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Travel and tourism competitiveness index: The impact of air transportation, railways transportation, travel and transport services on international inbound and outbound tourism

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ABSTRACT

The objective of the study is to examine the impact of air transportation, railways transportation, travel and transport services on international inbound and outbound tourism in a panel of 19 tourists - oriented countries, over a period of 1990–2014. By applying principal component analysis, the study constructs travel and tourism competitiveness index for inbound and outbound tourism. The main constructs of inbound tourism index include international tourists' arrival, tourism receipts, receipts of passengers' transports items and travel items while the constructs of the outbound index include international tourists' departure, tourism expenditures, and expenditures for passengers transport and travel items. The result of panel Fully Modified OLS (FMOLS) regression shows that the presence of air transportation, railways transportation, and trade openness positively affect inbound tourism index, while travel and transport services negatively affect tourism competitiveness index. The causality results confirm the bidirectional relationship between inbound tourism, air transportation, railways passengers carried, trade openness and travel and transport services, while there is a unidirectional causality running from inbound index to railway goods transported, from air transport freight to trade factor, and from travel services to air transport freight. Outbound tourism index confirmed the bidirectional causality relationship with air transportation, railways transportation, and travel and transport services, while the causality running from outbound index to trade factor, from air transport passenger carried to travel services, and from railway goods transported to trade and transport services, which support the unidirectional causality relationship between them. The variance decomposition results show that air transportation freight is the contributor that largely influences inbound-outbound tourism, while railways passengers carried and trade openness has the least share to influence inbound and outbound tourism index for the next 10-year period. The impulse response function indicates that air transportation, railways transportation, trade openness and travel services will positively impact on inbound truism while travel and transport services will positively affect outbound tourism for the next 10-year period. The study concludes with the importance of transportation sector that deem desirable to promote tourism worldwide. The concentration of different modes of transportation including air transportation, railways transportation, and travel and transport system would helpful to advance international tourism.

1. Introduction

The relationship between international tourism and transportation system has been discussed widely in the academic literature which is mostly concentrated on a single mode of transportation (i.e., air transportation) while there is an extensive need to concentrate some other transportation modes, for example, railways transportation, travel and transport systems etc., that fairly linked with tourism. Besides that, there is a substantial need to construct a single index for international tourism in which the

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desired inputs represent the overall competitiveness of this sector. This study bridges the gap and aligned with the previous studies with certain novelty that it would be placed on their distinctive mark. The present study assembles the key international tourism indicators from the available international tourism database including international tourists arrival, tourism receipts, receipts of passengers transports items and travel items for inbound tourism index while the constructs of outbound index includes international tourists departure, tourism expenditures, and expenditures of passengers transport items and travel items. In addition, the study includes air transportation indicators, railways transportation, trade openness, and travel and transport services in multivariate framework to evaluate their impact on international tourism indices in a panel of 19 tourists −oriented countries, over the period of 1990–2014.

The econometric applications on international tourism forecasting traces out from the work of Witt and Martin (1987), later on number of international scholars contribute empirically in the existing literature including Witt and Witt (1990), Morley (1991), Crouch (1994), Sirgy and Su (2000), Brida and Risso (2009), Zhou-Grundy and Turner (2014) etc. There are plenty of studies that discussed the importance of air transportation on tourism demand (see Lumsdon, 2000; Becken, 2002; Guimerà et al., 2005, Vowles, 2006; Macchiavelli and Pozzi, 2015; Jenkins, 2015; Anvari et al., 2015 etc). The visibility of travel and tourism infrastructure through mechanical transportation supports confirmed with previous studies including Button and Taylor (2000), Khadaroo and Seetanah (2007), Navickas and Malakauskaite (2015), Aguiló et al. (2012), Yang et al. (2015), Ghalia and Fidrmuc (2015), Guirao and Campa (2015), Yin et al. (2015) etc, while the following studies emphasized to develop tourism competitiveness index for long-term sustained economic growth including Duval (2013), Peeters (2013), Seetaram et al. (2014), Zhang (2015), Chen and Haynes (2015), Pagliara et al. (2015), Zhang and Chen (2015), Zaman et al. (2016a,b) etc. Button and Taylor (2000) concluded that air transportation has a positive impact on development of Metropolitan areas. Khadaroo and Seetanah (2007) argued that transportation infrastructure has a considerable impact on tourism demand, which affects tourists' income, relative prices of the goods, and distance of the destination places. Navickas and Malakauskaite (2015) discussed different potential constraints for tourism development i.e., market −oriented constraints, level of social competitiveness, environmental concerns, technology spillovers, human capital, advancement in the technology and infrastructure, and other fields of competitiveness. These factors strongly correlated with the competitiveness of global tourists' destinations. Yang et al. (2015) constructed the urban public transport index for assessing the performance of international tourism in four largest cities including Melbourne, London, Singapore, and Paris. This index comprises knowledge sharing, pay per travel schedule, level of existing travel services, and special urban public transport services provided of tourist for their specified destination points. The study argued that this index work effectively that enhances the applicability on the tourism transportation modes. Guirao and Campa (2015) found that high-speed rail has a significant impact on tourism development in Spain. Yin et al. (2015) highlighted the importance of high-speed railways in the Chinese urban development and presented the conclusive policy recommendation for sustaining the economic development by transportation modes in Chinese cities.

The causal relationship between international tourism and macroeconomic factors are widely debated policy area that has been discussed in different economic settings, such as Shah and Wilson (2001) examined the relationship between international trade and tourism development in the context of China and confirmed the joint dependence of trade and tourism which provoked that trade Granger cause tourism and same was true in case of tourism that Granger cause trade. This implies that both the factors played a vital role in order to expedite the process of economic transformation in a country. Dritsakis (2004) described the role of tourism on economic growth in the context of Greece and found tourism induced growth, which implies that economic growth driven by tourism factors that facilitate the country's economic process by sound tourism infrastructure. Chen and Chiou-Wei (2009) investigated the relationship between economic growth and tourism development in the context of two Asian countries such as South Korea and Taiwan. The causality results indicate that economic growth supported tourism sector in case of South Korea, which confirmed the economic growth led tourism hypothesis, while the reverse is true in case of Taiwan, where tourism sector drives economic growth of the country. Zheng-feng (2009) examined the relationship between port logistics and economic development in the province of Jiangsu-China, and found that the development of port logistics increases provincial development, which implies that logistics activities Granger cause provincial development of the country. Seetanah and Khadaroo (2009) investigated the role of transportation sector on tourism development in Mauritius and found that transportation sector significantly increases the visitation of tourists in a country that clearly exhibit the importance of transportation in tourism policy agenda. Akinboade and Braimoh (2010) elaborated the relationship between tourism and economic growth by using a consistent time series data for South Africa and found that tourism sector significantly contribute to increase country's economic growth while Granger causality test further endorse this relationship and confirmed the tourism-led growth hypothesis in a country. Wang (2010) explored the role of transportation sector to observe the dynamic change in tourism sector and found that transportation sector and economic growth substantially increase tourism growth in Chinese economy. Button and Yuan (2013) extensively surveyed the relationship between airfreight transportation and local development of 32 metropolitan areas of United States and found transportation-led development hypothesis across the United States. Van De Vijver et al. (2014) examined the relationship between travel and transport sector and trade factor in a diversified panel of countries and confirmed that travel and transport sector Granger cause trade factor in developed and developing countries, while this causal relationship is averted in those countries where policies are more favorable for air transportation. Lean et al. (2014) explored the causal relationship between Chinese economic growth and logistics indicators and found the long-run and causal relationship that running from economic growth to logistics output, and from railway transport to road-waterway transport, while there is a feedback relationship between land transport and country's economic growth. Baker et al. (2015) discussed the importance of air transportation in Australia's economic growth by using a panel of 88 regional airports and found that air transportation and country's economic growth both are interdependent with each other, as air transportation increases country's economic growth, while higher economic growth attracts international tourists in a country. Nassani et al. (2016) examined the role of tourism and economic growth in a protective mode of military spending which supports the tourism driven economic growth hypothesis in a diversified panel of countries while higher military spending maintained law and order situation in a countries that attract foreign tourists to increase their visitation in a pleasure destinations. These studies confirmed the causality relationship between international tourism, transportation sector and economic growth across the countries.

The above cited studies confirmed that transportation sector is