CAUSAL RELATIONSHIPS AMONG LEISURE, BUSINESS TRAVEL ARRIVALS AND TOURISM DEVELOPMENT: EMPIRICAL EVIDENCE FROM KOREA

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ABSTRACT

This study examines the causal relationship between leisure, business travel arrivals and tourism growth in Korea. The Granger causality test is performed in order to reveal the direction of causality between tourist arrivals by different purpose and tourism development. Test results indicate that 1) a long-run equilibrium relationship between leisure and business travel arrivals exists, 2) a short run bi-directional causality between leisure travel arrivals and tourism growth exists, and 3) the growth of leisure travel arrivals is the catalyst for the growth of business travel arrivals. A discussion follows and managerial implications are identified based on the empirical findings.

Keywords: Leisure travel arrivals, business travel arrivals, tourism development, economic growth, Granger causality, Korea

INTRODUCTION

One global development during the recent world economic downturn has been the recognition of the tourism industry as a valuable national resource. The tourism industry has potential to incur positive economic, social and cultural effects. Effects include promotion of the national culture, vitalization of the local economy, as well as increased employment opportunities and disposable income. The tourism industry has been recognized as one of the new driving forces of economic growth. The importance of this industry directly results from the fact that it serves as a primary source for generating revenues, employment, private sector growth, and infrastructure development for many countries [1].

Through these benefits, tourism development not only stimulates the growth of the industry, but also triggers overall economic growth. Hence, boosting economic growth by developing the tourism industry has been frequently adopted as an important economic development strategy by many countries. Along with the increasing importance of the tourism industry for a country's economy, the issue of exploring the causality relationship between tourism development and economic growth has gained more academic attention.

Given the aforementioned reasons, Korea has been especially eager to promote tourism. Although Korea's rapid economic growth has been a result of an export-led economy, the tourism industry may be another contributing factor toward Korea's recent economic growth. According to the tourism research economic data of the World Travel and Tourism Council in 2009 [2], tourism in Korea contributed about US$63.1 billion to the GDP, 7.6% of the total economy. The tourism industry in Korea also supports about 8% of the total employment. Visitor exports, including expenditures by international visitors on goods and services within the economy, reached US$13.8 billion, which was 23.4% of the total exports in 2009. International visitors' spending includes both travel spending and spending on transportation as well as hospitality services. This spending takes into account tour, business, education, and diplomat arrivals as well as other arrivals (i.e. visiting friends and relatives, conference convention arrivals, etc.).

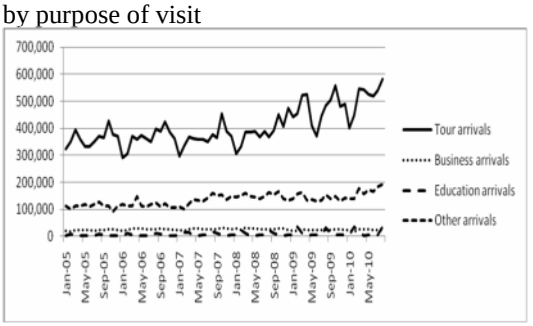
The Korean government has recently noticed the crucial role of tourism development in the path of green economic growth and is eager to promote its tourism internationally. The Green Growth Initiative is a policy that emphasizes environmentally sustainable economic progress to foster low-carbon and socially inclusive development in Korea. "Visit Korea Year 2010~2012," is a campaign for introducing the elegance and flavor of Korea to international tourists and was introduced as part of the green growth plan.

The aim of the campaign is to establish Korea as one of the most popular tourist destinations in the world. The Korea Culture and Tourism Institute (KCTI) publishes short-term international arrivals to Korea on a monthly basis. The data is collected from passenger cards that international visitors complete upon arrival into Korea. This card requests information including the purpose of the visit, demographics and trip details. According to a recent report of KCTI, total arrivals into Korea grew 57% from August 2005 to August 2010. Tour arrivals grew 57% during the same period while other arrivals also have grown significantly during the period (Figure 1).

Tour arrivals refer to international visitors who specified "sightseeing" on their passenger card as their primary reason for traveling.

Business arrivals refer to international visitors who specify "business" as their primary reason for traveling. Business travel comprises of business, work travel for transport crews, attendance at conferences, conventions, exhibitions, trade fairs, seminars, incentive group meetings, marketing events as well as training and research related to short-term employment. Education arrivals refer to international visitors who specified "education" on their passenger card as their primary reason for traveling.

Figure 1. Trends of international visitor arrivals by purpose of visit



Tourism growth as a result of tour promotions tends to occur when tour arrivals demonstrate a stimulating influence across the tourism industry and the overall economy. However, results of the empirical studies of the causality between tour events arrivals and overall tourism growth have been mixed in tourism literature. Accordingly, research results for the relationship between tour promotion and tourism growth are still inconclusive. Therefore, providing further evidence for generalizing research results will make a substantial and novel contribution to the literature. Since economic growth in Korea may also attract additional business travel arrivals, inductive logic suggests that business travel arrivals lead to tourism growth.

Consequently, it is hypothesized that the business events arrivals into Korea can be a strong causal component of tourism growth, contrasting the presumption that tour events arrivals drives tourism growth. This study performs a cointegration analysis to look for the existence of a long-run relationship and Granger causality tests between leisure travel arrivals, business travel arrivals and tourism growth in the short-run.

LITERATURE REVIEW

Analyzing the relationship between economic growth and tourism development has been a popular topic in recent tourism literature: [1] [3] [4] [5] [6] [7] [8] [9] [10] [11] [12]. However, researchers have reached mixed and sometimes conflicting results despite the common choice of time series techniques as the research methodology. Extending from the export-led economic growth hypothesis, Balaguer and Cantavella-Jorda [3] reported that the tourism-led economic growth hypothesis holds true. However, Oh [11] found no long-run equilibrium, but a one-way causal relationship for economic-led tourism growth in Korea. Using similar methods but a different proxy (leisure travel arrivals) for tourism development, Kim et al.'s [7] study yielded opposite results from Oh's. They found long-run equilibrium and bi-directional causality between economic growth and tourism development in Taiwan. Considering that Taiwan and Korea are similar in terms of export-led economic growth and tourism's role in the economy, in particular business arrivals, such conflicting results are unexpected.

Treating tourism as a single industry with similar goods and services could be one reason for the inconsistent results among existing studies. Since international visitor arrivals could have different relationships with tourism development, the overall relationship between visitor arrivals and tourism development could be influenced by the weight and strength of the link between tourism development and the growth of international visitor arrivals sectors. These visitor arrivals may influence or respond differently to the same economic events in terms of timing and magnitude due to the difference in their offerings.

Though there is no empirical study that examines directly the relationship between visitor arrivals and tourism development in the industry level, Uysal and Gitelson's study [13] and Chen's study [14] could provide an indication of the interaction between tourism events performances and tourism growth. Consequently, when the tourism related industries are pooled together, they might interact with the overall economy as a portfolio, whose overall performance is subject to the weights and performance of individual sectors. This in turn could cause the directional relationships between the portfolio of visitor arrivals and overall tourism growth to be unstable across countries since the weights and performance of individual visitor arrivals could be different.

Therefore, investigating the relationship between leisure travel arrivals and tourism growth on the sub-industry level could generate more precise outcomes on the causal dynamics between tourism promotion development and tourism growth. In addition, since extant studies have focused on the relationship between overall tourism growth and economic development, this study also fills a research gap in the literature by investigating the direction of the causality on the sub-industry level. Accordingly, the following hypotheses are considered:

Hypothesis 1: There is a long-run equilibrium relationship between leisure travel arrivals, business travel arrivals and tourism growth.

Hypothesis 2: The growth of leisure travel arrivals causes tourism growth.
Hypothesis 3: The growth of business travel arrivals causes tourism growth.
Hypothesis 4: The growth of business travel arrivals causes the growth of leisure travel arrivals.
Hypothesis 5: The growth of leisure travel arrivals causes the growth of business travel arrivals.

RESEARCH METHODOLOGY

Data

The most common unit of measure used to quantify the volume of international tourism for statistical purposes is the number of international visitor arrivals. For a proper understanding of this unit, two considerations should be taken into account: 1) Data refers exclusively to overnight visitors- a visitor who stays at least one night in a collective or private accommodation in the country visited, 2) Data refers to the number of arrivals and not to the number of persons (the same person who makes several trips to a given country during a given period will be counted as a new arrival each time). Figures on the volume of international tourism presented preferably relate to the concept of international visitor arrivals.

This study employs monthly time series data from January 2005 to August 2010 (68 observations). Based on data availability, the data on the output of total arrivals is used as a proxy of overall tourism growth, the number of tour events arrivals is used as a proxy of tour arrivals, and the number of business events arrivals is used as a proxy of business arrivals. The information about overall leisure travel arrivals and purpose of their visit were obtained from the travel and tourism knowledge information database of the Korea Culture and Tourism Institute (KCTI, http://stat.tour.go.kr/). The time series are seasonally unadjusted and, therefore, transformed in natural logarithm to minimize any possible distortions of dynamic properties of the data.

Unit Root Test

To ascertain the order of integration of the variables, this study applied the Augmented Dickey-Fuller (ADF: [15]) unit root test and the Phillips–Perron (PP: [16]) test. ADF and PP tests are carried to test the null hypothesis of a unit root in the level and the first difference of the variables. As Enders [17] indicated, the ADF test assumes the errors to be independent and have constant variance, while the PP test allows for fairly mild assumptions about the distribution of errors. Results of both ADF and PP tests for stationarity are reported in Table 1.

The null hypothesis of a unit root cannot be rejected in the level of the variables, except the business arrivals, but all null hypothesis of a unit root is rejected in the first difference of the variables. The results in Table 1 unanimously confirm that all variables are integrated of order one *I(1)*. The optimal lag in the ADF test is automatically selected based on the Schwarz Info Criterion (SIC) and the bandwidth for the PP test is selected based on the Newey-West estimator [18] using the Bartlett kernel function.

Table 1. Results of unit root test

	ADF t-statistic (lag length)		PP t-statistic (bandwidth)	
Variable X	lnX	ΔlnX	lnX	ΔlnX
Tourism growth	-2.263	-10.062*** (0)	-2.020	-12.289*** (11)
Tour arrivals	-2.472	-7.404*** (3)	-2.401	-15.696*** (26)
Business arrivals	-4.458***	-8.846*** (3)	-4.336***	-14.834*** (31)

Note: ln denotes the natural logarithm of the variable under consideration. Δ denotes the first difference of the variable under consideration. The test equations were tested by the method of least squares. The ADF and PP test equations include an intercept but no time trend in the model. For both the ADF and PP t-statistics, the probability value for rejection of the null hypothesis of a unit root are employed at the 1% level (***, p-value < 0.01) and the 5% level (**, p-value < 0.05) based on MacKinnon [27] one-sided p-values.

Cointegration Test

Time series variables may be cointegrated if there exists one or more linear combination among the variables. If these variables are cointegrated, then there exists long run equilibrium among the variables. In other words, if the variables are cointegrated there is a long-run relationship and there exists a force to converge into long-run equilibrium. There are two test methods to identify whether there exists a cointegrating relationship among variables. They are (a) the Engle-Granger single equation test method [19] and, (b) the Johansen-Juselius conintegration test [20]. Though the Engle-Granger method suffers from some shortcomings [21], this study applies the Engle-Granger method as a diagnostic purpose to test the null hypothesis of a unit root

for the residuals of cointegration.

All variables that have been used in the model reported as overall tourism growth (TG), tour events arrivals (TOUR) and business events arrivals (BIZ) are integrated of order one *I(1)*. The results of the Engle-Granger single equation test in Table 2 indicate that the null hypothesis of a unit root can be rejected at the 5% significance level (Table 2). In other words, series are cointegrated. Therefore, this study concludes that long-run equilibrium does exist between leisure travel arrivals, business travel arrivals and tourism growth.

Cheung and Lai [22] report that the Johansen approach is more efficient than the Engle and Granger single equation test method because the maximum likelihood procedure has good large and finite sample properties. Johansen [23] [24] considers a simple case where a time series is integrated of order one *I(1)*, such that the first difference of a time series is stationary. The Johansen cointegration test models each variable (which is assumed to be jointly endogenous) as a function of all the lagged endogenous variables in the system. To illustrate the unrestricted VAR cointegration test of Johansen, consider a general VAR model written in the error correction form with Gaussian errors.

The Johansen procedure uses two likelihood ratio tests, a trace test and a maximum eigenvalue test, to test for the number of cointegrating relationships. The order of *r* is determined by using the two likelihood ratio test statistics: (a) the trace statistic and (b) the maximum eigenvalue statistic. For the trace t-statistic, critical value for rejection of the null hypothesis of no cointegration is based on (t-value > 29.797) for $\gamma = 0$, (t-value > 15.494) for $\gamma \leq 1$, and (t-value > 3.841) $\gamma \leq 2$ at the 0.05 level. The trace statistic indicates there exists at least one cointegrating vector, which the null hypothesis of no cointegration can be rejected at the 5% significance level. For the maximum eigenvalue t-statistic, critical value for rejection of the null hypothesis of no cointegration is based on (t-value > 21.131) for $\gamma = 0$, (t-value > 14.264) for $\gamma \leq 1$, and (t-value > 3.841) $\gamma \leq 2$ at the 0.05 level. The maximum eigenvalue statistic indicates there exists at least one cointegrating vector, which the null hypothesis of no cointegration can be rejected at the 5% significance level.

The results of the Johansen cointegration test in Table 2 show that the two likelihood ratio test statistics are larger than the critical values; therefore, the null hypothesis of no cointegration can be rejected at the 5 % significance level. The results in Table 2 indicate that there exists at least one cointegrating relationship between leisure travel arrivals, business travel arrivals and tourism growth in Korea.

Therefore, this study concludes that Hypothesis 1, "*There is a long-run equilibrium relationship between leisure travel arrivals, business travel arrivals and tourism growth*," is supported. There exists a cointegrating relationship between tourism promotion development and tourism growth in Korea. In this case, the Granger causality test method (Granger, 1988), the unrestricted VAR model with the first differenced variables, is not the best option for testing directional causality of short run dynamics.

Table 2. Results of Cointegration test

	Engle-Granger method				Johansen cointegration test	
Model	Tau-statistic		Z-statistic		Trace test	Maximum Eigenvalue test
F(TG/TOUR, BIZ)	-3.186	(0)	-18.160	$r = 0$	35.289**	24.589**
F(TOUR/BIZ, TG)	-3.247	(0)	-19.217	$r \leq 1$	10.700	8.945
F(BIZ/TOUR, TG)	-4.471**	(0)	-29.225**	$r \leq 2$	1.754	1.754

Note: The test equations were tested by the method of least squares. For the Engle-Granger single equation test method, the model includes intercept (no trend). The optimal lags are automatically selected based on the Schwarz Info Criterion and are in parentheses. The probability value for rejection of the null hypothesis of a unit root is employed at the 1% significance level (***, p-value < 0.01) and the 5% significance level (**, p-value < 0.05) based on MacKinnon (1996) one-sided p-values. For the Johansen cointegration test, the regression model allows for linear deterministic trend in data and include intercept (no trend) in VAR. For the two likelihood ratio test statistics, the probability value for rejection of the null hypothesis of no cointegration is employed at the 0.05 level (***, p-value < 0.01) and (**, p-value < 0.05) based on the MacKinnon-Haug-Michelis [28] p-values.

Granger Causality Test

Engle and Granger [19] and Granger [25] note that if the variables are cointegrated, there always exists a corresponding error correction representation in which the short-run dynamics of the variables in the system are influenced by the deviation from equilibrium. The cointegrated variables must have an error correction representation in which an error correction term must be incorporated into the model. Accordingly, a Vector Error Correction Model (VECM) is

formulated to reintroduce the information lost in the differencing process, thereby allowing for long-run equilibrium as well as short-run dynamics. The VECM implies that changes in one variable are a function of the level of disequilibrium in the cointegrating relationship (captured by the error correction term), as well as changes in other explanatory variables. Thus, the VECM is useful for detecting the long-run and short-run Granger causality when the variables are cointegrated.

The VECM can distinguish between the short-run and long-run Granger causality because it can capture both the short-run dynamics between time series and their long-run equilibrium relations. The long-run causality is determined by the error correction term, whereby if it is significant, then it indicates evidence of long-run causality from the explanatory variables to the dependent variable. The long-run causality is implied through the significance of the t-statistic of the lagged error correction terms, which contains the long-run information because it is derived from the long-run cointegrating relationships. In this case, it estimates the asymptotic variance of the estimator, then the t-statistic will have asymptotically the standard normal distribution.

On the other hand, the short-run Granger causality can be tested by the Wald test. Under the Wald statistical test, the maximum likelihood estimate of the parameters of interest is compared with the proposed value, with the assumption that the difference between the two will be approximately normal. Typically the square of the difference is compared to a chi-squared distribution. The Block Exogeneity Wald test in the multivariate VECM system provides chi-squared statistics that are used to interpret the statistical significance of coefficients of the regressors. In this way, Wald test statistics (Note: Engle [26] showed that the Wald test, the likelihood-ratio test and the Lagrange multiplier test are asymptotically equivalent chi-squared distribution) can be used to find out the Granger causal affect on the dependent variable. Table 3 displays the results of Granger causality test by the Block Exogeneity Wald test.

Table 3. Results of Granger causality tests (Block Exogeneity Wald tests)

	"X" / "Y"	Economic growth	Tour arrivals	Business arrivals
Long-run equilibrium	Cointegrating vector (ECT)	1.313	2.319	4.763**
Short-run dynamics (*"X" does not Granger cause "Y"*).	Economic growth	-	17.596***	0.344
	Tour arrivals	13.032***	-	5.004*
	Business arrivals	1.140	0.420	-

Note: The coefficients of regressors have been estimated by VECM. Numbers in the cells of the independent variables ("X") are chi-squared statistics and numbers in the cells of ECT are asymptotic t-statistics, which are used to interpret the statistical significance of the parameters. The probability value for rejection of the null hypothesis is employed at the 1% significant level (***, p-value < 0.01), the 5% significant level (**, p-value < 0.05) and the 10% significant level (*, p-value < 0.1), respectively.

Considering the results of the Granger causality test in Table 3, this study concludes that Hypothesis 2, "*The growth of leisure travel arrivals causes tourism growth*," is supported, Hypothesis 3, "*The growth of business travel arrivals causes tourism growth*," is not supported, Hypothesis 4, "*The growth of business travel arrivals causes the growth of leisure travel arrivals*," is not supported, and Hypothesis 5, "*The growth of leisure travel arrivals causes the growth of business travel arrivals*," is supported.

In other words, since there exists the bi-directional relationship between tour events arrivals and tourism growth, this finding suggests that tourism promotion development plays a significant role in forecasting tourism growth in the country. In conclusion, this finding suggests that tourism promotion development and tourism growth significantly reinforce each other in the economy. However, since there exists a one-way directional causality that runs from tour events arrivals to business events arrivals, this finding suggests that the leisure travel arrivals are promoting the growth of business travel arrivals in the economy.

DISCUSSION AND POLICY IMPLICATIONS

The finding suggests that there exists the bi-directional relationship between tourism development and tourism growth in the country. This study further detects that the growth of leisure travel arrivals plays a more critical role than tourism growth in leading the direction of causality and the leisure travel arrivals are promoting the growth of business travel arrivals as well.

Empirical findings in this study offer valuable information for tourism business managers and tourism policymakers. From the

policy maker's perspective, it provides a good reference for timing and prioritizing the allocation of resources among industries for better overall tourism and economic outcomes. Since the bi-directional causal relationship between tour events arrivals and tourism growth exists, more resources should be allocated to the development of tourism promotion. To stimulate tourism growth, the development of tourism promotion appears to be essential. The most efficient strategy would be allocating more resources to the development of leisure travel arrivals because the contribution of business travel arrivals remains rather small. On the other hand, using enthusiastic promotion for leisure travel arrivals or a strategic plan to improve the tourism industry will be an effective way to boost the overall economy. From the tourism business manager's perspective, the non-directional causal relationship between leisure travel arrivals and business travel arrivals suggests that there may not exist some potential value associated with bundling the services of these two sectors.

The results of this study support the notion that there is an urgent need for policy makers and tourism managers to acknowledge the changes of tourism trends and their impact on tourism policies. Having made a remarkable global awareness and improved the national brand image since the early 2000s, Korea has a large number of enterprises with international competitiveness in many industries. Policy makers and tourism managers should think of how they can leverage this to benefit the tourism industry. Policy makers and tourism managers should also note the recent rise of leisure travel arrivals from Japan and China - despite the pattern of uneven economic recovery and growth - as major consumers of the tourism industry in Korea. The understanding of emerging tourist groups and tourism trends calls for a change in tourism promotion policies and programs as well as tourism marketing efforts. Among the many recommendations designed to foster cultural and trade links between Korea, Japan and China, policy makers should recognize that the opportunities for increasing cultural and business activities between the countries are very significant. Therefore, every effort should be made to remove obstacles for further growth, including providing sufficient and reasonable air links, favorable visa requirements, and convenient language services.

The results of this study also have several implications for academia. From the cointegration test, the long-run relationship between leisure travel arrivals and tourism growth indicates that tourism promotion contributes substantially to the overall tourism growth in the country. That is, mechanisms to boost the business activities of the tourism industry could be successful in the long-run. From the Granger causality test, the bi-directional causality between leisure travel arrivals and tourism growth may reflect a substantial contribution of the tourism promotion to the overall tourism growth in the short-run. The non-directional causality between business events arrivals and tourism growth may reflect a small contribution of business travel arrivals to the overall tourism industries in the short-run. By improving the business conditions of the tourism industry, the tourism industry could offer better services and goods, which may in turn strengthen the pull factors of the country as one of the best tourism destinations and eventually benefit the overall economy.

Although this study focuses on the causality between leisure travel arrivals and tourism growth, the aggregated visitor arrivals used for analysis included non-tourism arrivals, i.e. education arrivals and conference convention arrivals. For example, the education arrivals could generate a large portion of tourism receipts because education is usually a long-term consumption item and the tourism industry may benefit from students and passengers traveling to visit friends and families. However, the number of education arrivals tends to be less influenced than other categories by short-term tourism promotions. By segregating those sectors from total arrivals, the interactions between the outcomes of tourism promotion and the outcomes of leisure travel arrivals could be better understood. Such analysis could provide more specific, perhaps more useful, information for tourism managers and therefore a further investigation on the determinants of cointegration between the policies of tourism promotion and tourism growth is also suggested for future studies.

In conclusion, the significant outcomes of tourism promotion efforts to tourism growth are empirically documented in this study. This result also implies that the development of tourism promotion policies and programs can serve as an effective and efficient means to boost the growth of the overall tourism industry and overall economy in Korea. More general conclusions can be drawn if this research can be replicated with data from different countries since the long-run relationship and causality in the short-run between tourism promotion and tourism growth may be different from country to country.

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