelona involves a strong 'excursionnism' between the French administrative region called Languedoc-Roussillon (2 400 000 inhabitants) and the Spanish province called Catalonia (6 209 000 inhabitants). In 2000, the number of excursionists from Languedoc-Roussillon to Catalonia amounts to 723 200 against 415 100 from Catalonia to Languedoc-Roussillon (INSEE, 2001). The main purposes of the excursionists from Languedoc-Roussillon to Catalonia are: purchases (60%), holidays (20%) and visits of family or friends (9%).

Furthermore, a recent survey on cultural and leisure mobility shows that the inhabitants of the Perpignan area travel a little to Barcelona (Holz and Giband, 2006). Among people who travel to Barcelona, the most important part is constituted of the senior executive category as liberal professions and businessmen (that mainly constitutes urban tourists). The main purposes of their travel are purchases and cultural visits. According to the respondents, the implementation of the HSR will boost this kind of mobility.

There is an imbalance between the tourist potentialities of Perpignan and those of Barcelona. Indeed, Perpignan is a small city endowed with some historical monuments while Barcelona is an European metropolis with an important architectural heritage but also with numerous infrastructures and tourist equipments (parks, museums, etc.). Thus, it seems that Barcelona is more able to benefit from the implementation of the HSR on its tourist development than Perpignan.

We can conclude that the HSR constitutes an appropriate tool of development of urban tourism and business tourism. From this point of view, the supply of urban tourism and business tourism is much more important in Catalonia (that includes an European metropolis such as Barcelona). Here the transposition of the core-periphery model would suggest a reinforcement of the concentration of the tourism supply, in particular business tourism on the core, i.e. Barcelona. Consequently, the core, considered as a resort, becomes more attractive and the number of tourists increases. Then it may result a decrease in the tourism attraction of the periphery, i.e. Perpignan.

5.3. On the difficulties to transpose the past experiences to the case of Perpignan

The analysis of the past experiences can also inform on the possible impacts of the HSR between Perpignan and Barcelona on the tourism activity. It presents nevertheless several types of difficulties.

First, the period of implementation of the HSR is not the same. So the national and regional economic situations as well as the institutional context are likely to be different. Indeed, the effects of the HSR are related to the economic context and to the behaviours of the public actors.

Second, no territory is identical to another. The territories differ faced to geography, history, people, institutional actors, socio-economic structures, transport networks, urban forms, etc. It is obvious that these various factors play a part in the impact that the HSR may have on a territory.

Third, a HSR is not implemented in an identical manner and it does not serve either in an identical way a given regional territory. In addition, the decrease in the distance-times permitted by the several HSR lines is variable according to cities. Until now, the

HSR allows the reduction in travel times to the French capital. It has to be notes that it will not be the case for the city of Perpignan that will not approach the French capital but will be connected with the capital of Catalonia. Moreover, the HSR will not be totally ended from Madrid to Paris. It reduces the opportunities that could come from such a project.

Fourth, the cross-border context and the administrative, linguistic and legislative differences make difficult to transpose the assessment of the effects of the HSR to the case of Perpignan. Even though the travel times will be strongly improved between Perpignan and Barcelona, the border may remain an actual barrier to the exchanges. Indeed, the presence of a border between two cities often contributes to decrease the mobility from 70% to 90% in comparison with the mobility observed between two equivalent cities located in the same country. In addition, it remains some uncertainties for the considered HSR section as the frequencies, deserved cities or fare.

Tourism in the area of Perpignan is primarily seaside tourism. However the HSR is not adapted to develop this type of tourism, more especially in the measure where the seaside resorts remains far from the city of Perpignan (about 10 kilometres for the closest resort). In addition, the HSR could have more effects on the short stays than it could have on the long stays. Indeed, the improvement in accessibility plays a less important part for the long stays than it does for the short stays. The reason is mainly due to the fact that the personal vehicle is largely used in case of the long stays.

Moreover, the opening of the HSR will reinforce space competition between the tourist market of Barcelona and that of Perpignan. However, the area of Barcelona lays out of a concentration of tourism infrastructures more important than the area of Perpignan. The risk is then, as indicates in the core-periphery model, that this improvement in the transport conditions reinforces the phenomenon of agglomeration of

the tourist activities around the city of Barcelona, to the detriment of the city of Perpignan. Tourism products differentiation is then one solution for the city of Perpignan to confront agglomeration forces. The strategy of differentiation of the tourism products and services can follow two directions:

- the quality differentiation which aims the well-off tourists appreciating the luxury. The purpose is to offer a range of tourism products with more human dimension or a sustainable tourism which differs widely from the mass tourism characterizing the Costa Brava (the East of Girona seaside between Perpignan and Barcelona);
- the 'territorial differentiation' which contributes to create a specific tourism product linked to a strong local identity. Each territory is marked by a potential exploitation of specific resources which are at the same time intrinsic - i.e. given ex-ante (climate, natural resources, etc.) - and built on this territory like a result of a history and a cultural heritage. Within this framework, the area of Perpignan profits from a good identification of its historical origins (one of the Cradles of Catalonia) which contributes to highlight its 'catalanity' (folk demonstration, gastronomy, etc.).

6. Conclusion

The role of infrastructure of transport in tourism destination development is important but could be ambiguous. In the case of the HSR, the effects are selective and conditioned by tourism resources. In general, the HSR permits to develop business tourism and urban tourism.

This article contains two levels of significance. The first one is theoretical. The objective of this paper is to use Krugman's core-periphery model so as to identify the consequences of the implementation of the HSR between Perpignan and Barcelona both

on the economic development and on the tourism activities in particular. Now the models of spatial competition rarely find fields of application which lead to test their external coherence. However, the transposition of the core-periphery model in this article gives some prospective elements on the effects of the change of the transport conditions on the tourism system. The HSR could reinforce the agglomeration of tourism industry on the most developed area. The case of the South European HSR that will join Perpignan (France) to Barcelona in 2009 provides a relevant illustration. The region of Barcelona has a tourism potential more important than that of Perpignan. So, as regards the core-periphery model conclusions, there is an actual risk that the attractiveness of Perpignan decreases for the benefit of Barcelona.

Nevertheless, we can only regret that the prospective framework does not allow testing empirically the relevance of the mathematical structure of the model. Besides, the available data on this field are scare given the restricted number of HSR. Then it returns the exercise of empirical test difficult.

The second interest of this work is empirical and prospective. It shows that it is unmistakable that the implementation of a HSR between two regions contributes to move closer them and thus to strengthen the competition between them. The past experiences show that the HSR can facilitate the development of the tourism activities, in particular the business tourism and the urban tourism. These effects may appear only if a previous tourism potential exists and the public or private actors set up measures of accompaniment. So, one of the main conclusions of the article is to suggest that an area confront to an increased spatial competition due to a new transport facility should invest in a differentiated tourism product. The differentiation of the tourist products can thus contribute to limit the phenomenon of concentration of the tourism activities. As regards the case of Perpignan, this city has to take advantage of the implementation of the HSR

to differentiate better its tourism supply to face the greater competition of Barcelona (sustainable tourism, luxury tourism, ‘tourisme de terroir’, etc.).

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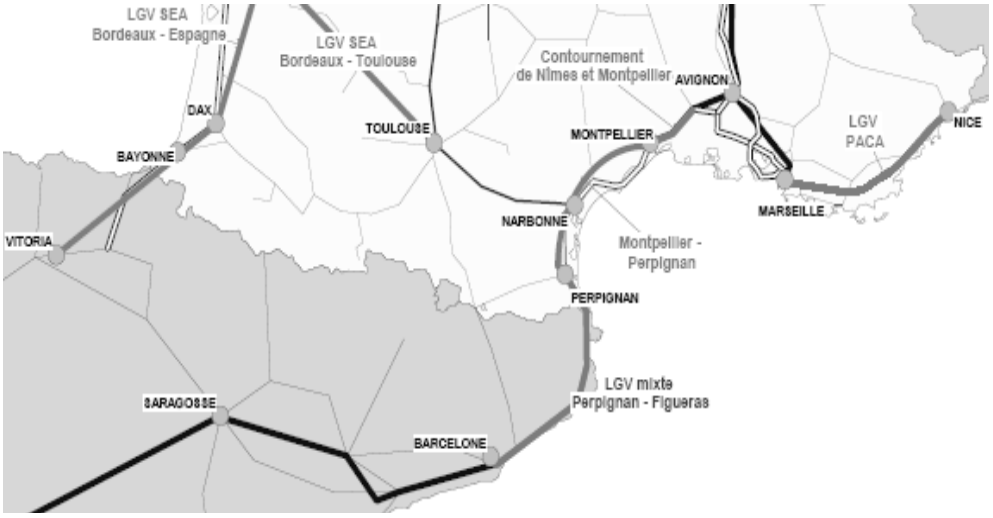

Fig. 2. The HSR line between Perpignan and Barcelona.