Annotated Bibliography of Papers Relevant to High-speed Rail (HSR), Regional Economic Development and Related Areas

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Preface

With HSR continuing to be the target of investments around the world, and with even the United States elevating the place of HSR on its public agenda, we have developed this annotated bibliography of references on HSR, regional economic development and related areas. We hope it will be of value to researchers, teachers, students and practitioners. We make no claim of completeness but we can attest that all the references contained herein have been useful to the Regional Transportation Planning and High-speed Rail Research Group

http://web.mit.edu/hsr-group/index.html

In **Section A**, we include references on transportation investment and economic development in general. **Section B** considers the case of HSR and economic development on the local and urban scale while **Section C** deals with the national, regional and international levels. **Section D** includes references on economic geography and disparities among regions. In **Section E**, we include references on HSR and aviation. **Section F** presents references on transportation project (including HSR projects) financing and value capture mechanisms. **Section G** deals with HSR organization and reform and **Section H** discusses HSR integration policy. Finally, **Section I** discusses international HSR experiences and **Section J** concludes with references on the Northeast Corridor of the U.S.

Each section is subdivided in two categories: 1) papers and 2) books, reports, and theses.

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List of Abbreviations

AAR	=	Association of American Railroads
BOT	=	Build-Operate-Transfer Model
BSERP	=	Beijing-Shanghai Express Railway Project
CBA	=	Cost-Benefit Analysis
CHSRP	=	California High-speed Rail Project
EHEZ	=	Extra Huge Economic Zone
HSR	=	High-speed Rail
HST	=	High-speed Trains
JITI	=	Japan International Transport Institute
JNR	=	Japan National Railway
JR East	=	East Japan Railway Company
KTX (KHSR)	=	Korean Train Express (Korean High-speed Rail)
LVT	=	Land Value Taxation
MCA	=	Multi-Criteria Analysis
NEC	=	Northeast Corridor of the U. S.
NPV	=	Net Present Value
PennDesign	=	University of Pennsylvania School of Design
PPP	=	Public-Private Partnership
REMI	=	Regional Economic Modeling, Inc.
RIMS II	=	Regional Input-Output Modeling System
THSR	=	Taiwan High-Speed Rail
TREDIS	=	Transportation Economic Development Impact System
U.S. DOT	=	U.S. Department of Transportation
U.S. FRA	=	U.S. Federal Railroad Administration

A. Economic Development Effects of General Transport Investment

Papers:

Banister, D., & Berechman, Y. (2001). Transport Investment and the Promotion of Economic Growth

Journal of Transport Geography, 9, pp. 209-218

This paper details the relationship between transport investment and economic growth, and focuses on determining the benefits of transport investment. A major finding is that transport investment is not a necessary condition for economic development, but it acts in a supporting role when positive economic externalities, investment factors, and political factors are at work. The authors highlight that *all* of these factors must be in place to bring economic growth; otherwise, accessibility changes and redistribution of existing development might occur at best. Another key finding is that transport effects are location-specific, mainly affecting income, accessibility and employment. Thus, the potential for economic growth is manifested primarily at the local level. The search for additional economic development benefits of transport investments (besides time savings) and concern about double counting of benefits (implying risky implementation of wrong projects) motivates the development of a methodological framework based on spatial scale, time effects, and several economic variables. It explores the effects on employment and productivity provided by accessibility and proximity to new transport. Empirical evidence of such effects is mixed; marginal improvements could be low or there could be diseconomies of agglomeration. Thus, policy design has a crucial role in influencing and strengthening potential impact of transport investment on local economic development.

Bruinsma, F., & Rietveld, P. (1993). Urban Agglomeration in European Infrastructure Networks

Urban Studies, Vol. 30, No. 6, pp. 919-934

The authors show that transportation infrastructure constitutes an economic determinant of urban agglomeration, after studying the positioning of 42 European cities according to their rail, air, and road networks. The methodology follows a *simple gravity model* that measures the accessibility of each network, with travel time as the main parameter. Based on the ranking, the authors make suggestions for improvement of existing networks. Specifically for the rail network, they discuss the scenario of HSR in the European Union and study the aspect of national borders as barriers to road networks. A major conclusion is that rail inaccessibility is the highest and road inaccessibility the lowest. Therefore, impacts of new HSR on accessibility are potentially greater in comparison to those of road and air improvements. Another finding is that national borders will mostly serve as obstacles to agglomeration to smaller countries. Thus, the European Commission should consider these when designing transportation policies of the EU.

Elhorst, J.P., & Oosterhaven, J. (2003). Effects of Transport Improvements on Commuting and Residential Choice

43rd European Congress of the Regional Science Association, Jyvaskyla, August 27-30 Sep 2013, access: http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa03/cdrom/papers/29.pdf

The commuter location model developed by the authors simulates residential location changes of commuters affected by transport improvements. The model assumes constant commuting time; is not as data-intensive as other models; and is easily extended to other transportation improvements. The indirect effects on regional production, employment, and price of services were evaluated for six proposed HSR connections between Amsterdam and Groningen, in the urban core and periphery of the Netherlands, respectively. Although the paper focus was theoretical, its outcomes influenced public policy debate in the Netherlands.

Givoni, M. (2006). Development and Impact of the Modern High-Speed Train: A Review

Transport Reviews, Vol. 26, No. 5, 593–611, September

This paper provides a useful review of High-Speed Train (HST) –or HSR– and its impacts. Main HSR technologies are presented and benefits are discussed. The cost of HSR infrastructure varies greatly depending on the number and complexity of bridges, viaducts, and tunnels, and on general economic characteristics that determine land and labor costs. Shorter travel times by HSR bring cities closer, improve connectivity levels, and may lead to economic growth; however, in some regions, HSR implementation has resulted in drainage of economic activities. Construction or expansion of HSR stations often brings positive development impacts in surrounding areas, but in other circumstances that was not the case. HSR is usually considered as the most environmentally friendly mode, and is significantly cleaner than air travel; however, HSR operations still have negative impacts on air pollution, climate change, noise, and land-take. HSR may constitute a substitute to air travel for distances up to 1,000 km, offering competitive travel times due to station placement in city centers; but in other situations, HSR may constitute a complement to air travel.

Although there is a strong determination that HSR has positive economic impacts, there is no concluding evidence. So, the main conclusion is that HSR can result in positive socio-economic benefits that depend on the particular set of circumstances.

Gutiérrez, J., Condeço-Melhorado, A., & Martín, J. C. (2010). Using Accessibility Indicators and GIS to Assess Spatial Spillovers of Transport Infrastructure Investment

Journal of Transport Geography, Vol. 18, pp. 141-152

This paper introduces a methodology to measure and monetize the spatial spillovers of transport infrastructure investment using accessibility indicators and GIS. It shows how a region improves its accessibility to the rest of the regions depending on a given transport network investment. The spillover matrix introduced is a tool for planners and policy makers to have a clear understanding

of the relations between regions. The authors use the case of the Spanish motorway network to test the methodology.

Iacono, M., & Levinson, D.M. (2008). Review of Methods for Estimating the Economic Impact of Transportation Investments

Oct 2013, access http://nexus.umn.edu/Papers/EstimatingEconomicImpact.pdf

The geographical scale and numerous parameters to be assessed are two critical issues to be addressed by methods that estimate the economic impact of transportation improvements, particularly in the context of adding highway capacity in urban areas. Currently, software tools for impact analysis (e.g., MicroBENCOST, SPASM, STEAM, SMITE, SCR-ITS, HERS-ST) fail to capture the full range of impacts of transportation projects. For instance, in CBA, it is necessary to make simplifying assumptions involving uncertainty and risk. Thus, many European countries have turned to MCA. An alternative is using regional economic input-output models that apply macroeconomic simulation to measure cost savings and productivity enhancement (e.g., IMPLAN, RIMS II and REMI). Aggregate production functions, disaggregate economic and econometric methods, and hedonic models are other available approaches.

The main conclusion is that although there is a variety of methods and models, none should be used in isolation, since all of them lack the ability to model all the effects of upgraded facilities. A solution is to compare and combine some of the above methods according to the project of interest.

Jones, H., Domingos, T., Moura, F., & Sussman, J.M. (2013). Transport Infrastructure Evaluation Using Cost-Benefit Analysis: Improvements to Valuing the Asset through Residual Value – A Case Study.

Accepted for presentation at the 2014 Annual Meeting of the Transportation Research Board

This paper briefly reviews critical factors and major weaknesses of CBA in practice, and concludes that residual value, an asset's value at the end of its project lifetime, is a critical factor that has been poorly researched. Residual value becomes more relevant in CBA of projects where its value is compared to the total costs and benefits or when the benefit-cost ratio is close to 1. The authors thus propose three methods for calculating residual value: straight-line depreciation, annuity/perpetuity, and component, and determine that the component method is the most complete.

Puga, D. (2001). European Regional Policies in Light of Recent Location Theories

Center for Economic Policy Research, Discussion Paper Series No. 2767, London, UK
Oct 2013, access: http://www.iadb.org/intal/intalcdi/PE/2009/03778.pdf

The paper discusses how new economic geography models or "location theories" help explain the widening of regional inequalities during a process of economic integration in the EU, and if transport infrastructure improvements reduce such disparities. It is unclear whether lower transport costs facilitate convergence or divergence of regional inequalities. On one hand, a

better connection between a developed region and a less developed one allows firms in the latter to have better access to inputs and markets of the former. On the other hand, firms in richer regions could easily supply poorer regions at a distance, and harm industrialization prospects of less developed areas. Traditional comparative advantage theories fail to explain the uneven spatial concentration of activity across regions with similar characteristics. Instead, location theories point out that overall economic effects of transport infrastructure improvement on less developed regions depend not only on lower transport costs but also on other economic factors such as mobility and wage rigidities and on characteristics of the transport project. In light of location theories, the Trans-European Transport Network may provide better access for the rest of the EU to the existing activity centers, reinforcing their position as transport hubs, and consequently increasing the gap in relative accessibility between the core and peripheries. HSR's strong modal aspect makes it unlikely to foster development of activity centers in minor nodes or in-between nodes. HSR is unlikely to have much effect on the location of industry, as it is unsuitable for freight, but may have larger effects on location of business and headquarters.

Books, Reports, and Theses:

Banister, D., & Berechman, Y. (2000). Transport Investment and Economic Development

UCL Press, UK and USA

The belief that transport infrastructure investment is related to economic growth is questioned by analyzing examples from developed countries and cities in which such a relationship is not as clear as in the developing world. The book authors argue that additional transport investment may result in a redefinition of business patterns rather than in economic growth in already developed cities. Nevertheless, the extent to which transport infrastructure improvements affect economic development depends on the economic and geographical characteristics of the particular region and on the level and performance of the investment capital infrastructure. The authors thus provide useful frameworks and examples for analyzing this critical relationship.

Further discussions of contemporary issues like types of infrastructure investments and evolving economy, social, spatial, and environmental effects of transport are thorough. A critical review of analytical approaches to modeling of such effects calls attention to misspecifications that might occur. The final discussion of valuation of transport projects is informative and covers several state-of-the-art methods like net present value, internal rate of return, benefit cost analysis, multi-criteria analysis, and impact statements.

Lynch, T. (2000). Analyzing the Economic Impact of Transportation Projects using RIMS II, IMPLAN and REMI

Prepared for the Office of Research and Special Programs, U. S. DOT, Washington D. C.
Sept 2013, access:
http://dlis.dos.state.fl.us/bld/roi/workshop/handouts/roi_workshop_lynch_report.pdf

This report explores input-output (I-O) models, which are the basis of the most commonly used pieces of software to analyze economic impacts of transportation projects. Such models capture the direct, indirect, and induced effects of an investment alternative, by applying inter-industry

relationships (I-O tables) within regions. Three of such models, with increasing levels of sophistication and price, are compared: Regional Input-Output Modeling System (RIMS II), IMPLAN, and Regional Economic Modeling, Inc. (REMI). While RIMS II is mainly a spreadsheet analysis, IMPLAN and REMI are full modular software packages. Furthermore, REMI is a highly complex tool that integrates an input-output model with an econometric model.

In IMPLAN and REMI, it is easier to change model specification and perform distinct analyses than in RIMS II, where the user must set the worksheet each time. An advantage of RIMS II over IMPLAN and REMI is that it allows more freedom to the user for entering and handling data. IMPLAN has less complex data requirements than REMI and explicitly breaks the impacts into direct, indirect and induced effects, but the integrative nature of REMI gives higher accuracy and sophistication in the results.

B. HSR Economic Development Effects at Local and Urban Levels

Papers:

Loukaitou-Sideris, A., Higgins, H., Piven, M., & Wei, W. (2013). Tracks to Change or Mixed Signals? A Review of the Anglo-Saxon Literature on the Economic and Spatial Impacts of High-Speed Rail

Transport Reviews, (ahead-of-print), 1-17

This paper provides a thorough and contemporary review of papers addressing the economic development and spatial impacts of HSR. It considers two categories of research: predictions and empirical observations. Ultimately, the authors observe several patterns, including relative optimism prior to HSR construction, but greater awareness of shortfalls after the fact. They deduce that first-tier cities seem to more consistently realize benefits from HSR, but second-tier cities can also benefit, especially if particular corollary public investments are made.

The authors observe, "The time horizon for observing change is often distant. Full realization of planning goals for station-areas has seldom been observed within the first 20 years of rail station investments and may remain incomplete even at the 40-year mark." They conclude that there are both winners and losers in an investment of this magnitude, but typically a HSR development could be a key component in successful economic development (along with other tools).

Murakami, J., & Cervero, R. (2012). High-Speed Rail and Economic Development: Business Agglomerations and Policy Implications

University of California Transportation Center, UCTC-FR-2012-10
Oct 2013, access: http://www.uctc.net/research/papers/UCTC-FR-2012-10.pdf

This paper explores whether the economic stimuli suggested by HSR advocates are truly generative or largely redistributive. Recently, some other papers have cast doubt on these benefits, suggesting redistribution rather than economic growth is occurring. Using cases in the NEC, California, and Japan, the authors show increased business agglomerations. While sometimes the result of redistribution rather than generation, this economic growth provides some benefit. The authors also note, "HSR is likely to induce greater economic benefits in knowledge-intensive businesses, though they are mostly limited to large, globally connected cities at the expense of small intermediate ones." The authors conclude, "The net economic impacts of HSR investments will likely be negative unless public policies appropriately guide market shifts to station catchment areas that… offer comparative business advantages." To mitigate this negative potential, they suggest four policy interventions:

1. Polycentric development as a global competition strategy
2. Pro-business state assistance as a regional development strategy
3. Land value capture as an infrastructure financing strategy
4. Transit-oriented development as a community improvement strategy

Sands, B. (1993). The Development Effects of High-Speed Rail Stations and Implications for California

California High Speed Rail Series, Working Paper 566, University of California at Berkeley Sept 2013, access: http://www.uctc.net/papers/115.pdf

Written 20 years ago, this early paper outlines potential development effects of HSR stations in California. California could expect similar development results of HSR stations to those in Japan, France, and Germany, i.e., significant changes in population, business behavior, real estate values, ridership, and business, employment, and residential location at the regional, urban, and station levels. However, in California, HSR would concentrate the effects in cities with stations.

The author then recommends the agency responsible for HSR development to take an active role in development of station areas. This should be coordinated with local transportation authorities to ensure adequate modal connections to HSR stations. The State of California should purchase property for HSR lines and stations to be able to improve the development around stations, ensure adequate linkages, and capitalize on land value increases related to station area development. Otherwise, California may lose ridership and possible revenues to further support development of HSR facilities.

Zheng, S., & Kahn, M. E. (2013). China's Bullet Trains Facilitate Market Integration and Mitigate the Cost of Megacity Growth

Proceedings of the National Academy of Sciences, 110(14), E1248-E1253

This paper presents evidence that China's HSR trains are facilitating access to megacities of those living outside the city. The benefits of urban agglomeration are available via the train access. Through facilitating market integration, the trains stimulate the growth of second- or third-tier cities, whose residents have at the same time been provided a larger menu of location alternatives. The authors then show that this connectivity is associated with rising real estate prices in the nearby secondary cities. They also conclude that, "…high population density, a sufficient number of secondary cities in reasonable proximity to one another along railway corridors, and already congested traffic on competing travel modes are key factors that determine the cost-effectiveness of [HSR]."

Books, Reports, and Theses:

Bruinsma, F., Pels, E., Priemus, H., Rietveld, P., & Van Wee, B. (2008). Railway Development: Impacts on Urban Dynamics

Physica-Verlag, Heidelberg, Germany

Synergies between urban development and transportation networks in Europe weakened since cars and airplanes increased in popularity, but this relationship could be reinvigorated via HSR, as new accessibility creates favorable conditions for development around stations. HSR can be either a catalyst for cities in transition (CiTs) (cities seeking diversification) by attracting new businesses or a facilitator for international service cities (ICCs) (competitive, attractive, and

highly accessible cities) by accommodating future growth. In each case, HSR station areas constitute both nodes (transfer locations) and places (spatial concentrations of activity) with important dynamics.

However, institutional and technical issues should be addressed for such synergies to occur (e.g., internationalization, private participation, or evaluation of HSR station projects). In particular, ex-ante evaluation of HSR station development is complex, because no method can account for all benefits and it is hard to bound benefits to a specific area. The authors suggest using a mix of traditional cost-benefit analyses (CBA) with multi-criteria analyses (MCA) in order to include as many benefits as possible in the ex-ante evaluation.

C. HSR Economic Development Effects at Regional, National, and International Levels

Papers:

Ahlfeldt, G., & Feddersen, A. (2010). From Periphery to Core: Economic Adjustments to High-Speed Rail

Institut d'Economia de Barcelona, Working Paper No. 38
Oct 2013, access: http://dialnet.unirioja.es/servlet/articulo?codigo=3284478

This paper provides supporting evidence for the notion that HSR promotes economic activity within regions by increasing accessibility and consequently, bringing economic agents closer together. Using a HSR connection between Cologne and Frankfurt in Germany as their case study, the authors show that the economic impact of certain transport projects is predictable and positive. Using New Economic Geography theory, the case study used supports literature theory, and confirms the anticipated optimism on impacts.

Blum, U., Haynes, K.E., & Karlsson, C. (1997). The Regional and Urban Effects of High-Speed Trains

The Annals of Regional Science, 31, pp. 1–20

Besides constituting a good substitute to air travel, HSR can trigger the creation of extended functional regions with high interregional accessibility, thus fostering economic growth. Integration of goods, service, and labor markets, private services, and leisure activities are expected in the short-term. Household and firm relocation along the corridor could follow in the medium-term. The authors apply a model and find that this relationship between employment and location and commuting time and costs is non-linear. A given combination of travel time and cost could establish new location patterns under certain mode availability, but non-linear reactions might occur after the line has opened up.

Bonnafous, A. (1987). The Regional Impact of the TGV

Transportation, V. 14, No. 2, pp. 127-137

The analysis of surveys of business trips before and after the introduction of TGV between Paris and Lyon gives insights into the short- and medium-term effects on regional imbalances in France. Before TGV, inter-city mobility on the route Paris – Rhone-Alps was strongly linked to service-oriented business travel, and Paris was particularly strong. After TGV, there was a drop in overnight stays in hotels due to increase in one-day return trips, but also an increase in tourist packages offering TGV. Regional expansionist enterprises established in Paris, benefiting from TGV connections, while specialized companies looked for clients in Paris but established in the province. Overall, Parisians increased their business trips to the Rhone-Alps region by 52%, while residents of the Rhone-Alps region increased business trips to Paris by 144%. However, given that TGV opened during a time of crisis, it was regarded as a bonus but not a determining factor on industry location. Finally, TGV had little effect on intraregional connections, as

transportation between cities in the Rhone-Alps province barely changed or even worsened after its introduction. Long-term effects could not be assessed with the available survey data.

De Rus, G. (2008). The Economic Effects of High Speed Rail Investment

International Transport Forum, Discussion Paper No. 2008-16, OECD, Las Palmas, Spain

This paper discusses the conditions that justify public investment in HSR, based on a CBA of direct, indirect, and induced effects. The paper describes the costs and benefits of a HSR line in detail (user, producer, and external costs), introduces a cost-benefit model for evaluation of HSR investment, and emphasizes on pricing and intermodal effects. The argument that HSR is more sustainable, efficient and less environmentally damaging than air or road transport depends greatly on the volume of demand and on other particular conditions, e.g., existing congestion and capacity, value of time, network configuration, construction and operating costs, or source of power. Social profitability of HSR rests heavily on travel demand and the benefits with respect to available competing alternatives and other investment alternatives. HSR is generally deemed as a risky investment due to its high proportion of sunk costs, long life, and indivisibilities.

Conventional CBA framework excludes impact evaluation of transport infrastructure projects on regional inequalities. Additional benefits could be of little important if they have no impact on freight transport and therefore on industry location. However, HSR may actually lead to concentration of economic activity, especially of the service industry, in core urban centers. Thus, it is critical complement CBA with other kinds of analysis.

Garmendia, M., Ureña, J. M., & Coronado, J. M. (2011). Long-Distance Trips in a Sparsely Populated Region: The Impact of High-Speed Infrastructures

Journal of Transport Geography, Vol. 19, pp. 537–551

The paper focuses on two high-speed transport infrastructures: national motorways and HSR links connecting peripheral and sparsely populated areas of Spain. The difference of the roles of each mode researches to see the impact of each mode to the urban structures and mobility to sparse areas. It concludes that HSR might accelerate polarization to the region spatial development and will give different inter-city connections than motorways, but still the HSR will give benefit by creating a new mobility pattern which has not been introduced within the region.

Gutierrez, J. (2001). Location, Economic Potential and Daily Accessibility: An Analysis of the Accessibility Impact of the High-Speed Line Madrid-Barcelona-French Border

Journal of Transport Geography, Vol. 9, Issue 4, pp. 229-242

The projected HSR line between Madrid-Barcelona-French border will have asymmetric impacts on international, national, and corridor accessibility. Main urban agglomerations will improve on weighted average travel time, but not as much on economic potential and daily accessibility. Reductions in existing disparities at the EU level will favor the peripheral Iberian Peninsula. At a national scale, accessibility inequalities among Spanish cities will increase, as the HSR line will connect already highly accessible cities. At the corridor level, accessibility disparities will be reduced because small- and mid-size cities gain substantial access.

However, statements regarding accessibility effects of a new infrastructure may vary depending on the geographical scale and the accessibility indicator selected. Such effects will be emphasized at the EU scale (long-distance trips) if a location or weighted average travel time indicator is chosen. Effects will be lower if emphasis is on relationships over short distances, as measured by economic potential and daily accessibility indicators.

Knox, S. (2006). Can a High Speed Rail Line in the UK Help to Close the Productivity Gap Between London & the South East and the Regions, and Boost Economic Growth?

Transport Planning Society
Oct 2013, access http://www.tps.org.uk/files/Main/Library/2006/sknoxpaper.pdf

The author examines wider economic effects of HSR that are not fully captured in standard evaluation procedures, in particular, the potential to reduce the productivity gap between London and the South East and the three Northern Regions. HSR may expand labor markets, favor agglomeration in city centers, and encourage specialization around "knowledge industries" in the UK as a whole. However, it may not cause a fundamental change in regional distribution of wealth. HSR may reinforce dominance of core regions, even though it may also benefit the periphery and decrease the gap in relative terms. Regional equity and economic performance depend on the particular HSR configuration. A trunk system will be more effective at closing the gap than a hub-and-spoke system with London at its core.

Levinson, D. M. (2010). Economic Development Impacts of High Speed Rail

University of Minnesota: Nexus Research Group. Working Paper No. 72

This paper explores the economic development effects HSR might have, focusing on a hub and spoke network. Using past transit land value creation to setup the case, the author then explores the effect of land value creation with HSR stations. Ultimately he concludes, however, that HSR economic development in the US may be limited, and is hard to estimate. And he guesses that local land use effects of HSR (unlike transit) will be limited. Overall, the author is relatively pessimistic in regard to the potential for economic development benefit in the US.

Martin, F. (1997). Justifying a High-Speed Rail Project: Social Value vs. Regional Growth

The Annals of Regional Science, Vol. 31, pp. 155-174

The article explores the relationship between regional economic growth and the NPV and social value of a HSR project. The author argues that economic growth is possible even if there is no bottleneck problem to be solved with HSR. The NPV varies when shadow pricing and externalities are included in the calculations, thus measuring the consumption within the project. If so, the HSR project usually does not stand alone, and subsidizing becomes a predicament.

Pol, P. M. J. (2003). The Economic Impact of the High-Speed Train on Urban Regions

European Regional Science Association, Econ Papers
Oct 2013, access: http://www-sre.wu-wien.ac.at/ersa/ersaconfs/ersa03/cdrom/papers/397.pdf

The author argues that the spatial behavior of urban actors may determine the impact of new transport systems. Spatial behavior is driven by maximization of welfare, either by changes in transportation or in location of actors. A HSR connection enlarges the relevant region of actors, increases their welfare potential, and may have two positive effects on cities: a catalyzing effect, when it attracts new activities and the economy grows, and a facilitating effect when the new HSR accommodates growth that is already happening. However, the economic potential must exceed a critical, psychological level; otherwise, the improved external accessibility of HSR may lead to backwash effects. In general, HSR will be perceived more as an opportunity than a threat, and urban actors are likely to build momentum around it, thus beating the psychological barrier and favoring positive impacts of new infrastructure.

Salzberg, A., Bullock, R., Jin, Y., & Fang, W. (2013). High-Speed Rail, Regional Economics, and Urban Development in China

China Transport Topics, No. 8

This paper, produced by the World Bank, provides a methodology and an estimation of the magnitude of wider economic benefits beyond traditional economic evaluations for HSR. Traditional considerations include measurements like the direct costs and benefits arising from travel, such as travel time savings, operator cost savings, and reductions in externalities such as air pollution, noise, or accidents. They show that consensus is emerging that the benefits extend further than these, showing significant further positive impacts. And many of these benefits are realized in the connected markets by entities who may not themselves travel on the HSR.

Sasaki, K., Ohashi, T., & Ando, A. (1997). High-Speed Rail Transit Impact on Regional Systems: Does the Shinkansen Contribute to Dispersion?

The Annals of Regional Science, 31, pp. 77–98

A supply-oriented regional econometric model simulates five scenarios of the Shinkansen network in Japan, in order to evaluate the impact of HSR transit on spatial dispersion of economic activities and population. The goal is to prove that HSR will contribute positively to the efficiency and attraction of the regions and will result in the allocation of private investment and population. However, the conclusion is that if the HSR network becomes denser, it is unclear if it will contribute to regional dispersion. The authors suggest including additional factors to make the model more realistic.

Shin, D. (2005). Recent Experience of and Prospects for High-Speed Rail in Korea: Implications of a Transport System and Regional Development from a Global Perspective

California HSR Series, Working Paper 2005-02. University of California at Berkeley
Oct 2013, access: http://www.iurd.berkeley.edu/publications/wp/2005-02.pdf

This is an early review of the experience of the Korean Train Express (KTX), a HSR initially aimed at balancing regional development in Korea, which was over-concentrated in the Metropolitan Capital Seoul Region (MCSR). KTX's introduction, however, did not reduce regional disparities, as Korea lacked cohesive policies to boost development, de-concentration, and growth of less developed areas. Thanks to KTX services, Korea virtually became a daily-life zone.

Stein, N.E.G. & Sussman, J.M. (2014). Uncertainty and Inter-Jurisdictional High-Speed Rail Planning: Insights from Portugal and the United Kingdom

Accepted for presentation at the 2014 Annual Meeting of the Transportation Research Board

This paper studies the opportunities of and barriers to inter-jurisdictional HSR planning (coordinated policy efforts across levels of government and at different moments along a project's timeline) in case studies of Portugal and the UK. Two sources of uncertainty relevant to the interactions between national and local or regional governments: uncertainty of outcomes and uncertainty of a multi-actor inter-jurisdictional system of control. Existing planning processes and evaluations mechanisms affect the level to which local knowledge and initiatives are incorporated into HSR system design. Initial conditions may be important determinants of HSR success by shaping its ability to adapt to different realizations of the future.

Thomas, P., & O'Donoghue, D. (2013). The Channel Tunnel: Transport Patterns and Regional Impacts

Journal of Transport Geography, 31, pp. 104–112

The Channel Tunnel has been considered as a key contributor to the European economic development since its opening in 1994. This paper examines the regional impact at both ends of the tunnel. There were limited impacts on the frontier zone. While intermediate HSR stations had positive impacts (e.g., Ashford), most of the benefits went to the Metropolitan regions (London and Paris).

Thompson, C., & Bawden, T. (1992). What are the Potential Economic Development Impacts of High-Speed Rail?

Economic Development Quarterly, 6(3), 297-319

This early study on the potential economic development impacts of HSR in the US provides an overview of prior studies to this point and draws from working HSR systems globally. Specific areas of impact are identified and respective evidence compiled. The paper provides a synopsis of the expectations for HSR at this point in time, providing background for policymakers, politicians, and planners.

Vickerman, R. (1995). The Regional Impact of Trans-European Networks

Annals of Regional Science, Vol. 29, pp. 237-254

This paper examines the scope and nature of the TENs (Trans-European Networks), and analyzes the problems brought about by changes within the EC. It presents a way of measuring intra- and inter-region accessibility, and concludes that the significance of transport to communities must be emphasized for both planning and financial reasons. Likewise, increasing tensions at regional levels must be emphasized.

Vickerman, R. (1997). High-Speed Rail in Europe: Experience and Issues for Future Development

The Annals of Regional Science, 31, pp. 21-38

This milestone paper discusses HSR experiences in France, Germany, Italy, and Spain, from the point of competitiveness, network effects, and corridor development. The French TGV and Spanish AVE focused on constructing a parallel rail network, while the German ICE and Italian Diretissima aimed mainly at overcoming bottlenecks on existing network. TGV and AVE generated and diverted numerous trips from conventional rail and air passengers, but the patchier introduction of ICE did not show such a striking market shift. Unlike the French monocentric rail network, Germany has a complex interlinking network of services.

These HSR developments instilled the belief that HSR can solve transport and regional development problems, but evidence is not conclusive. Causality of HSR development impacts is unclear: new accessibility reduces transport costs and improves competitiveness for all regions, but richer regions are more capable of maintaining their advantage. Major access points on the HSR network accrue the largest accessibility gains. In the short-term, road projects that use local labor and inputs are perhaps more beneficial to poorer regions than more technologically advanced HSR projects. As a whole, however, Europe gains on competitiveness due to HSR, but effects on redistribution are more difficult to predict. Completion of a HSR network in the European core could lead to greater core-periphery divergences in accessibility, impacting future economic development and location of economic activities. Careful planning and policies are thus required to stimulate poorer regions.

Wang, J., & Charles, M. (2010). The Potential Impacts of High Speed Rail on Regional Economic Development in Australia: Towards a Multi-Regional Input-Output Approach

Paper presented to the 7th World Congress on High Speed Rail, Beijing, China

Work continues to be ongoing in the challenge of estimating economic impacts of HSR. This paper provides an overview of basic issues, literature review, various modeling approaches, and then considers how a multiregional framework can be applied in the Australian context. They employ two analytical techniques; an input-output model and a transportation accessibility index. They then develop assessments of potential impacts in Australia, evaluating the proposal on various hypothetical future scenarios.

Books, Reports, and Theses:

California High-Speed Rail Authority (2007). Bay Area to Central Valley Draft EIR/EIS

Vol. 1, Ch.5 – Economic Growth and Related Impacts
Sept 2013, access: http://www.edrgroup.com/pdf/chapter_05_hsr_eir.pdf

TREDIS is used to determine the potential statewide, regional, and local growth effects and related indirect impacts of a No-Project/No-Action and two HSR alternatives in the Bay Area to Central Valley program by 2030. In terms of population, employment, and urbanization, additional statewide effects of HSR relative to a No-Project alternative are small, but the effect on employment is larger than on residential location. Differences in HSR alignments are manifested not in total economic growth, but on the efficiency of land consumption, i.e., land consumed per new job and resident. In terms of related indirect effects, HSR reduces a variety of negative impacts on sensitive natural resources that are frequently associated with growth. It reduces mobile-source air quality pollutants, energy consumption, and has a modest potential to increase densities in residential and commercial locations near stations. With additional land use strategies, HSR could further reduce these impacts and provide further concentration of employment and various activities in areas accessible to minority and low-income populations, possibly inducing a shift from automobile to transit.

Cambridge Systematics Inc. & Reilly, M. (2007). Economic Growth Effects Analysis for the Bay Area to Central Valley Program–Level Environmental Impact Report and Tier 1 Environmental Impact Statement

Prepared for the California High-Speed Rail Authority
Sept 2013, access: http://www.edrgroup.com/pdf/economic_growth_effects_complete_new.pdf

The report presents the economic development impact evaluation and benefit-cost analysis (BCA) of various HSR transportation alternatives for the Bay Area to Central Valley Program, performed with the software Transportation Economic Development Impact System (TREDIS). It considered the possible effects of three alternatives (including the no-project) on population and employment growth and land consumption at the local, regional, and statewide levels by 2030. It modeled several dimensions of growth and spatial re-allocation that could occur with each HSR alternative. The main conclusion is that additional economic effects from HSR are not significant under the proposed alternatives and forecasts, but HSR does provide synergistic opportunities if combined with land-use regulations that foster agglomeration.

Ishii, M. (2007). Flexible System Development Strategies for the Chuo Shinkansen Maglev Project: Dealing with Uncertain Demand and R&D Outcomes

Thesis, M. Sc. in Engineering Systems, Engineering Systems Division M.I.T., Chapter 2

In chapter 2 of this thesis, the concept of Extra Huge Economic Zones (EHEZ), formed by connecting two or more cities with HSR, is used to explain the benefits of a Lisbon-Porto HSR project in Portugal. Such a link will connect the economic zones of Lisbon and Porto within an

hour, extending the spatial reach of daily activities, and emerging as the 17th largest economic zone in Europe. The Lisbon-Porto EHEZ will provide broader interaction between people and businesses and improve access to business information. Companies seeking for industrial sites may also become more attractive to EHEZs, thus increasing job opportunities and productivity. As a result, Portugal may become more economically attractive for investors and increase levels of economic activity.

Lynch, T. (2002). Florida High Speed Ground Transportation Economic Benefit and Cost Impact Restudy

Florida State University
Oct 2013, access http://www.cefa.fsu.edu/content/download/47392/328594/file/maglev.pdf

This is a summary of the costs and benefits of four separate Florida HSR studies of the 325 mile Tampa-Miami-Orlando corridor and the 1,300 mile Florida High-Speed Rail Authority (FHSRA) statewide vision plan. The general conclusion is that over time, the B/C ratio of HSR in Florida is greater than unity.

Shirocca Consulting & The Van Horne Institute (2004). Calgary/Edmonton High Speed Rail Pre-Feasibility Study

Oct. 2013, access: http://www.vanhorne.info/files/vanhorne/HSRFullReport(1062004).pdf

This pre-feasibility study supports the idea of a HSR link connecting Calgary and Edmonton in less than two hours. According to the consultants, current and projected demand levels justify the investment on a 30-year timeframe, and the two proposed alternatives are feasible. HSR could alter current intercity transportation patterns (affection air and bus transportation), attract new businesses, and transform the corridor into a single economic unit on the long term. A critical issue is that adequate planning is needed to avoid uncontrolled urban sprawl.

Stein, N.E.G. (2013). Spatial Dimensions of High-Speed Rail: Intermediate Cities, Inter-Jurisdictional Planning, and the Implications for High-Speed Rail in Portugal

Thesis, M. Sc. in Transportation and Master in City Planning, Department of Civil and Environmental Engineering and Department of Urban Studies and Planning, M.I.T.
Oct 2013, access: http://web.mit.edu/hsr-group/documents/Stein_Thesis_2013.pdf

This thesis presents a theory-based assessment of goals for regional restructuring and compares HSR planning in Portugal and the UK. HSR has the potential to support more sustainable forms of development, but requires coordinated policy efforts across levels of government (inter-jurisdictional planning) and at different moments along a project's life-cycle. Mid-distance HSR service (< 250 km) can create new discontinuous regions, i.e., extended labor and commercial markets that do not include all intermediate areas. Also, the potential introduction of HSR might create new incentives for cooperation between HSR and existing urban mobility systems. Thus, decision-making structures that work across geographic scales and sectors of government are critical in achieving sustainable design, implementation, and operation of HSR.

Steer Davies Gleave (2002).The Case for Rail

Final Report, London
Oct 2013, access: http://www.bettertransport.org.uk/system/files/Case+for+Rail.pdf

The report identifies uses and trends of the British rail network, in order to justify spending on railways. It argues that expanding the road network is an unviable strategy for the future due to its massive impact on environmental, land use planning, and social inclusion policies. Although rail is vital to many of elements of the British economy, it is difficult to attach a numerical value to its benefits. Rail enhances international competitiveness, supports regeneration and development of regional economies, reduces pressure on land use, is a major industrial sector in its own, and is an important component in tourism.

Ureña, J. M., Coronado, J. M., Garmendia, M., & Romero, V. (2012). Territorial Implications at National and Regional Scales of High-Speed Rail

In "*Territorial Implications of High Speed Rail: A Spanish Perspective*", ed. José Maria de Ureña. Ashgate, Burlington

This book covers various topics of HSR: conceptual HSR frameworks, regional accessibility, economic assessment, urban integration, HSR mobility characteristics, and the evolution of HSR in Spain and Europe. Chapter 7 synthesizes research results on HSR territory interaction in Spain, beyond just direct transport impacts. The Spanish HSR network not only strengthened relations between distant metropolises but also between small and close cities. HSR produced major changes in accessibility of mid-size and small cities. Regarding station location, peripheral stations make difficult the integration of HSR into the dynamics of small cities, while central stations consolidate the effects of HSR more rapidly; station location is more critical for workplaces than for residential location.

Vickerman, R., & Ulied, A. (2009). Indirect and Wider Economic Impacts of High-Speed Rail

In De Rus, G. (Ed.), Economic Analysis of High-speed Rail in Europe (pp. 89–103). Bilbao, Spain: BBVA Foundation.

In this chapter of the book, the authors explore the indirect and wider economic impacts, especially at the regional scale, of HSR. They observe that many times these additional benefits are used to sell a particular project. They note key concepts such as agglomeration in providing the context for describing the economic benefits present for such projects. Considering accessibility and connectivity gains, they outline models for assessing regional economies, and the impacts associated with developments such as these. Using European case studies, the authors estimate continental, national, regional, and local impacts. The authors conclude that benefits can vary widely, and are hard to predict. They can, however, be significant.

The whole book is a useful resource, and one with various useful inclusions. The entire book's chapters are:

1. A review of HSR experiences around the world
2. The cost of building and operating a new HSR line
3. In what circumstances is investment in HSR worthwhile?

4. Measuring the intermodal effects of HSR
5. Indirect and wider economic impacts of HSR

WS Atkins plc. (2004). High-Speed Line Study

Department of Environment, Transport and the Regions. London
Oct 2013, access: http://alturl.com/pxgsu

The High-Speed Line (HSL) is a dedicated passenger railway planned to traverse the UK from north to south. This feasibility study appraises the case for the line, identifies potential stakeholders and their perspectives, and proposes a forward plan. The analysis of a base case scenario, with no upgrades in the existing railways and only minor modernization, suggests an expansion of the line. The HSL case is then presented together with four other alternatives: a new conventional rail line, classic rail upgrades, road upgrades, and airport upgrades. The conclusion is that the need for rail expansion is there, the economic case for the HSL is strong (with a C/B ratio of at least 1.4), and a PPP scheme is suitable for delivering the system. Moreover, HSL has the potential to improve safety, accessibility, and ridership (new and diverted), leading to congestion alleviation on the roads of major cities of the UK, without significantly affecting the air market.

WS Atkins plc. (2008). High-Speed Rail in the UK

This study analyzes two HSR prospects in the UK: a new alignment between London and Birmingham (West Coast Option), possibly extending to Manchester or Leeds, and a route between London and Leeds via the East Midlands (East Coast Option), with potential extensions to Glasgow and Edinburgh, in Scotland. The West Coast Option is most likely to be funded as a first stage of a complete UK HSR network, as it will improve service to a number of major UK cities. There is concern, though, about the limited capacity of the new HSR line, as the more cities it serves, the less capacity there is to serve additional cities. The case of extending the line beyond Manchester to Glasgow and Edinburgh is rather weak, because there are not major urban centers for 200 miles and the terrain is difficult. A HSR link could make Scotland more attractive for inward investors and enhance the Glasgow-Edinburgh regional axis; but economic development, planning, and transport policies should complement the upgrades in order to reduce the economic gap between North and South of the UK. The conclusion is that HSR should be considered in the context of the UK as a whole, as small-scale schemes lack coordination, raise costs, and reduce the benefits of the investment. Moreover, HSR should be considered not exclusively as a rail project but as a national transport, economic, and environmental project, because its impacts go far beyond the rail industry.

D. Economic Geography and Regional Disparities

Papers:

Boddy, M., Hudson, J., Plumridge, A., & Webber, D. J. (2005). Regional Productivity Differentials: Explaining the Gap

University of the West of England, Department of Economics, Discussion Paper Series 0515

The substantial differences in regional productivity in the UK (measured as Gross Value Added at Factor Cost (GVAFC)) can be empirically explained by a limited set of variables (industry mix, capital stock, business ownership, and labor skills) and location-specific factors (population density and travel time to major populations). Agglomeration in general increases productivity. Peripherality and travel time impact regional productivity differentials, for instance, increasing travel time to London reduces productivity and proximity to London has greater agglomeration effects than population density does. Although industry mix has only minor impact on regional productivity differentials, attracting more businesses in financial services could contribute to closing the productivity gap in lagging regions. Ownership structure of firms has significant importance: substantial benefits are presented by the enterprises that are part of multinational entities. Web access promoted productivity as a proxy for innovation.

Glaeser, E., & Kohlhase, J. (2003). Cities, Regions and the Decline of Transport Costs

National Bureau of Economic Research Working Paper Series, Working Paper 9886

Transportation costs have declined over the last century, with a greater degree for goods and lesser for people, thus modifying the economic geography of cities and regions. As a result of declining costs for goods, cities have been changing their locations and primary functions and becoming more facilitators of face-to-face contact between people. Decreases in travel time and costs for people have allowed cities to sprawl and eliminate tendencies towards a single city center, thus producing a new regional city model without centers. However, the recent rises in transportation costs for people within a city, mainly due to road congestion, might not favor a shift towards this new center-less city model.

Graham, D. (2007). Agglomeration, Productivity and Transport Investment

Journal of Transport Economics and Policy, Vol. 41, Part 3, pp. 317-343

Agglomeration economies are productivity externalities induced through the spatial concentration of economic activity. These wider benefits are not typically captured in a standard CBA, but when quantified, could substantially increase the estimated gains of a transport investment. If a transport investment improves the level of agglomeration available to firms, it may have associated productivity benefits via efficiency gains. An ex-ante CBA of the Crossrail project in the UK shows the potential magnitude of agglomeration benefits induced by a transport investment: a 25% increase in this case. However, not all transport investments or policies lead to agglomeration, and sometimes lower the densities. In this case, agglomeration

effects will be costs, rather than benefits. Moreover, some economic sectors are more susceptible than others to transport interventions. Activities in primary and manufacturing sectors in the UK tend to take place away from large cities and close to natural resources, so agglomeration externalities are low. On the other hand, publishing, printing, food manufacturing, electronics manufacturing, and construction have strong agglomeration economies.

Rice, P., Venables, A.J., & Patacchini, E. (2006). Spatial Determinants of Productivity: Analysis for the Regions of Great Britain

Regional Science and Urban Economics, 36, pp. 727–752

This econometric analysis of increasing income disparities in the UK tests the argument that proximity to centers of economic activity (or masses) increases productivity. A major finding is that economic mass has a significant positive effect on productivity: over 30% of productivity variation between regions in the UK is explained by variations in access to economic activity centers, an effect which is more significant for lower productivity areas. Reducing all driving times in the UK by 10% would raise overall UK productivity by 1.2% and twice this amount for areas whose access to large population mass is increased the most, *ceteris paribus*. British regions with high productivity levels tend to have good employment structures. However, no evidence is found on a strong relationship between occupational composition in the area and its proximity to economic activity centers.

Tanaka, Y., & Monji, M. (2009). Post-Assessment of the Kyushu Shinkansen Network in Reference to the Proposed United States High-Speed Railway Project

Transportation Research Board Annual Conference, Session 212, Paper No. 10-1092

This five-year post-assessment of the southern segment of the Kyushu Shinkansen project in Japan emphasizes the economic, social, and environmental effects and traffic changes resulting from the project, and is to serve as a point of reference for HSR in the U.S. The evaluation is mostly positive, with major travel time reductions, improvements in level of service, widening of the area of economic activities, promotion of business exchange, significant induced demand, major shifts from air and auto travel, and reductions in overall CO2 emissions listed a benefits. However, direct impacts on tourism are unclear.

Books, Reports, and Theses:

Fujita, M., Krugman, P. R., & Venables, A.J. (1999). The Spatial Economy: Cities, Regions and International Trade.

MIT Press Cambridge, MA

This book provides a comprehensive and approachable overview of the current state of practice in the field of economic geography. Having coined the term "New Economic Geography", Krugman and his co-authors identify current best practices, themes, and modeling approaches. While furthering the exploration of New Economic Geography, they also provide a helpful literature background in the fields of urban economics and regional science. Throughout, they

identify various pieces of theoretical and empirical work on the spatial aspects of the economy, including their own efforts. In short, “This book is the first to provide a sound and unified explanation of the existence of large economic agglomerations at various spatial scales.”

E. HSR and Aviation

Papers:

Behrens, C., & Pels, E. (2012). Intermodal Competition in the London-Paris Passenger Market: High-Speed Rail and Air Transport

Journal of Urban Economics, Vol. 71, pp. 278-288

This paper examines to what degree and under what conditions HSR becomes a viable substitute of air travel in the London-Paris route. By developing a mixed logit choice model from actual travel behavior, the authors find that frequency and travel time determine mode choice, business and leisure travelers show different behaviors, and leisure travelers are heterogeneous regarding the fare cost. They conclude that even though HSR is a fierce competitor to aviation, the airlines will not exit the market.

Books, Reports, and Theses:

Clewlow, R. R. L. (2012). The Climate Impacts of High-Speed Rail and Air Transportation: A Global Comparative Analysis

Thesis, Ph.D. in Engineering Systems, Engineering Systems Division, M.I.T.
Oct 2013, access: http://web.mit.edu/hsr-group/documents/Clewlow_Thesis_2012.pdf

This thesis develops models to assess environmental impacts and demand of HSR and aviation systems in Europe, the U.S., and China. In Europe, the introduction of HSR has resulted in substantial decline in air traffic on short-haul and domestic routes, with an even larger reduction in higher density cities, but the simultaneous expansion of low-cost carriers (LCC) has increased total air traffic. Air-rail connections are highly utilized, but unique factors contribute to their success in each case. Energy and CO2 emission savings of HSR in the U.S. could increase substantially if combined with integrated transportation and energy policies that leverage the relative energy efficiency of HSR and a shift towards less carbon-intensive energy generation. Surveys conducted in China show that the perceptions of environmental impacts and safety of HSR and aviation shape individual travel choices.

F. Transportation Project Financing and Value Capture Mechanisms

Papers:

Banister, D., & Thurstain-Goodwin, M. (2011). Quantification of the Non-Transport Benefits Resulting from Rail Investment

Journal of Transport Geography, Vol. 19, pp. 212–223

Although traditional evaluation methods are insufficient to capture non-transport benefits of rail investments, these factors become increasingly important as the rail network matures. The authors argue that there will be different impacts at three different levels. At the macroeconomic level, network economic impacts measured from the change in output and productivity. At the meso level, the impacts relate primarily to aggregation economies and labor market effects, with some additional network and environmental consequences. At the micro level, the impacts are determined by the land and property market effects. Examples of rail investments are given for each of the scales of analysis. Conclusions quantify both the transport and non-transport benefits and also suggest some challenges associated from these results.

Bartholomew, K., & Ewing, R. (2011). Hedonic Price Effects of Pedestrian- and Transit-Oriented Development

Journal of Planning Literature, 26(1)

Recent trends have indicated a growing market for pedestrian- and transit-oriented development. Applicable to HSR station area design, understanding the effects of well-designed such development is important. This article explores the literature for this style of development that uses hedonic price methods. This past literature does this by either assessing the development(s) holistically or via component parts. The authors show that the market shift is indeed affecting real estate prices and demonstrate that such developments play an important positive role in urban land markets. As well, they observe that the amenity-based elements of transit-designed developments are an important part of this capitalization, independent of the base accessibility benefits provided by transportation.

Bernardino, J., Hŕebíček, Z., & Marqués, C. (2010). Applying Social Marginal Cost Pricing in Rail PPPs: Present State, Drawbacks and Way Forward

Research in Transportation Economics, Vol. 20, pp. 59-73

Increasing private involvement in the provision of European railway service operation has brought apparent growth in infrastructure management. This raises difficulties in conciliating social marginal cost pricing (SMCP) and induces the use of public private partnerships in the rail sector. Though it faces some challenges, this paper has analyzed practical applicability of SMCP in railway PPPs from the perspectives of cost accounting and effectiveness of SMCP towards the allocative efficiency goal. They justify the use of PPP by splitting the analysis via looking into two perspectives, service operation and infrastructure management. For infrastructure

management, they recommend splitting the operator remuneration and the track access charges. For service operation, they argue that the decision on source of funding for the service operator should depend on the characteristics of the contract.

Carmona, M. (2010). The Regulatory Function in Public-Private Partnerships for the Provision of Transport Infrastructure

Research in Transportation Economics, Vol. 30, pp. 110-125

Issues raised by transport infrastructure regulation in the specific context of PPPs are complex to address, because a number of different contractual arrangements fall under the PPP concept. While PPPs are perceived as a "miraculous solution", decision-makers must also consider the complexity of the processes, financial and political restrictions, best possible use of limited public resources, and assurance that a project adds value to the society. The author points out that if the political decision-makers and regulators put a strong focus on the pursuit of efficiency, this will lead to a success. For efficient use of this regulatory/finance scheme, the three dimensions of efficiency (dynamic allocative efficiency, efficiency in transport infrastructure utilization, and productive efficiency) should be considered when specifying the project's objectives. Objectives are expected to be pursued at the strategic level of regulatory action. However, balancing out multiple objectives and intentions of actors is rather complex in practice.

Chou, J-S., Ping Tserng, H., Lin, C., & Yeh, C-P. (2012). Critical Factors and Risk Allocation for PPP Policy: Comparison between HSR and General Infrastructure Projects

Transport Policy, Vol. 22, pp. 36–48

The ability to "harness the innovative capability and capital of the private sector" is one of the factors supporting the increasing popularity of PPPs. This study compares the use of PPPs in HSR and general infrastructure projects in Taiwan. Drivers for adopting a PPP strategy, critical success factors, and preferred risk factor allocation were collected in a structural questionnaire of general infrastructure projects, concluding that PPP lessons from general infrastructure are transferable to HSR PPP projects with some adjustments. This result will encourage policy or decision makers to enhance usage of PPP in HSR projects. Of academic value is the introduction of Confirmatory Factor Analysis (CFA) to extract the critical factors and derive lessons from other experiences.

Cohen, J., & Kamga, C. (2013). Financing High Speed Rail in the United States and France: The Evolution of Public-Private Partnerships

Research in Transportation Business & Management, Vol. 6, pp. 62-70

This paper examines the background of the U.S. and the French railroads. Due to its strong market orientation, the U.S. delayed the nationalization of passenger railroads until the 1970s, when passenger rail dramatically weakened. On the other hand, France had already nationalized railways since the 1930s, but after incurring large public debts for the HSR program, decided to partially privatize the construction and operation of certain lines. This appears to be a successful

PPP experience. The author argues that the U.S. should commit both public and private borrowing at a high level in order for HSR to succeed in California.

Doherty, M. (2004). Funding Public Transport Development through Land Value Capture Programs

New South Wales University
Oct 2013, access: http://ecotransit.org.au/ets/files/land_value_capture_mdoherty2004.pdf

This paper analyzes experience with land value capture programs for the Australian context. Increases in land value associated with transport projects have been observed seen in several projects worldwide. So, there is a potential of raising funds for development of public transport facilities through land value capture mechanisms, e.g., development land taxes, value increment financing, and joint development. However, there are legal and political constraints to their implementation, like differing notions of equity and constitutional limitations on the ability of governments to act.

Galilea, P., & Medda, F. (2010). Does the Political and Economic Context Influence the Success of a Transport Project? An Analysis of Transport Public-Private Partnerships

Research in Transportation Economics, Vol. 20, pp. 102-109

PPPs are now used in a wide range of transport sector projects in developing and developed countries. By evaluating hundreds of transport PPPs, this paper finds that the economic and political characteristics of the countries contribute to the success of PPPs. Past successes or failures of transport PPP projects also play an important role in future PPP development. The author argues that countries with lower democratic accountability can have better PPP than countries with higher democratic accountability. On the other hand, countries perceived as corrupted would hardly find international investors. In this regional context, projects in Latin America are more attractive to investors than projects in Africa.

Iacono, M., Levinson, D.M., & Zhao, J. (2009). Value Capture for Transportation Finance

Oct 2013, access: http://nexus.umn.edu/Papers/ValueCapture.pdf

This paper identifies various value capture policies to finance transportation projects that benefit restricted non-user beneficiaries, i.e., non-direct users of transportation facilities who accrue benefits due to their enhanced location advantages. These are: land value taxes, tax increment financing, special assessments, transportation utility fees, development impact fees, negotiated exactions, joint development, and air rights. The value capture policies consider the role of the parties and the tradeoffs between economic efficiency, social equity, adequacy, and feasibility.

Martínez, L. M., & Viegas, J. M. (2007). Metropolitan Transportation Systems Financing Using the Value Capture Concept

Instituto Superior Técnico, Portugal
Oct 2013, access: http://www.civil.ist.utl.pt/~martinez/PDF/Paper%20PhD%20WCTR2007.pdf

This literature review of the influence of public transport on property values in several countries examines the features of value capture mechanisms to fund public transportation infrastructure. Public transport has distance-decay, spatial, timing, magnitude, and contextual effects on property values that help devise different types of property related and development land taxes. However, public acceptance, unforeseen and inequitable consequences, and legal issues should be considered before the use of value capture. The case of financing an urban subway system in Portugal is then examined.

Obermauer, A. (1999). Comparison of Investment in High-Speed Railway Construction and its Finance in Japan and Germany

Transport Policy Studies, Vol.1, No.3, pp.24-36

As Japan was connecting the islands Kyushu, Shikoku, and Hokkaido via HSR, an economic crisis delayed the project. Based on the German experience dealing with tight budget constraints, the author argues that active support from the local government and regional communities are essential for project delivery and could be attained by raising environmental awareness. Cars were perceived as less environmentally friendly and more expensive for users than rail, and this was a strong argument for the German government.

Plimmer, F., & McGill, G. (2000). Land Value Taxation: Betterment Taxation in England and the Potential for Change

Oct 2013, access: http://www.fig.net/pub/fig_2003/TS_9/TS9_4_Plimmer_McGill.pdf

This paper discusses the history and rationale of land value taxes (betterment taxes) in the UK, and considers the potential of using land value taxation (LVT) to replace the existing property tax systems. The rationale for a betterment tax is that added land values are paid for and achieved by community efforts instead of landowner efforts, so landowners have no right to claim these values. In addition, betterment taxes can encourage the government to improve community services and therefore enhance property values. Thus, the authors argue that LVT can promote development in the UK, because land would be taxed by the use determined by the development plan instead of by its actual profits. Undeveloped land would be taxed as if fully developed, thus encouraging the owner to achieve the development for which taxation is demanded.

Smith, J. J., & Gihring, T. A. (2013). Financing Transit Systems through Value Capture: An Annotated Bibliography

Victoria Transport Policy Institute
Oct 2013, access: http://www.vtpi.org/smith.pdf

This extended annotated bibliography provides a summary of findings from over 100 papers or studies in regards to the impacts transit has on nearby property values. The authors also explore

the potential for corollary value capture for financing such transit improvements. They conclude that proximity to transit often increases property values more than enough to offset much of the transit system capital costs.

Books, Reports, and Theses:

Weinberger, R. R. (2001). Commercial Property Value and Proximity to Light Rail: A Hedonic Price Application

Thesis, Ph.D. City and Regional Planning, University of California at Berkeley
Oct 2013, access: http://uctc.its.berkeley.edu/research/diss100.pdf

In a landmark dissertation, Weinberger uses hedonic specifications to show that light rail transit provides a measurable rent premium for properties within half a mile of a station. The paper compares transit accessibility and highway accessibility as rent determinants. She concludes that disproportionate benefits (or burdens) fall on individual near properties.

G. HSR Organization and Reform

Papers:

Chen, X., & Zhang, M. (2009). High-Speed Rail Project Development Processes in the United States and China

Transportation Research Board Annual Conference, Session 212, Paper No. 10-1200

This TRB paper reviews and compares the project management, planning, funding, construction, and broader institutional factors of the California High-Speed Rail Project (CHSRP) and the Beijing-Shanghai Express Railway Project (BSERP), two projects with similar scales, relatively close project readiness status at the time, and part of the national strategies in the U.S. and China. China's centrally oriented political system allows the government to make decisions, mobilize resources, and resolve inter-agency conflicts rather quickly. Empowering the U.S. federal government in development of HSR could help attract and boost confidence of private investors to enter PPPs. On the other hand, China could learn from the U.S. about comprehensiveness of environmental assessment and public involvement in decision-making processes. Overlooking environmental and social issues may speed up project delivery, but jeopardize it in the long run.

Cowie, J. (2002). Subsidy and Productivity in the Privatised British Passenger Railway

Economic Issues Vol. 7, Part 1

This paper examines the effects of privatization on passenger railway productivity. In the UK, ownership structure and not ownership per se was relevant as a driver of productivity gains. After the nationalized British Rail adopted a more market-oriented structure, it experienced productivity gains comparable to those of other railways in early stages of privatization. For privatized railroads, labor reductions increased productivity in the short-term, while infrastructure and rolling stock investment improved productivity for British Rail in the long run.

Friebel, G. Ivaldi, M., & Vibes, C. (2010). Railway (De)Regulation: A European Efficiency Comparison

Economica, Vol. 77, Issue 305, pp. 77-91

This paper estimates the effects of changes in regulatory regimes on the efficiency of various European railroads. The reforms of the past two decades, such as third-party network access, introduction of an independent regulator, and vertical separation, had positive but heterogeneous impacts on output. Furthermore, these effects depend on sequencing: introduction of multiple reforms in a package has negative effects, while sequential reforms improve efficiency. The study does not control for the degree of subsidization, uses quantitative but not qualitative measures of output, and cannot control for different types of reforms and intensity of implementation.

Guirao, B., & Soler, F. (2009). New High-Speed Rail Services in the United States: Lessons from Spain

Transportation Research Board Annual Conference, Session 564, Paper No. 10-2630

This paper discusses and compares FRA's definition of HSR with that of European countries, and draws recommendations to the U.S. based on Spain's experience with HSR. FRA's definition of HSR should include more information on the quality of infrastructure and rolling stock, and base differences between Regional HSR and Express HSR on trip distance or travel time and not on top speed. In the U.S., high-speed commuters could emerge for distances below 200 km, usually from a small to a large city. HSR station access/egress time, public transport access, and parking lots should be considered in addition to HSR travel time, as station location and its impacts are critical to HSR assessment.

Kao, T., Lai, Y., & Shih, M. (2009). Privatization versus Public Works of High Speed Rail Projects

Transportation Research Board Annual Conference, Session 212, Paper No. 10-2004

This TRB paper explores the effect of privatization on HSR project delivery in two similar HSR projects in Taiwan and Korea. The privatized Taiwan HSR (THSR) performed better in terms of project management –with less time and cost overrun—, but the public-works Korean HSR (KHSR) outperformed in terms of product success –with better ridership and user satisfaction. The authors conclude that although privatized HSR may have a better project management environment, it takes longer to build up ridership due to lack of well-established intermodal connections. In contrast, the government-sponsored HSR is already viewed as an extended service. Moreover, in the Taiwan and Korean cases, privatization provides no incentives for concessionaires to pursue new technologies for overall rail industry development, while the government-sponsored project is more successful in promoting the national HSR industry.

Leheis, S. (2012). High-Speed Train Planning in France: Lessons from the Mediterranean TGV-Line

Transport Policy, Vol. 21, pp. 37–44

This paper discusses how the implementation and decision-making process of HSR in France changed since the construction of the Mediterranean TGV-line (TGV Med). The project introduced many transport planning innovations at a time of strong opposition (e.g., increased stakeholder dialogue, focus on environmental impacts, new implementation processes, better project governance), which now make it an example of integrated sustainable development. These innovations resulted in important legislative developments in France and decentralization of SNCF, the rail operator.

Obermauer, A. (2001). National Railway Reform in Japan and the EU: Evaluation of Institutional Changes

Japan Railway & Transport Review, Vol. 29

The article compares railway institutional reforms in Japan and EU countries. In Japan, vertical separation of operations and infrastructure unintentionally increased competition. Within the EU, each country had a different implementation approach, and very few went beyond the minimum EU requirements for vertical separation. Discriminatory fees and restrictions on network opening were the main barriers to new entrants in the EU rail market. However, neither Japan nor the EU had resolved the problem of discriminatory network opening.

Pérez-Martínez, P. J., & López-Suárez, E. (2004). Performance of the High Speed Rail in Spain in the Context of the New Regulation Framework. Evidence from the Madrid-Seville HSR Corridor

9th Conference on Competition and Ownership in Land Transport

The Spanish administration launched a new national regulatory framework to end the monopoly of the Spanish state operator RENFE and open the rail passenger market to new operators in 2010. This framework attempted to guarantee quality of service, equal access, and effective competition market rules. The first years of operation of the HSR line Madrid-Seville resulted in a modal shift from air to rail transport (91% rail share), driven by competitive travel time, reliability, high frequencies, and competitive fares. Economic results and external cost savings compensated the costly investments in HSR infrastructure. Emission and energy rates showed environmental benefits of using HSR instead of other transport alternative.

Books, Reports, and Theses:

Sakamoto, R. (2012). High Speed Railway Productivity: How Does Organizational Restructuring Contribute to HSR Productivity Growth?

Thesis, M. Sc. in Transportation, Department of Civil and Environmental Engineering, M.I.T. Oct 2013, access:
http://transportation.mit.edu/sites/default/files/documents/Sakamoto_MST_thesis.pdf

This thesis explores the effects of privatization of the Japan National Railways (JNR) and vertical separation of European systems on HSR productivity. Privatization increased productivity of the Tokaido Shinkansen line in Japan. In Europe, vertical separation improved productivity in Germany and Sweden, but results were ambiguous in France. The author thus recommends the introduction of private sector funds and competitive private sector operators in the NEC.

H. HSR Integration Policy

Papers:

Adamos, G., Nathanail, E., & Zacharaki, E. (2012). Developing a Decision-Making Framework for Collaborative Practices in Long-Short Distance Transport Interconnection

Procedia - Social and Behavioral Sciences, Vol. 48, pp. 2849-2858

This paper proposes a decision-making framework for long-short distance transport interconnections, which considers the stakeholders. The authors identify two critical barriers for the delivery of such projects in Europe: the appearance of an actor in multiple stages of the decision-making process and the overlapping of responsibilities among a few public parties. A hierarchical mechanism could allow coordination between stakeholders and governmental agencies. Since land use strongly affects each stakeholder's activities, the decision maker has to understand these characteristics and options.

Geerlings, H., & Stead, D. (2003). The Integration of Land Use Planning, Transport and Environment in European Policy and Research

Transport Policy, Vol. 10, pp. 187-196

This paper examines the European policy of integrating research activities, specifically focusing on the integration of land-use planning, transport, and environment policies. The authors find that cross-sectorial issues have not been discussed, and institutional structures to cope with them are missing. This was because single institutions are responsible only for certain policy areas, but none is responsible for the entire policy. The authors conclude that cross-sectorial issues need to be integrated, rather than merely discuss the policies of different departments.

Mulley, C., & Nelson, J. D. (1999). Interoperability and Transport Policy: The Impediments to Interoperability in the Organization of Trans-European Transport Systems

Journal of Transport Geography, Vol. 7, pp. 93-104

Interoperability and interconnectivity have become core themes in developing common transport policy in the EU, because improving such factors contributes to the development of efficient high quality transport services. Interconnectivity, a necessary prerequisite for interoperability, is achieved when different transport systems are physically and operationally linked to facilitate transfers across their boundaries. There is a need of generic policy for further improvement to guarantee interoperability. This paper develops a transport system organization model with transparent causal links between changes in interoperability and interconnectivity and system organization. The model clarifies the impact of proposed policy measures, and is tool to improve interoperability between transport systems.

Books, Reports, and Theses: None

I. Other International HSR Experiences

Papers:

Button, K. (1994). The Channel Tunnel and the Economy of Southeast England

Applied Geography, Vol. 14, pp. 107-121

The main aim of this paper is to consider the economic impact in Southeast England from both short and long term perspectives. As a peripheral region near the newly existing tunnel, in the short term perspective--induced by job creation--the impact turned out to be more beneficial than was predicted. On the other hand, though there is no doubt that Channel Tunnel will be beneficial in the long run, the uncertainties such as in defining the counterfactual, makes the case complicated for assessing the long-term impact and to what extent and level the region will flourish. As the time goes by, the region could develop regardless of the existence of new infrastructure. The paper ends with an open question as to how this could be explicitly measured, which is yet a question to be considered.

Campos, J., & De Rus, G. (2009). Some Stylized Facts about High-Speed Rail: A Review of HSR Experiences around the World

Transport Policy, Vol. 16, pp. 19-28

This paper thoroughly reviews the technical and economic characteristics of 166 HSR projects from 20 countries, in an effort to provide an economic definition of HSR and examine the infrastructure, operating, and external costs, and future evolution of demand. The proposed economic definition of HSR (as opposed to a top-speed-based technical definition) is based on the relationship of high-speed trains with conventional trains and high-speed infrastructure with conventional infrastructure, thus presenting four network operation possibilities: exclusive exploitation, mixed high-speed, mixed conventional and fully mixed models. The analysis of HSR costs gives useful ranges and guidelines for future estimations. In terms of demand for HSR, the authors argue that HSR services usually enjoy spectacular growth in the initial years, which later declines as the market becomes more mature. Demand growth rates are promising if there are high population densities, but investment on HSR is risky because the sunk costs are particularly high. For these reasons, future HSR projects require a case-by-case socioeconomic analysis.

Cheng, Y. (2010). High-Speed Rail in Taiwan: New Experience and Issues for Future Development

Transport Policy, Vol. 17, No. 2, pp. 51-63

An ex-post BCA of the first stage of Taiwan's HSR system (THSR), a Build-Operate-Transfer (BOT) model, shows that travel time savings, improved safety, and reduced external cost are substantial social benefits, but the NPV remains negative. Ridership was less than half of the forecasted and the induced demand was low with respect to international predecessors. This is attributed mainly to inadequate inter-modal connections, adverse international economic conditions, and poor marketing. The author thus suggests using yield management and improved

marketing to increase ridership, and establishing alliances with hotels and regions to offer attractive packages that induce demand.

As for intermodal issues, THSR diverted significant ridership from conventional rail and buses, almost forced air transportation to exit the market, but did not significantly reduce auto travel. The author recommends imposing taxes on private cars' CO2 emissions to subsidize public transportation, establishing cooperation between airlines and THSR to better connect domestic and international markets, and increasing accessibility of THSR stations in peripheral areas to integrate with land transportation modes. Finally, the author calls for more governmental involvement in the BOT model to increase the socio-economic benefits of HSR.

Books, Reports, and Theses:

Thompson, L.S., Tanaka, Y. (2011). High Speed Rail Passenger Service: World Experience and U.S. Applications

Thompson, Galenson and Associates (TGA), Transportation Concepts
Oct 2013, access: http://www.tgaassoc.com/documents/final-version-hsr-corrected-9-20-11.pdf

This paper provides a useful review of 11 international HSR experiences in Europe and Asia, and then contrasts three choices for HSR in the NEC: an incremental approach (default), significant additions to speed or capacity, and a brand new HSR. The authors argue that public HSR operations will be inappropriate in the U.S., but since the investment risks are excessive for any private consortium, a PPP model is preferred. They propose management contracting (the public provides the infrastructure and rolling stock), gross cost franchising, and net cost concessioning as an alternative, and vertical separation of infrastructure and operations as a variant that could work in the adequate circumstances.

J. HSR in the NEC

Papers:

Archila, A.F., Sakamoto, R., Fearing, R., & Sussman, J.M. (2013). Productivity of Passenger Rail Transportation Services in the Northeast Corridor

2014 Annual Meeting of the Transportation Research Board

This paper calculates the productivity of passenger rail services in the NEC during 2002-2012 and gives insight into how international-quality HSR could be deployed in the NEC. The NEC experienced considerable yet highly volatile productivity growth during 2002-2012 due to service changes, technical problems with trainsets, targeted capital investments, and economic recession and recovery. The analysis suggests that the NEC has a potential for a successful introduction of HSR given the recent productivity trends and the hidden opportunities of coordination and organization of rail activities.

Sussman, J.M., Peña-Alcaraz, M., Carlson, S.J., Archila, A.F., & Stein, N.E.G. (2013). Analysis of High-Speed Rail Implementation Alternatives in the Northeast Corridor: the Role of Institutional and Technological Flexibility

2013 Annual Meeting of the Transportation Research Board
Oct 2013 access: http://web.mit.edu/hsr-group/documents/trbpcas.pdf

The CLIOS Process (an engineering systems framework), scenario analysis, and flexibility analysis are applied to the prospects of HSR in the NEC. Given the tremendous uncertainty that characterizes the long-term political and economic support for HSR in the NEC (depicted by distinct scenarios), the implementation of either a fixed incremental or an international-quality bundle of strategic HSR alternatives will be risky. Therefore, incorporating flexibility to jump between alternatives will allow decision makers to adapt as situations evolve and facilitate the implementation of the HSR system. This designed-in flexibility will have an extra cost but it will reduce risk, thereby improving performance.

Books, Reports, and Theses:

Amtrak (2012). The Amtrak Vision for High-Speed Rail in the Northeast Corridor: Update Report

Oct 2013, access: http://www.amtrak.com/ccurl/453/325/Amtrak-Vision-for-the-Northeast-Corridor.pdf

This report updates the Amtrak's vision for HSR in the NEC, proposing a $150-billion two-program stair-step phasing investment strategy during 2015-2040. The NEC Upgrade Program (NEC-UP 2015-2025) sequences incremental improvements to bring infrastructure to a state of good repair, enhance capacity of the NEC through procurement of additional Acela trainsets, and reduce travel time through track improvements. It includes the Gateway Program in NYC, increasing the tunnel and terminal capacity from New York to Newark. At top speeds of 160

mph, travel time would improve only slightly, but reliability, capacity and frequency of the rail services would be considerably enhanced. The NEC Next Generation HSR (NextGen HSR 2025-2040) consists of new, fully dedicated HSR. The Washington-New York track would be completed by 2030, at a cost of $52 billion, followed by the New York-Boston segment by 2040, at a cost of $58 billion. Traveling at top speeds of 220 mph, trip time between New York to either Boston or Washington would be 94 minutes each way.

Archila, A.F. (2013). Intercity Passenger Rail Productivity in the Northeast Corridor: Implications for the Future of High-Speed Rail

Thesis, M. Sc. in Transportation, Department of Civil and Environmental Engineering, M.I.T. Oct 2013, access: http://engineeringfiles.mit.edu/downloads/transportation/MIT_NEC_Rail_Productivity_2013_AArchila.pdf

This thesis uses productivity analysis to evaluate the performance of main rail passenger services in the NEC and to make inferences about HSR prospects. The NEC experienced considerable yet highly volatile productivity growth during 2002-2012 due to service changes, technical problems with train sets, targeted capital investments, and economic recession and recovery. Amtrak, increased its ability to fill up trains and economically exploit the available capacity, but did not perform equally well on the supply side. The NEC reveals a potential for a successful introduction of HSR that is currently not captured by the HSR prospects. The author thus recommends revising current projections to make them more aggressive, incorporating additional planning approaches, accelerating key stages of the prospects, and including the FAA in the planning process.

Sussman, J.M., Archila, A.F., Carlson, S.J., Peña-Alcaraz, M., & Stein, N.E.G. (2012). Transportation in the Northeast Corridor of the U.S.: A Multimodal and Intermodal Conceptual Framework

Nov 2013 access: http://web.mit.edu/hsr-group/documents/jiti.pdf

This report makes extensive use of the CLIOS Process, an engineering systems framework, to represent and qualitatively analyze both the multimodal transportation system of the NEC and its stakeholders. The authors identify two bundles of strategic alternatives to develop HSR in the NEC, an incremental HSR and an international-quality HSR approach, and determine that each alternative will be risky after considering a range of scenarios. Therefore, incorporating flexibility to jump between alternatives could allow decision makers to adapt as situations evolve and improve system performance.

University of Pennsylvania School of Design (2012). Early Actions for High Speed Rail

Oct 2013 access: http://www.design.upenn.edu/city-regional-planning/early-actions-high-speed-rail

This report culminates a series of studios looking at prospects of HSR in the NEC. The report notes that for HSR to be successful, local metropolitan areas must have a well-functioning urban

transit network, a complementary regulatory environment, a diverse industry mix that emphasizes knowledge industries that benefit from increased density, a deep labor pool, and a high-quality urban environment. The report also softens its focus on promoting a new public-benefit corporation to manage the development of infrastructure on the NEC. The authors note that Amtrak has several advantages, including its ability to run on freight tracks and to use eminent domain. The report raises important questions about the role of sub-regions and municipalities in contributing to the success of HSR (e.g. the role of complementary regulations at the local level), as well as the linkages between air and rail capacity in the NEC (e.g. the role of HSR as a substitute of short-haul air travel and a complement of long-haul air travel).

Thompson, L.S. (2005). Options for Federal Ownership of the Northeast Corridor (NEC) Infrastructure

Thompson, Galenson and Associates (TGA), Transportation Concepts
Oct 2013 access: http://www.tgaassoc.com/documents/ne-corridor-text&cover.pdf

This report discusses the history of upgrades on the NEC since the 1970s, focusing on the institutional conflicts that occurred during this time. It then provides a thorough review of "problems with Amtrak's ownership and management of NEC infrastructure" and then discusses appropriate goals for a new ownership structure, using examples from the British Rail (BR) restructuring in the UK. The report then proposes a spectrum of possible new institutional structures for the NEC, including "[alternatives] for [its] structure, and [alternatives] for the legal relationship between the infrastructure owner and the agency that will control the infrastructure." The author does not provide any specific recommendations, but notes that the only argument for the current institutional structure is "inertia" and that a full privatization of infrastructure is unlikely to be successful. Finally, the report provides an "action plan" for transferring NEC infrastructure from Amtrak to the DOT should this be the preferred alternative.

Todorovich, P., Schned, D., & Lane, R. (2011). High-Speed Rail: International Lessons for U.S. Policy Makers

Lincoln Institute of Land Policy
Oct 2013, access: http://www.lincolninst.edu/pubs/1948_High-Speed-Rail

This report by a HSR advocacy group summarizes some potential transportation, economic, and environmental benefits from implementing HSR in the U.S. The recommendation is focusing federal HSR funding on the NEC and California, after examining lessons from previous implementations of HSR abroad. In this context of HSR projects in California and the NEC, the report discusses station siting and finance mechanisms.

U.S. FRA (2009). Vision for High-Speed Rail in America. High-Speed Rail Strategic Plan

U.S. Department of Transportation, Washington, D.C.

The Obama administration became the first U.S. administration to set HSR as a national priority with the American Recovery and Reinvestment Act of 2009 (ARRA). ARRA authorized $8 billion to develop an ambitious national HSR system, with the NEC as a strategic corridor for

targeted HSR funding. However, funds were insufficient and scattered through many projects throughout the U.S.

U.S. FRA (2013). NEC FUTURE – Passenger Rail Corridor Investment Plan. Preliminary Alternatives Report

Oct 2013, access: www.necfuture.com

The NEC FUTURE is an FRA-led planning effort to determine, assess, and prioritize future rail investments as part of an integrated, multi-modal transportation solution in the NEC during 2015-2040. The NEC FUTURE engages multiple stakeholders in the making of a service development plan (SDP) and a programmatic environmental impact statement (EIS), thus opening the opportunity to services that are not currently provided. A preliminary report with fifteen possible alternatives was issued after an initial scoping process with several public meetings and comments. Notably, the alternatives do not consider institutional changes, focusing solely on different levels of investment, alignments, and services.

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