

Spillover Effect of Mode Shift of Intercity Travel: Does the Introduction of High-Speed Rail Plays a Role

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Objective and Outline

- **Objective:** Examine to what extent the development of high-speed rail has influenced the mode shift of intercity travel
- **Research questions:**
 - Whether direct access to the final destination of respondents was available by HSR
 - Whether HSR service was available at the origin of the respondent
 - Whether the developed HSR system has any spillover effect on people's mode choice for intercity travel
- **Outline**
 - Data and Methodology
 - Results
 - Conclusion and Implications

Data

- Chongqing was selected as a case study
- three major rail stations were selected for conducting a passenger survey
- Focus on passengers riding conventional trains rather than HSR
- Survey was conducted during May 1-12, 2019. The duration covers both a holiday period (May 1 - 4) and a non-holiday period (May 5 – 12)
- 4,924 questionnaires were collected

Conclusions

Intercity mode choice is found to be significantly affected by several factors:

- Whether a high-speed train that provides a direct access to the passenger's destination is available
- Whether HSR service is also available at the respondent's hometown
- How far the distance is between the passengers' origin and the railway station
- Fare, age, education, income, and convenience of transfer

Conclusions

- Key Findings
 - A higher fare of high-speed trains would lead to an increased odds of respondents choosing conventional train service
 - the odds ratio of choosing conventional rail is relatively higher if the travel time between a respondent's origin and the departing rail station is longer
 - HSR does have a spillover effect on mode shift, but the magnitude of the effect is likely to be diminished after the distance exceeds a two hour travel time

Implications

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 - Planning and investment for the development of HSR infrastructure should be conducted more carefully, with consideration of its impact on mode choice (especially those social groups with lower incomes, lower education levels, higher age, or those who live relatively far from major cities)
 - Given that the spillover effects of the HSR system on mode choice are limited to a certain geographic scale, more attention should be paid to improving the “last-mile” of accessibility