
Kantaro TAKAHASHI

Doctoral Student of Tokyo Metropolitan University

Determinants to Configure the Economy of Tourist Industries for the Tourism-Led Growth Hypothesis

This study addresses the configuration of economies dominated by the tourism industry and investigates whether tourism-led growth applies to them. The results show that small countries tend to base their economy largely on tourism. High tourism industry shared countries are also likely to have low economic openness and established domestic markets. Additionally, economically booming countries are unlikely to be tourism-dominated. In summary, the tourism-led growth hypothesis applies to small countries with established domestic economies and limited economic openness, while it may not apply to developing countries, especially those in the process of an economic boom.

Keywords: Tourism economic impact; Tourism-led growth hypothesis, Binary Model, Small States Economies

Kantaro TAKAHASHI

Doctoral Student of Tokyo Metropolitan University

Graduate School of Urban Environmental Science

Department of Tourism Science

1-1 Minamioosawa,

Hachioji, Tokyo, 192-0379,

Japan

Phone: 070-5408-6986

Email: kanta69s@gmail.com

Kantaro Takahashi is a Ph.D. student at the Department of Tourism Science, Graduate Schools of Urban Environmental Science, Tokyo Metropolitan University. He mainly studies econometrics and tourism economics. His Ph.D. studies explore small island economies and tourism.

Introduction

From a macroeconomic perspective, the tourism-led growth hypothesis is an important concept in tourism economics. According to this hypothesis, international tourism can drive a country's entire economy by generating employment, bringing in foreign currency, and increasing tax revenue, equating to profit for the country. Many researchers have attempted to empirically analyze how tourism relates to economic growth by using econometric approaches (Song, Dwyer, Li, & Cao, 2012).

Time series methods such as Vector Autoregression (VAR) or panel data techniques such as Fully Modified Ordinary Least Squares (FMOLS) are popular approaches, but estimation results are different in each of the cases. Some studies confirm the bi-directional relationship between tourism development and economic growth (Dritsakis, 2004; Kim & Chen, 2006). Others indicate that either tourism development boosts the economy or tourism development occurs as a result of economic growth (Oh, 2005; Lee & Chang, 2008; Seetanah, 2011; Shahzad, Shahbaz, Ferrer, & Kumar, 2017). These studies suggest that this hypothesis is unlikely to apply to all regions and countries and discuss why the estimation results may vary (Oh, 2005; Kim et al., 2006). In other words, the tourism-led growth hypothesis is likely to apply to regions in which the tourism sector has a significant effect on the economy.

However, the findings of these studies are based on comparative analyses with their case regions and previous works. Hence, this study presents an empirical analysis drawing from cross-sectional comparisons using a rich dataset to identify the regions in which the tourism industry has a significant effect on the economy. By doing so, the study attempts to develop the discussion on the tourism-led growth hypothesis. This study aims to compose a statistical model to show the configurations of the regions in which the tourism sector strongly affects the economy. This perspective contributes to the literature on tourism-led

growth and can have policy implications for regions that attempt to achieve economic growth by strengthening the tourism industry.

Literature Review

In some studies, the reason for different results can be attributed to differing economic structures. Regions with a higher economic contribution from the tourism industry are likely to demonstrate the tourism-led growth hypothesis compared with those with few outputs from the tourism industry, such as Spain (Balaguer & Cantavella, 2002). Similarly, in the case of Greece, which has a high national income from international tourism, there is a bi-directional relationship between international tourism earnings and economic growth, as demonstrated by the error correction model (Dritsakis, 2004). Moreover, Kim et al. (2006) find a bi-directional relationship between tourism expansion and economic development in Taiwan.

On the other hand, the case of Korea indicates a unidirectional relationship of economic-driven tourism growth (Oh, 2005). Furthermore, Lee et al. (2008) confirm that tourism development has a significant impact in countries that are not a part of the Organization for Economic Co-operation and Development (OECD) than in those that belong to the OECD; non-OECD countries demonstrate a bi-directional relationship, while OECD countries show a unidirectional relationship between tourism development and economic growth. Chou (2013) also compares ten transition countries in Eastern Europe with a panel causality analysis. Even though all of the regions have similar social situations, four different types of relationships are obtained. Also, Shahzad et al. (2017) found a positive relationship between tourism and economic growth in the top ten tourist destinations by using a quantile-on-quantile approach, with some destinations indicating only a weak relationship.

To explain the mixed results surrounding this subject, previous studies refer to various

determinants such as the size of the market, the degree of openness, and dependence on tourism. In particular, the size of the market has been considered as the most important determinant by several studies. Small states particularly tend to configure their economic structures as dependent on the service sector (Armstrong & Read, 1995; Armstrong, De Kervenoael, Li, & Read, 1998). Briguglio (1995) highlighted the economic vulnerabilities of small states and argued that small states have scarce natural resources and low inter-industry linkage; thus, most of the products depend on the import-oriented economy. While small states may rely heavily on imports, they must also improve their export capabilities, but manufacturing is disadvantaged for small states due to high costs per unit (Briguglio, 1998). Therefore, the revenue of inbound tourism is important for the economy of these regions as tourism is considered as service export trade.

The impact of tourism is significant in small states such as island regions. Narayan, Narayan, Prasad, and Prasad (2010) used a panel data analysis to scrutinize data pertaining to Pacific Island countries such as Fiji, Tonga, the Solomon Islands, and Papua New Guinea and confirmed the relationship between tourism development and economic growth. Moreover, Seetanah (2011) examined the economic impact of tourism using a dataset of 19 islands and confirmed that tourism has a higher impact on the economies of these islands than other industries. He also found a bi-directional relationship between economic growth and tourism development in the islands.

Economic openness by the degree of international trade also affects the economic structures that effect of the international tourism sector is higher than other industries. Tourism is categorized as a service trade, and the export revenue from tourism is expected to contribute to the regional economy. However, Adamou and Clerides (2010) found the limitation of economic growth with tourism specialization structures and pointed out that other economic activities must be developed to augment economic growth. Moreover, some

studies use the term “Dutch disease” or “Beach disease” to refer to the economic problems associated with the specialization of one export industry. These terms describe an economic phenomenon wherein the development of a specific sector, and thus increased foreign inflows, has a negative impact on other sectors. This phenomenon would occur if a region depended on one of specific export economy in international trade marketing.

Nowak and Sahli (2007) showed that increased inbound tourism might lead to net welfare losses when there is intensive use of coastal land. They also argued that intensive land use might lead to a decline in residential welfare due to excessive environmental costs. Furthermore, Sheng and Tsui (2009) studied the case of Macao and found that rapid tourism development may have a negative effect on sustainable development and reduce the net welfare of the community. These studies estimated the social-environmental and economic impact of destinations and mostly focused on the negative impact of tourism on community welfare, for instance, the inflation effect and environmental transition. On the other hand, using panel data, Holzner (2011) found that there was no danger of a "Beach disease" effect for 134 countries over a period of 38 years. He argued that tourism-dependent countries rather had higher economic growth than those dependent on industrialization. Previous studies help to highlight that the issue of specialized economic problems is still a controversial subject.

This study utilizes a statistical model based on these previous works. First, market size is considered, since small countries tend to depend on the tourism industry as one of their main industries. Second, analyzing economic openness is necessary to determine whether the tourism industry becomes the main economic activity in countries that show a stronger dependency on international trade than on the domestic economy. Moreover, specialization in an export industry would have the economic impact of the “Dutch disease” phenomenon. Although the results of previous studies were varied, social-environmental and economic

factors such as price effect and land development were considered to investigate the relationship between a tourism-specialization economy and the impact on the host community.

Data Description

To identify whether the tourism sector affects the economy of a region, this study refers to the World Factbook and data from 2016. Although the World Factbook site provides a general profile of the countries worldwide, the main industries of these countries are also specified. This source “provides a rank ordering of industries starting with the largest by value of annual output” (CIA World Factbook, 2017). In this list, larger industries are indicated along with the ranking, and “Tourism” is one of the categories on the list (see appendix 1). The total number of countries included is 168, of them, 51 countries regard tourism as one of the important industries. This study uses and transforms this information into binary data as the response variables for the statistical estimation model.

Methodology

Binomial modeling was carried out since the response variable is transformed into binary data. In the binomial model, the estimation method is diversified. Both logit and probit models are representative for binary data. While the logit model considers the logit distribution in the error term of the estimation model, the probit model considers the normal distribution. Although both consider different probability distributions for the error term of the model, it is well-known that the shape of the distribution is similar. In this study, both probit and logit models are used for robustness. The estimation formula is presented below.

$$Pr (Y_i=1) = F (POP_i, Density_i, OPEN_i, INFLATIONRATE_i, English_i, Heritage_i) \dots 1$$

The explanatory variables are also extracted from the World Factbook. The year of

data is 2016. "POP" represents the number of populations as a variable of the size of the market. Previous studies show that tourism affects the economy of small states such as islands; thus, a negative sign is expected for this variable. "Density" is a variable that represents population density to show the degree of land development. Land development such as infrastructure facilities would be significant for tourism industries, and thus, this variable would have a positive sign. This might be effective for tourism industries so that international tourism demand can influence tourism development. "OPEN" indicates the degree of economic openness. Previous works find that economic openness affects the applicability of the tourism-led growth hypothesis. This variable is measured by the sum of ratios of each of imports and exports to GDP (Import (as % of GDP) + Export (as % of GDP)). This variable would be significant. "INFLATIONRATE" shows the price effect. "English" shows the language effect referred to in the database of Centre d'Études Prospectives et d'Informations Internationales (CEPII), an international institution for economic research that provides data for economic analysis. This study refers to the database created by Mayer and Zignago (2011). Meanwhile, "Heritage" represents the number of world heritage sites extracted from the database of United Nations Educational, Scientific and Cultural Organization (UNESCO) as a proxy of tourism attractions. These variables are expected to have a positive sign in the estimation model.

Table 1 Estimation Result

	Logit		Probit	
	Coefficient	Marginal Effect	Coefficient	Marginal Effect
const	6.971 *** [2.002]		3.955 *** [1.150]	
POP	-0.583 *** [0.141]	-0.100	-0.335 *** [0.079]	-0.102
Density	0.331 *** [0.110]	0.056	0.205 *** [0.066]	0.062
OPEN	-1.916 * [1.069]	-0.326	-1.151 * [0.602]	-0.351
INFLATIONRATE	-0.115 ** [0.053]	-0.020	-0.065 ** [0.030]	-0.020
English	1.119 ** [0.444]	0.213	0.652 ** [0.258]	0.215
Heritage	0.074 *** [0.022]	0.013	0.043 *** [0.013]	0.013
Log-likelihood	-78.124		-78.435	
AIC	170.247		170.870	
n	168		168	

Note: Robust standard errors are in parentheses

Significance level: *: p<0.1; **: p<0.05; *: p<0.01**

Results

Table 1 shows the estimation results of both the probit and logit models. The variable of "POP" shows negative in both models. When the population size increases by 1%, the probability that the region has an economy strongly related to the tourism industry decreases by about 0.10%. Thus, small markets tend to have an economy strongly related to the tourism industry. "Density" also has a significant and positive coefficient. The marginal effect is around 0.06. The result shows that the degree of land development, such as infrastructure facilities, is also shown to be significant. "OPEN" indicates the degree of economic openness and has a negative coefficient. The marginal effect is around -0.33 to -0.35 in each of the models.

This result suggests that regions with an economy strongly related to the tourism

industry have a steady domestic market as well as international trade economy. This implies that the “Dutch disease” phenomenon is unlikely to occur in such regions, as shown by Holzner (2011). “INFLATIONRATE,” which indicates the price effect, shows a negative coefficient, implying that the price effect is significant for determining whether a region has an economy which is strongly related to the tourism industry. “English,” which represents the language effect, is significant and positive. Moreover, the variable of “Heritage” indicated as a proxy of tourism attractions has a positive and significant coefficient.

Discussion

This study found that small states tend to hold the economic structure strongly related to the tourism industry. This result shows that small states would depend on tourism as one of the main industries. This tendency may lead to economic problems, such as the "Dutch disease" phenomenon, wherein other domestic industries receive a negative impact on account of a region's dependence on a specific industry for international export. The estimation results, however, show that the variable of land development is positive while that of economic openness is negative. This result implies that states configured to economies related to the tourism industry are likely to have a certain domestic economic market, as demonstrated by Holzner (2011). Therefore, the “Dutch disease” phenomenon is unlikely to occur in regions where tourism as an international service trade affects the economy, because they own the other domestic products except tourism service.

The result of the price effect in the estimation model suggests that the countries with an increasing cost of living are less likely to configure their economies with a strong tourism industry. Previous works have shown that developing countries have a stronger relationship between tourism development and economic growth than developed countries (Lee et al., 2008). Besides, Eugenio- Martín, Morales, and Scarpa (2004), who analyzed the effect of

tourism on economic growth in Latin American countries, also claim that the tourism sector is adequate for the economic growth of medium and low-income countries, though not necessarily for developed countries. Meanwhile, the inflation rate tends to indicate high value when countries are developing, especially in medium and low-income countries. Hence, this result suggests that the relationship between tourism development and economic growth may not exist in all developing states, especially in countries experiencing an economic boom.

Tourism attraction certainly is a significant factor to configure the economy of a country with a strong tourism industry because the demand for tourism would increase if the destination has more attractions. This study considers the number of world heritage sites as the proxy of tourism attractions, suggesting that attractiveness is important to configure the relationship between tourism development and economic growth.

Conclusion

This study uses a statistical model and attempts to identify the determinants in configuring an economy dependent on the tourism industry to discover the applicability of the tourism-led growth hypothesis. The results show that small countries are likely to have an economic structure dependent on the tourism industry. Moreover, this study investigates these countries' degree of economic openness. Previous studies suggest that economic difficulties such as the "Dutch disease" phenomenon may occur in small countries, since their economies depend heavily on specialized export industries. However, our study confirms that countries strongly dependent on the tourism industry have low international trade dependency and high land development. This result confirms that countries that configure their economies relating to the tourism industry are likely to have established domestic markets and economic difficulties, such as the "Dutch Disease," phenomenon are unlikely to occur. Therefore, this study

remarks that the tourism-led-growth hypothesis is likely to apply to small states which have a steady domestic as well as international market.

Although this study showed that domestic markets are important for the development of the international tourism sector, it is necessary to examine the relationship between the tourism sector and other domestic economic sectors of the regional economy. Future research should discuss the combination of industries that should associate with the tourism sector for economic policy.

References

- Adamou, A., & Clerides, S. (2010). Prospects and Limits of Tourism-Led Growth: The International Evidence. *Review of Economic Analysis*, 2(3), 287-303.
- Armstrong, H., & Read, R. (1995). Western European micro-states and EU autonomous regions: the advantages of size and sovereignty. *World Development*, 23 (7), 1229-1245.
- Armstrong, H., De Kervenoael, R. J., Li, X., & Read, R. (1998). A comparison of the economic performance of different micro-states, and between micro-states and larger countries. *World Development*, 26 (4), 639-656.
- Balaguer, J., & Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied Economics*, 34 (7), 877-884.
- Briguglio, L. (1995). Small island developing states and their economic vulnerabilities. *World Development*, 23 (9), 1615-1632.
- Briguglio, L. P. (1998). Small country size and returns to scale in manufacturing. *World Development*, 26(3), 507-515.
- Chou, M. C. (2013). Does tourism development promote economic growth in transition countries? A panel data analysis. *Economic Modelling*, 33, 226-232.
- CIA World Factbook (2016) Retrieved from <https://www.cia.gov/library/publications/the-world-factbook/> / accessed 2017 February 12
- Dritsakis, N. (2004). Tourism as a long-run economic growth factor: an empirical investigation for Greece using causality analysis. *Tourism Economics*, 10 (3), 305-316.
- Eugenio-Martín, J., Martín Morales, N., & Scarpa, R. (2004). Tourism and economic growth in Latin American countries: A panel data approach. *Social Science Research Network Electronic Paper*
- Holzner, M. (2011). Tourism and economic development: The beach disease? *Tourism Management*, 32 (4), 922-933.
- Kim, H. J., & Chen, M. H. (2006). Tourism expansion and economic development: The case of Taiwan. *Tourism Management*, 27 (5), 925-933.
- Lee, C. C., & Chang, C. P. (2008). Tourism development and economic growth: A closer look at panels. *Tourism Management*, 29 (1), 180-192.
- Mayer, T., & Zignago, S. (2011). Notes on CEPII's distances measures: The GeoDist database. Retrieved from http://www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=6/ accessed 2017 February 12
- Narayan, P. K., Narayan, S., Prasad, A., & Prasad, B. C. (2010). Tourism and economic growth: a panel data analysis for Pacific Island countries. *Tourism Economics*, 16 (1), 169-183.
- Nowak, J. J., & Sahli, M. (2007). Coastal tourism and 'Dutch disease' in a small island economy. *Tourism Economics*, 13 (1), 49-65.
- Oh, C. O. (2005). The contribution of tourism development to economic growth in the Korean economy. *Tourism Management*, 26 (1), 39-44.
- Seetanah, B. (2011). Assessing the dynamic economic impact of tourism for island economies. *Annals of Tourism Research*, 38 (1), 291-308.
- Shahzad, S. J. H., Shahbaz, M., Ferrer, R., & Kumar, R. R. (2017). Tourism-led growth hypothesis in the top ten tourist destinations: New evidence using the quantile-on-quantile approach. *Tourism Management*, 60, 223-232.

Sheng, L., & Tsui, Y. (2009). A general equilibrium approach to tourism and welfare: The case of Macao. *Habitat International*, 33 (4), 419-424.

Song, H., Dwyer, L., Li, G., & Cao, Z. (2012). Tourism economics research: A review and assessment. *Annals of Tourism Research*, 39 (3), 1653-1682.

UNESCO (2017) Retrieved from <http://whc.unesco.org/en/list/stat> accessed 2017 October 24

Appendix1 List of countries

Yi=1		Yi=0			
Antigua and Barbuda	Mexico	Albania	Equatorial Guinea	Namibia	Uganda
Austria	Morocco	Algeria	Eritrea	Netherlands	Ukraine
Bahamas, The	New Zealand	Angola	Estonia	Nicaragua	United Arab Emirates
Bahrain	Paku	Argentina	Ethiopia	Nigeria	United States
Barbados	Papua New Guinea	Armenia	Finland	Niger	Uruguay
Belize	Saint Kitts and Nevis	Australia	Gabon	Norway	Uzbekistan
Bhutan	Saint Lucia	Azerbaijan	Georgia	Oman	Vanuatu
Bosnia and Herzegovina	Saint Vincent and the Grenadines	Bangladesh	Germany	Panama	Venezuela
Botswana	Seychelles	Belarus	Ghana	Paraguay	Vietnam
Cambodia	Spain	Belgium	Guinea-Bissau	Peru	Yemen
Comoros	Sri Lanka	Benin	Guinea	Philippines	Zambia
Croatia	Switzerland	Bolivia	Guyana	Poland	Zimbabwe
Cyprus	Thailand	Brazil	Haiti	Portugal	
Dominica	Tonga	Brunei	Honduras	Qatar	
Dominican Republic	Tunisia	Bulgaria	Hungary	Romania	
Egypt	United Kingdom	Burkina Faso	India	Russia	
Fiji		Burma	Iran	Rwanda	
France		Burundi	Iraq	Sao Tome and Principe	
The Gambia		Cabo Verde	Ireland	Saudi Arabia	
Greece		Cameroon	Israel	Senegal	
Grenada		Canada	Japan	Serbia	
Guatemala		Central African Republic	Kazakhstan	Sierra Leone	
Iceland		Chad	South Korea	Singapore	
Indonesia		Chile	Kuwait	Slovakia	
Italy		China	Kyrgyzstan	Slovenia	
Jamaica		Colombia	Latvia	South Africa	
Jordan		Democratic Republic of the Congo	Liberia	Sudan	
Kenya		Republic of the Congo	Lithuania	Suriname	
Laos		Costa Rica	Malawi	Swaziland	
Lebanon		Cote d'Ivoire	Malaysia	Sweden	
Lesotho		Czechia	Mali	Tajikistan	
Luxembourg		Denmark	Mauritania	Tanzania	
Madagascar		Djibouti	Moldova	Togo	
Malta		Ecuador	Mongolia	Trinidad and Tobago	
Mauritius		El Salvador	Mozambique	Turkmenistan	

Note: Yi=1: Tourism is cited as one of the main industries. Yi=0: Tourism is not cited as the main industry. The definition is based on World Factbook Criteria. The explanation is provided in the text.