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Introduction

The past three decades have witnessed the dramatic growth of global tourism demand. According to the United Nation World Tourism Organization (UNWTO, 2018c), international tourist arrivals increased by 7% in 2017, leading to a record of 1326 million arrivals all over the world, and contributing to growth of 5% of international tourism receipts. Tourism's sustained growth brings immense opportunities for economic welfare and development (UNWTO, 2018b), which drives different destinations to improve competitive advantage of their tourism industry for larger market share. The term competitiveness has thus become increasingly important both from an academic perspective and a policy perspective.

In tourism literature, competitiveness refers to the destination's ability to attract tourist arrivals and raise tourism expenditure (Ritchie & Crouch, 2003). Many previous studies have shed light on the identification of various competitiveness indicators. However, these studies failed to empirically examine the contribution of these indicators to tourism development. This paper intends to bridge this gap and investigate the relation between competitiveness of destination and tourism demand. The investigation will also reveal that competitiveness indicators can be more general than what have been discussed in the previous studies. Paying attention to those general indicators will benefit the development of destinations and contribute to the policy making.

Literature Review

The research on tourism destination competitiveness continues to expand due to intensified competition between destinations, concerns over limited resources, and recognition of competitiveness as a critical success factor (Novais, Ruhanen, & Arcodia, 2018). Most of the related studies focus on the identification or classification of Competitiveness Indicators. For example, Dwyer, Mellor, Livaic, Edwards, and Chulwon (2004) apply factor analysis to extract 12 indicators of destination competitiveness, including Destination Management, Nature-Based and Other Resources, Heritage Resources, Quality Service, Efficient Public Service, Tourism Shopping, Government Commitment, Location and Access, E-business, Nightlife, Visa Requirement, and Amusement Park. Murphy, Pritchard, and Smith (2000) believe that some macro factors, such as environment conditions and infrastructure, also influence tourists' assessment of a destination's competitiveness. Ritchie and Crouch's conceptual model (Ritchie & Crouch, 2003), which is structured in two layers, is very influential and provides a feasible and comprehensive tool for competitiveness analysis (Hong, 2009).

Among these various studies, the most commonly cited definition of destination competitiveness is "ability to increase tourism expenditure, to increasingly attract visitors while providing them with satisfying, memorable experiences, and to do so in a profitable way, while enhancing the

well-being of destination residents and preserving the natural capital of the destination” (Ritchie & Crouch, 2003). This definition points at a wide range of indicators of destination. In addition, destination competitiveness is related to an overall experience which entails different products and services provided by a variety of destination stakeholders (Novais et al., 2018). This makes competitiveness analysis for tourism industry become more complicated and suggests a wider range of indicators. Rested on the aforementioned studies, Hong (2009) develops a systematic framework of destination competitiveness, which includes global environment, domestic environment, comparative advantages, competitive advantages, and tourism management. While the latter three are tourism-specific, this framework takes into account the generate indicators. These general indicators also represent the national competitiveness in economic domain, which is defined by World Economic Forum (WEF) as the set of institutions, policies, and factors that determine the level of productivity of a country (WEF, 2017). However, not all the competitiveness indexes in economic domain have been included, so the framework can still be extended.

Although many factors have been highlighted as competitiveness indicators, the empirical tests of the link between these factors and tourism demand are very rare. Andradescaldito, Sanchezrivero, and Pulidofernandez (2014) initiate the investigation of the relation between competitiveness and tourist behaviors. However, they only examine the effects of tourists’ evaluation of limited resources and perception about destination management. Andrades and Dimanche (2017) has linked destination competitiveness to tourism development, but they have not analyzed the influence of competitiveness on tourism development. Instead, they consider the changes of destination competitiveness as the signal of tourism development. This paper attempts to add to the existing research by exploring the link between various general competitiveness indicators and tourism demand. Beyond contributing to the academic literature, the paper also aims at providing policy makers with suggestions about how to enlarge the market share in tourism industry.

Methodology

It is very common to use small sample sizes in past empirical tourism research, especially with annual time series data (Christine Lim, Zhu, & Koo). Nonetheless, this practice has rendered the parameter estimates as imprecise (C Lim, 2006). The appropriate use of panel data model can address these problems. Therefore, this paper applies panel data model to evaluate the effect of destination competitiveness on tourism demand, and the dataset consists of a balanced panel of 888 annual observations on 111 destinations for 2009 to 2016. The relationship between international travel demand for the 111 destinations and competitiveness factor is expressed as follows:

$$\ln VA_{it} = \alpha + \beta GCI_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

$\ln VA_{it}$, the logarithm of international tourist arrivals, is used as the dependent variable in this paper. The explanatory variable GCI_{it} is the general competitiveness indicator and is measured by the global competitiveness index. This index, generated by WEF annually, is the average of

three subindexes covering 12 pillars (WEF, 2018). Each pillar contains several items¹ which rest on solid theoretical grounds (WEF, 2015). Therefore, the GCI provides a comprehensive picture of the competitiveness landscape. To deepen the discussion of competitiveness-demand relationship in tourism industry, Equation (1) can be extended by replacing GCI_{it} with the three subindexes:

$$\ln A_{it} = \alpha + \beta_1 \text{BasicRequirements}_{it} + \beta_2 \text{EfficiencyEnhancers}_{it} + \beta_3 \text{InnovationFactors}_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

where the basic requirements subindex (BasicRequirements) groups those pillars related to factor endowments. It covers 4 pillars, namely Institutions, Infrastructure, Macroeconomic Environment, and Health and Primary Education. The efficiency enhancers subindex (EfficiencyEnhancers) includes the pillars contributing to product quality and efficiency of production processes. The pillars under this subindex are Higher Education and Training, Goods Market Efficiency, Labor Market Efficiency, Financial Market Development, Technological Readiness, and Market Size. The innovation factors subindex (InnovationFactors) includes the Business sophistication and R&D Innovation pillars, which guarantee higher wages and living standard. More details of the three subindexes can be found in (WEF, 2015).

The data of international tourist arrivals are collected from the World Bank; the data of global competitiveness index and subindexes are obtained from the global competitiveness reports published annually by WEF. We apply three panel data models: a pooled OLS regression model, a fixed effects (FE) model, and a random effects (RE) generalized least squares regression model. The F test and Hausman test are conducted for the comparison of the three models.

Results

The descriptive statistics of all variables are reported in Table 1. Results indicate an average tourist arrivals of 8751967 (SD=14300000). The mean value of global competitiveness index is 4.31, with the smallest 2.58 given to Burundi in 2009 and the largest 5.81 given to Switzerland in 2016. On average, the basic requirements, efficiency enhancers and innovation factors indexes are 4.65, 4.22 and 3.85, respectively.

Table 1. Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max
VA_{it}	8751967	14300000	70000	84500000
GCI_{it}	4.31	0.65	2.58	5.81
$\text{BasicRequirements}_{it}$	4.65	0.79	2.49	6.37
$\text{EfficiencyEnhancers}_{it}$	4.22	0.67	2.50	5.85
$\text{InnovationFactors}_{it}$	3.85	0.78	2.31	5.80

¹ All items are measured by a 7-point scale in the Executive Opinion Survey, which is conducted annually by WEF and its partner institutes and captures the opinions of business leaders around the world on a broad range of topics.

Estimations for the proposed models are presented in Tables 2 & 3. Fixed effects testing provides an F test of the null hypothesis that the unobserved individual effects are constant across destinations (or null of no fixed effects). In both tables, the F tests following the regressions and the associated p values lead to the rejection of the null. We conclude that the demand model should be estimated by the FE regression (rather than the pooled OLS estimation) to produce consistent parameter estimates.

To determine if the use of FE model is appropriate, we also conduct the Hausman test of the null hypothesis that there is no correlation between the fixed effect parameters and the explanatory variables. Rejection of the null hypothesis at the 5% level is taken to mean the FE estimator is more efficient. The Hausman χ^2 test statistics in Tables 2 & 3 provide support for the use of FE model.

Based on the results of the FE model in Table 2, the GCI variable yields a significantly positive coefficient, indicating that the increase of national competitiveness, even in the general economic domain, stimulate tourism demand for the corresponding destination. Further insights can be obtained from the results of the FE model in Table 3. The basic requirements and efficient enhancers indexes positively and significantly affect international tourism demand, while the coefficient of innovation factors index is not significant. This shows that the current development of tourism industry still relies on the traditional factors, while innovation activities have not benefited the modern tourism business.

Table 2. Regression Results for Equation (1)

Dependent Variable: $\ln VA_{it}$			
Variable	Pooled OLS	Fixed Effects (FE)	Random Effects (RE)
Constant	8.43***	12.01***	11.54***
GCI_{it}	1.51***	0.68***	0.79***
F test	$F(110, 776) = 254.89, \text{Prob} > F = 0.00$		
Hausman test	$\chi^2(1) = 21.14, \text{Prob} > \chi^2 = 0.00$		

Note:

F test has the null hypothesis of pooled OLS versus Fixed Effects (H1);

Hausman test has the null hypothesis of random effects versus Fixed Effects (H1);

*Significant at 5%;

**Significant at 1%;

***Significant at 0.1%.

Table 3. Regression Results for Equation (2)

Dependent Variable: $\ln VA_{it}$			
Variable	Pooled OLS	Fixed Effects (FE)	Random Effects (RE)
Constant	8.08***	11.70***	11.04***
BasicRequirements _{it}	-0.37**	0.39***	0.38***
EfficencyEnhancers _{it}	2.79***	0.39**	0.58***
InnovationFactors _{it}	-0.82***	-0.06	-0.08
F test	F(110, 774) = 229.23, Prob > F = 0.00		
Hausman test	$\chi^2(3) = 34.57$, Prob > $\chi^2 = 0.00$		

Note:

F test has the null hypothesis of pooled OLS versus Fixed Effects (H1);

Hausman test has the null hypothesis of random effects versus Fixed Effects (H1);

*Significant at 5%;

**Significant at 1%;

***Significant at 0.1%.

Conclusion and Discussion

This paper examines the relationship between competitiveness indicators and tourism demand. The results demonstrate that the national competitiveness is positively associated with international tourism demand. Moreover, the analysis of competitiveness subindexes proves the positive links from the basic requirements and efficient enhancers indexes to tourism demand, but not the impact of innovation factors index.

The tourism literature related to competitiveness can benefit from our research findings. Prior studies have identified various factors as competitiveness indicators for destinations, from both supply and demand perspectives. While the researchers claim that these factors are competitiveness indicators, they have not provided empirical evidence for this conclusion. Our paper fills this gap and adds to the existing literature. Additionally, although researchers have noticed that the competitiveness indicators can be both general and tourism-specific, the indicators they consider are still limited. The national competitiveness indexes, which are not tourism-specific, are shown to be connected to growth of tourism demand and development of tourism industry in our analysis, and thus should be included in the general competitiveness indicators category.

Besides theoretical contribution, our paper has policy relevance as well. Many countries are looking for opportunity to enhance their attractiveness as tourism destinations. These countries

should not only raise their investments in tourism businesses, but also improve their factor endowments and efficiency of production process. As innovation continues to present its power in accelerating global economic development, policy makers and business practitioners should turn to innovation for the sustainability and prosperity of tourism industry. Actually, authorities such as World Tourism Organization (UNWTO) has realized the importance of innovation for tourism, and keep encouraging innovation in different destinations. UNWTO (2013) has cooperated with the Swedish Travel and Tourism Industry Federation (RTS) to drive a tourism innovation project to a global level. The organization also announces the Ulysses Awards for Innovation in Tourism each year. In the celebration of World Tourism Day 2018, UNWTO spotlights digital transformation and innovation in tourism, which is a UNWTO priority (UNWTO, 2018a). However, these efforts are still insufficient. The connection between innovation factors and tourism demand is still too weak to be tested. UNWTO and other related institutes can think about how to make technological innovation become tourism attractions and popularize innovation in tourism businesses. These attempts help to transform traditional sightseeing-based tourism into experienced-based tourism, which will contribute to the sustainable development of tourism.

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