

Preface

High speed rail (HSR), as a rapid ground transportation mode, has received increasing attention worldwide since the operation of the first dedicated HSR line between Tokyo and Osaka in Japan in 1964. Since then, HSR infrastructure has been widely deployed in many countries, such as France, Germany, the Netherlands, Italy, the United Kingdom, Spain, Korea and China. The development of HSR in China in particular is amazing in terms of both the scale and the speed of system deployment. After a decade of construction, the Chinese HSR system has become the largest one in the world, with a total track length of more than 22,000 km, 500 newly built HSR stations, and more than 1,000 HSR train sets covering a service area of more than 28 provinces and linking more than 28 metropolitan cities, each with a population of over five million. The development of the HSR system has fundamentally reshaped the spatial structure and regional connectivity in China given the improved transportation accessibility and network connectivity. With more people beginning to enjoy the high speed mobility and improved travel amenity, the impacts of the system on China's urban agglomeration and economic development are expected to be substantial and far-reaching.

The interest and focus on China's HSR and its relation to the new economic geography have been growing rapidly in recent years, given its critical role in promoting regional economic development. Many countries that wish or plan to build an HSR, such as the United States, Russia, Mexico and India, are especially interested in understanding the impacts of HSR infrastructure on social change and the economy. In 2015, we published the book entitled *Chinese Railways in the Era of High-Speed* with an objective, for the first time, to introduce Chinese HSR development, the economic and physical achievements and related managerial issues and institutional challenges to the international community.

Although some issues, such as the potential impacts of HSR on regional disparity and the influence of the HSR network on China's new economic geography were investigated qualitatively, the empirical understanding of these issues remains limited, especially from the perspectives of urban planning and regional science. Several critical concerns are still unclear. For instance, how does the Chinese HSR investment contribute to regional

economic development? Does the deployed HSR system lead the Chinese economy to a regional economic convergence or disparity? What are the regional impacts of HSR on housing markets and tourism demand in different cities and regions? What is the environmental impact of the HSR system? And how does the HSR system affect the intercity travel market in terms of competition with the air industry in China? The answers to these questions require not only detailed data reflecting the performance of the Chinese economy at various regional levels, the spatial distribution of the HSR networks and investment, advanced research methods are also needed in order to achieve a comprehensive assessment by capturing the various spatial effects of HSR due to the improved transportation accessibility and connectivity.

Based on various socioeconomic data that capture HSR construction and operation in China primarily for the period 2001–16, we provide a comprehensive and in-depth assessment of HSR in China with a particular emphasis on its spatial spillover impacts, in terms of land use, economy, environment, regional disparity, tourism and urban housing market. The assessment also includes a multilevel assessment with a focus on both the national and regional levels using vigorous quantitative methodologies including spatial econometric modeling and general equilibrium analysis.

This volume is a culmination of years of our research on regional economic impact analysis of transportation infrastructure. Some of the analyses (such as in Chapters 3 and 6–9) were updated from our earlier work published in peer-reviewed journals, such as *Transportation Research Part A: Policy and Practice*, *Journal of Transport Geography*, *Applied Economic Letters* and *European Planning Studies*, while analyses in other chapters are novel in terms of research area, data and methodology. Policy implications for decision makers and practitioners are discussed in each chapter. We believe that the understanding of the various impacts of HSR in China would not only help to justify the effectiveness of the massive national rail investment policies, it would also provide insights and implications for future HSR infrastructure development both in China and other countries.

This volume owes a debt to many people and institutions. I was very fortunate to have the opportunity to work with an outstanding team to assess the socioeconomic impact of HSR from various perspectives.

Kingsley Haynes provided invaluable support for me to develop my quantitative skills to conduct regional economic impact analysis of transportation infrastructures. He has also provided diligent efforts on refining the volume and offered extensive insights on elaborating the linkages between HSR development in China and its role in the One Belt One Road Initiative.

Yulong Zhou worked closely with me on Chapter 2 for the evaluation of the spatial impacts of HSR on land value change, in which he led the collection and processing of over 1.5 million items of land transaction data and HSR data obtained from various resources.

Zhaoxin Dai worked effectively with me when she was a visiting student at Ohio State University (OSU) during 2016–17. She has contributed extensively to Chapter 3 on the spatial-temporal assessment of land use change in different cities along the Beijing–Shanghai HSR line, using remote sensing data.

I am indebted to my colleagues in the field of socioeconomic assessment of transportation infrastructure. These include Roger Vickerman, Kenneth Button, Jose-Maria Ureña, Moshe Givoni, Delaplace Marie, Francesca Pagliara and Chia-lin Chen and my colleagues in regional science, such as Paul Elhorst and Donald Lacombe, who have provided invaluable help for clarifying questions about spatial econometric modeling. I would also like to thank Junbo Xue and Adam Rose for providing excellent support on developing an earlier version of Chapter 9.

I am grateful to my colleagues in City and Regional Planning at OSU, particularly the former chair Rachel Garshick Kleit for her support in providing a harmonious environment to allow me to concentrate on my work in this field. In addition, I also wish to thank Alan Sturmer at Edward Elgar Publishing, who has been extremely helpful and supportive of this project. Finally, I thank the Peking University – Lincoln Institute of Land Policy for providing financial support for the work outlined in Chapter 2 through the China Program International Fellowship.

Zhenhua Chen
Columbus, OH, USA
August 15, 2018

