

IMPACTS OF HIGH-SPEED TRAINS ON INTERNATIONAL TOURIST ARRIVALS TO CHINA

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INTRODUCTION

China tourism industry was found to help alleviate the Chinese public's doubts about the investment of HST and fill this gap (Chen & Haynes, 2012). On the other hand, in the Asia-Pacific region, the Shinkansen system of Japan was first established in 1964. Since then, with the construction and opening of high-speed rail in Europe such as Spanish high-speed train (AVE) system and French HST (TGV) system, Europe is the most developed continent in the world for HST during past few decades. Hence, many studies have examined the impacts of the European HST systems on tourism only a few studies concentrated on HST of China.

For the above reasons, the research question is clear, this paper attempts to use a longer data period (2007-2016) and different analysis model (Gravity model) to see what the relationship is between CRH and China inbound tourism arrivals accurately, we focus on the international tourists who travel to those Chinese provinces by CRH. This paper contributes to the literature by follows: 1). the role of HST in promoting the number of international tourist arrivals in different economic regions is discussed in detail and separately; 2). It is the first time to apply the gravity model in analyzing the impacts of HST on international tourist arrivals to China.

METHOD

In this paper, the tourism demand version of the gravity model is modified as a function of the characteristics of the countries of origin and province of China. In this function, distance which adjusted by crude oil price and others factors is used

to unvalued the motivation of international tourism demand of China. For estimation purposes, expression of this study can be transformed using natural logarithms ("Ln") to estimate. Thus, we employ a basic model in this study which shown in equation (1). Firstly, the "o" denotes the countries of origin. Secondly, "d" represents the provinces of destination. Next, "t" means at time "t". Finally, " ε_{odt} " is an individual error term over time which is under normal distribution. We transfer all continuous variables into logarithmic form. And set the value of 0.1 in case of the logarithm of zero.

$$\ln \text{TOUR}_{odt} = \alpha_0 + \alpha_1 \ln \text{DIS}_{odt} + \alpha_2 \ln \text{GDP}_{ot} + \alpha_3 \ln \text{GDP}_{dt} + \alpha_4 \ln \text{RP}_{odt} + \alpha_5 \ln \text{TA}_{dt} + \alpha_6 \ln \text{HOTEL}_{dt} + \beta \text{CRH}_{dt} + \varepsilon_{odt} \quad (1)$$

The only one dependent variable is TOUR, which implies the number of foreign tourist arrivals from origin divided in per province at time t. It is often used to reflect the tourism demand [18,20,21]. The explanatory variable which to test the main effect of HST on foreign tourist arrivals in China is a dummy variable of CRH. Since there will be time lag effect after the high-speed rail has just opened, here we take CRH into account began with 2011. The distance expressed by the distance from the capital cities of the origin countries to the capital cities of Chinese province adjusted by crude oil price at time t is the main sector of the gravity model, it reported the travel cost both transportation cost and time cost between origin and destination with a negative influence on the foreign tourist arrivals. Gross domestic product of both origin and destination as for socio-economics factors, it identifies the characteristic of a different economy. The relative price that modifies by CPI-exchange rate, which reflects the living cost in the destination.

We expect it has strong influences in the number of foreign tourist arrivals with the negative relationship among them (Martin & Witt, 1988). The level of regional tourism resources represented by tourism attractions (TA) the numbers of 5A tourism view spots and the accommodation (HOTEL) the number of starred hotels. They are also essential drivers to improve the number of foreign tourist arrivals.

FINDINGS

In this paper, we assume that the impact of CRH on the number of foreign tourist arrivals can be divided into two parts to analysis the effect of CRH service more accurate, overall effect and the time-lagged effect. Firstly, we use a dummy variable of CRH based on whether this service operates in year t to test overall effect of CRH. Then, this study

purposes to study the impact of CRH reflected on the diverse time after the running of CRH by using dummy variables CRH1-2 and CRH3, which mean that CRH runs for one to two years and run for three years or more at one area, respectively. Besides, by considering the results of Hausman's test, it shows that we should use fixed effect model rather than the random effect model for testing the overall effect of CRH. As aspect to time-lagged effect, due to the results of Hausman's test, we employ a random effect model to appraise the time-lagged effect of northeast and eastern region.

The results of this study are described in Table 1, estimates the overall effect of CRH and Table 1 shows the result of evaluating the time-lagged impact of CRH on foreign tourist arrivals of China.

Table 1. Results of time lagged effect of CRH.

	Total	North-east(re)	Eastern (re)	Central	Western
lnDIS	-0.5854***	-0.8534***	-0.5638***	-0.2591***	-0.5134***
lnGDPo	0.5001***	0.4539***	0.4365***	0.4299***	0.5426***
lnGDPd	0.2333***	0.9991***	0.3579***	-0.0643	0.2441***
lnRP	-0.6524***	-1.4772**	0.2862**	-0.0177	-0.6329*
lnTA	0.1797***	-4.1490*	-0.2863***	0.9904***	0.1211
lnHOTEL	0.9866***	0.8236**	0.7897***	0.4285**	1.2457***
CRH 1-2	0.5586***	0.1299	0.2743***	0.3219**	0.2915**
CRH 3	0.9634***	0.2183	0.2864**	0.8267***	1.0978***
Hausman	111.51***	12.36	5.82	91.84***	14.47*
Number of Obs	3410	330	1100	660	1320

Note: Significance at the 0.01, 0.05, and 0.10 levels are indicated by ***, **, *, respectively.

CONCLUSION

By employing panel database covering the foreign tourist arrivals from 11 countries to 31 provinces in China over ten years (2007–2016) and combined with gravity model to evaluate the impact of CRH service on regional tourism economies. Change in CRH is able to bring increase in inbound tourism of China. To a certain extent, we can conclude that the launch of CRH service in China will induce significant benefits of promote the attractiveness of foreign tourist arrivals. Secondly, the powerful time-lagged effect of CRH confirms the first step in developing a HST network, especially for regions with low-level development of accessibility and tourism economics. This will support the policy of establishment of CRH even the

current beneficial results are not strongly obvious because it will bring more benefits in the long run.

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