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学位論文題名	A Study on Input-Output Model and Computable General Equilibrium (CGE) Model for Assessing Economic Impacts of Transportation Policies on Tourism Promotion – A Case of Japan (交通政策が観光振興に及ぼす経済効果評価のための 産業連関モデルおよび応用一般均衡モデルの研究—日本を事例に)
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【論文の内容の要旨】

In early 21st century, the world watches the dramatically contribution of tourism. In 2016, the total contribution of tourism to world GDP was USD 7,613.3bn, equaled to 10.2% and it is predicted to increase by 3.6% in 2017, and rise 3.9% annually to USD 11,512.9bn, equals to 11.4% of GDP in the next ten years (2027). As on the employment, in 2016, tourism contributed 9.6% of total world employment, equaled to 292.22 Mil jobs. It is expected to rise by 1.9% in 2017, equals to 297.896 Mil jobs, and rise by 2.5% annually to 381.7 Mil jobs in the next ten years (2027), equals to 11.1% of total world employment (WTTC, 2017). In Japan, the valid observation illustrates the same trend of increasing contribution of tourism in term of GDP. In 2016, the total contribution of tourism to GDP was JPY37,326.9 bn (USD343.2bn), equaled to 7.4% of GDP, and is forecasted to rise by 2.4% in 2017 and to rise by 1.4% annually to JPY 43,837bn (USD403.1bn), equals to 8.2% of GDP in 2027. In term of employment, the total contribution of tourism was 6.9%, equaled to 4.474 Mil jobs in 2017 and tends to fall by 1.6% in 2017. In the next ten years, 2017, it is expected to rise by 1% annually to 4.854 Mil jobs, equals to 7.6% of total employment of the economy (J. WTTC, 2017).

Despite the significant role of tourism in the economies is attracted by many researchers, the exploring the answers for the questions of which factors support the development of tourism so that

tourism can contribute greatly to the economy is not comprehensively figured out (Van Truong and Shimizu, 2017). Furthermore, although the roles of transportation on the tourism are acknowledged widely in the literature, the empirical studies on the impacts of transportation on tourism in the macroeconomic (intersectoral) view point are rarely found. The study conducted the survey in the literature on the application of Computable General Equilibrium (CGE) Model and stated that up to date, there are two studies out of 69 studies found deal with the relationship between transportation and tourism. The first one is for Hawaii by Konan and Kim (2003). The study imposed some scenarios of changes in tourism expenditure items and found the responses in transportation industries rather than finding the role of transportation on tourism. The second study is for Tanzania by Kweka (2004). The study said that the improvement of transportation infrastructure efficiency can benefit the economy and tourism in two ways in general, first is the reduction of transportation cost to the tourist destinations; second is the improvement of the accessibility to tourist attractions may encourage the growth of tourism. The roles of different transportation types, such as freight and passenger, as well as modes, for instance road, air, rail, and water were not considered in the studies.

To address this gap in empirical studies, the objectives of this research are to employ conventional Input-Output model to identify the linkage between transportation and tourism industries, then to study on the economic impacts of transportation policies on tourism promotion. These analyses are based on the inter-sectoral database for transportation-tourism analysis such as transportation – tourism Input-Output table and Social Accounting Matrix (SAM) developed from original 518 Rows x 397 Columns Input-Output table of Japan in cooperation with the information from tourism consumption trend survey.

The study steps forward to figures out the differences in economic roles of different transportation types (freight, passenger) and modes (air, road, rail, water) on the tourism industry, which have not been acknowledged before. The reduction of freight transportation cost may reduce the price of tourism commodities and services. On the other side, the reduction of passenger transportation cost encourages the tourist arrivals. The tourism expenditure for services and commodities will be then stimulated by both freight and passenger transportation. This multiple effect of freight and passenger transportation is clearly discussed in this research with inbound tourism sector. This spread effect of passenger transportation cost to the tourism services and commodities is also considered as a contribution of the research to the literature.

The results of research for Japan as case study indicate that the responses of each types of tourism, for example, domestic, outbound and inbound tourism to each type of transportation modes (air, road, water, rail) are different. The inbound and outbound tourism are very sensitive to the air transportation policies. For instance, the reduction of 20% of air transportation cost can stimulate 15.57% demand and 15.59% gross output of inbound tourism while those of road, water and rail transportation only stimulate less than 0.5% demand and gross output. In the same manner with

inbound tourism, outbound tourism rises 6.32% demand and 3.14% gross output along with the reduction of 20% of air transportation cost while the reduction of 20% cost of road, water, and rail transportation encourage only less than 0.5% of its demand and gross output. In contrast to inbound and outbound tourism, road and railway are more powerful than air transportation to domestic tourism. The reduction of cost of railway transportation can rise 1.74% demand and 2.56% gross output of domestic tourism; the same amount of reduction in road transportation cost can increase 1.12% demand and 1.07% gross output of domestic tourism. Although Japan is covered with ocean at four sides, the water transportation is minority for tourism. Its cost reduction of 20% can stimulate only 0.22% demand and 0.21% gross output of domestic tourism; these figures for outbound tourism are 0.05% and 0.07%; and for inbound tourism are 0.12% and 0.02% demand and gross output.

The research concludes that transportation is pivotal for tourism. Although this statement is acknowledged in many theoretical studies, this study concludes with the numeric evident from IO model that transportation is the first of top ten consumers and the fifth or sixth of top ten suppliers. The use of CGE model clarifies the shocks in transportation sectors greatly impact on tourism. At the end, some critical research areas will be proposed for future, such as consideration of different behavior of tourist (recreational, business) along with the changes in transportation policies; and since tourism is special industry that its activities are stick with transportation, so the integrating transportation models into CGE models is critical to understand more precisely the impacts of transportation on tourism.

The dissertation is organized in six main chapters, not including the introduction and the conclusion parts. The first chapter theoretically introduces on the role of transportation on tourism development. The second chapter will conduct the survey in literature to clarify to what extend the CGE model is applied. Chapter 3 aims at developing the database (IO table and SAM) for the study. Chapter 4 employs IO model to prove that transportation and tourism are strongly linked. Chapter 5 proposes a theoretical framework to integrate transportation model into CGE model at regional and inter-regional level. Chapter 6 uses CGE model with the injection of transportation cost changes (as cases of transportation policy shocks) to examine the economic impacts of different transportation modes on different tourism types. The conclusions and further research recommendations is expressed in the last part of the dissertation.