# The Impact of Foreign Exchange Rates on International Travel: The Case of South Korea

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## Abstract

**Purpose** - The objective of the paper is to explain both the price sensitivity of international tourists to South Korea and the price sensitivity of Korean tourists to international travel. The study examines long-run equilibrium relationships and Granger causal relationships between foreign exchange rates and inbound and outbound tourism demand in South Korea.

**Research design / data / methodology** - The study employs monthly time series data from January 1990 to September 2010. The paper examines the long-run equilibrium relationship using the Johansen cointegration test approach after unit root tests. The short-run Granger causality was tested using the vector error correction model with the Wald test.

**Results** - Hypothesis 1 testing whether there is a long-run equilibrium relationship between exchange rates, inbound and outbound tourism demand is supported. Hypothesis 2 testing whether exchange rates lead to a change in touristarrivals and expenditure is not supported. Hypothesis 3 testing whether exchange rates lead to a change in tourist departures and expenditure is supported.

**Conclusions** - The findings of this study show that the impacts of tourism price competitiveness are changing quite significantly with regard to destination competitiveness. In other words, the elasticity of tourism price over tourism demand has been moderated.

Keywords : Tourism Demand, Exchange Rates, Destination Competitiveness, South Korea.

JEL Classifications : F31, F47, L83, L88.

## 1. Introduction

Since the early 1990s, South Korea has built up a promising record of economic growth and integration into the knowledge economy. Although the economic growth of South Korea is attributed to an export-led economy, the tourism sector might be another contributing factor toward recent economic growth. The tourism sector in South Korea refers to the tourism, travel and hospitality service industry in the Republic of Korea. According to the economic data provided by the World Travel and Tourism Council (2011), the tourism sector in South Korea contributed about US$63.1 billion to the GDP, which was 7.6% of the total economy in 2010.

The tourism sector also offers about 8% of the total employment in South Korea. International tourist exports, including international tourist expenditure on goods and services, reached US$13.8 billion, which was23.4% of the total exports in 2010. International touristexpenditure includes spending on travel, transportation and hospitality services, and the total tourist arrivals include tour, business, education, and diplomat arrivals as well as others (e.g. visitingfriends and relatives, conference convention arrivals, etc.).

Given the aforementioned reasons, South Korea has been eager to promote its tourism sector. The Korea Culture and Tourism Institute publishes statistics of short-term international tourist arrivals on a monthly basis. According to a recent statistic of the Korea Culture and Tourism Institute (http://stat.tour.go.kr/), the total number of international arrivals grew by57% from August 2005 to August 2010. International tourists come primarily from neighboring countries in Asia. Roughly 75% of the total number of international tourists derives from Japan, China, Hong Kong and Taiwan.

In addition, the recent popularity of Korean culture (so-called *HanRyu* or South Korean Wave) in these countries increases the number of tourist arrivals. The South Korean Wave has increasingly-brought numbers of international tourists to South-East and Central Asia. Seoul is the principal tourist destination for most tourists. Some other hot spots outside Seoul are also very popular as tourist destinations, including Seorak-san National Park, the historic city of Gyeongju, the semi-tropical island of Jeju, and so on. Thanks to the extensive national network of trains and buses, tourists can travel to most major cities in the country in a day's round trip.

The South Korean government has recently noticed the crucial role of the tourism sector in the green growth initiative and, therefore, is eager to promote its tourist destinations internationally. Despite South Korea's geographical location, economic success and diverse natural attractions, the country's tourism sector remains relatively small, however. The 'Visit Korea Year 2010-2012' has been officially launched as a campaign for introducing the elegance and flavor of South Korea to international tourists. The aim of the campaign is to establish South Korea as one of the most popular tourist destinations in the world.

Tourists incur costs while visiting their destination that include accommodation, food, tours and shopping. When choosing a destination, tourists compare market prices at the destination with the cost of liv-

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ing at home and substitute destinations. They compare prices at the destination with the prices in their home country and decide whether to visit that destination depending on the relative cost of living. Although prices do change between cities and regions within a country, they differ more markedly between countries. A relative price variable used in the demand estimation for tourism is the ratio of consumer price indexes between home and destination countries.

Tourists may consider a range of competing destinations before choosing any particular one. Researchers model this consumer thinking in one of two ways. One way allowing for substitution between the destination and a number of possible competing destinations is to specify the tourist costs of the visit (Song and Witt, 2000). This allows for substitution between tourist visits to foreign destinations under consideration and domestic tourism, thereby acknowledging that domestic tourism is the most important substitute for international tourism. The other way allowing for substitution is to calculate the costs of visiting any substitute destination relative to the weighted average cost of visits adjusted by the relative exchange rates in competing destinations (Song and Turner, 2006).The weight assigned reflects the relative tourist arrivals in each competing destination. This approach factors in the impact of price changes on a selection of competing foreign destinations.

It has been argued, however, that tourists are generally not well informed in advance about price levels and price changes in destinations whereas exchange rate mechanisms are reasonably well informed (Crouch, 1994).With limited information on the price levels of destinations, tourists may have a tendency to respond to a change in exchange rates when they decide where to travel. As exchange rates can be one of the most important indicators in estimating the costs of the tour and accommodations, they may also be an important indicator for the relative price of travel in open economies with floating exchange rate systems.

In summary, the movements of international tourist arrivals and an exchange rate index may display an inverse relationship, thereby prompting the primary question of this research. This study expects that tourism demand is unlikely to respond symmetrically to changes in exchange rates. For example, the depreciation of a local currency will stimulate international tourist arrivals because the actual prices paid by the international travelers will be lower. This may also affect an increase in domestic tourism demand because a certain number of local travelers may decide not to visit foreign destinations where the price of foreign currency has changed for the worse. Conversely, appreciation of local currency will influence both tourist arrivals to the country and tourist departures from the country.

The objective of this paper is to explain both the price sensitivity of international tourists to South Korea and the price sensitivity of Korean tourists to international travel. In addition, past studies have overlooked directional relationships between tourist arrivals and their expenditure, tourist departures and their expenditure, and exchange rates. To redress these limitations, this study empirically examines Granger causal relationships among the variables.

## 2. Literature Review

Many researchers report that tourism demand is relatively responsive to price factors (Lim, 1999, 2006; Schiff and Becken, 2011). Croes and Vanegas (2005) argue that tourist destinations that compete closely with others are also associated with higher price elasticity (De Mello et al., 2002). The price competitiveness of competing destinations has a positive influence on the demand for international tourism, which means that a rise in the price to one destination will boost tourist numbers to substitute destinations (Lim, 2006). Although prices and tourists'income are the most commonly used variables to explain tourism demand (Lim et al., 2008), there are a number of other factors that affect tourism demand. These include travel distance (Nicolau and Mas, 2006), seasonality (Tsekeris, 2009), destination competitiveness (Forsyth and Dwyer, 2009), and tourism advertising campaigns (Lee, 1996). All of these variables may moderate the effect of price on tourism demand and influence the price competitiveness of tourist destinations.

A number of studies have examined the aggregate effects of price competitiveness that are reflected in aggregate price indices. For example, price competitiveness has been used for air transport demand (Brons et al., 2002) and hotel room demand (Tsai et al., 2006). This can also be seen in the context of destination competitiveness (Forsyth and Dwyer, 2009). As both travel costs and prices at the destination are important determinants of destination competitiveness (Dwyer et al., 2002), stake holders in the tourism sector have an interest in understanding the price sensitivity of tourism demand.

Tourism products are treated as exports when consumed by international tourists (Divisekera, 2003), and the sector engages in multilateral trade. Among tourism industries, airlines are intrinsically dependent on overseas activities (Carteret al., 2006), whereas evidence shows that many firms in the hotel (Jang and Tang, 2009; Lee, 2008; Lee and Jang, 2010), and restaurant (Hua and Upneja, 2007; Park and Jang, 2010) sectors actively pursue internationalization. To this end, exchange rates may affect firms in the tourism sector directly or indirectly. Croes and Vanegas (2005) argued that the extent to which cross-country behavior of tourism demand differs is directly relatedto changes in effective prices and exchange rates. Therefore, the exchange rate variable is sometimes introduced into tourism demand models, in addition to the relative price variable (Dwyeret al., 2002).

The tourism sector and tourism-related firms expect to be exposed to the uncertainty of demand fluctuations caused by exchange rate changes and, in turn, to be exposed to exchange rate risks. Consequently, numerous studies have observed the impact of exchange rates on international tourism (Lee and Jang, 2011; Witt and Witt, 1995) and exchange rates should be considered an important determinant of tourism demand fluctuations. Many studies have conducted investigations on the volatility of international tourism demand by applying various econometric models (Chan et al., 2005; Hoti et al., 2007; Kim and Wong, 2006; Shareef andMcAleer, 2007; Song et al., 2000). Kulendran and King (1997) applied cointegration and vector error correction methods using tourism time series data to estimate short-run causality and a long-run equilibrium relationship between tourism

demand and its determinants.

Kim and Song (1998) employed cointegration and vector error correction approaches to estimate the short-run and long-run international inbound tourism demand for South Korea. Seo et al. (2009) applied multivariate generalized autoregressive conditional heteroskedasticity and vector error correction models to estimate the short-run and long-run outbound tourism demand for South Korea. They reported that exchange rates are significant in determining both the long-run outbound tourism demand and the long-run inbound tourism demand. Webber (2001) reported that exchange rates are significant in determining the long-run outbound tourism demand from Australia. Divisekera (2003) reported that exchange rates have a significant effect on the increase of inbound tourism to Australia. Schiff and Becken (2011) argued that demand elasticity for international tourist arrivals and expenditure at a destination are sensitive to prices and exchange rates. They reported that exchange rates are significant in determining expenditures by international tourists in New Zealand.

Most of the previous studies described above have reported that the exchange rate is one of the most obvious factors influencing tourism price competitiveness. Accordingly, the following hypotheses are posited:

Hypothesis 1: There is a long-run equilibrium relationship between exchange rate changes, tourist arrivals and expenditure, and tourist departures and expenditure.

Hypothesis 2: A change in exchange rates leads to a change in tourist arrivals and expenditure.

Hypothesis 3: A change in exchange rates leads to a change in tourist departures and expenditure.

## 3. Research Methodology

### 3.1. Data

This section describes data and outlines the methodology used in the development or selection of indicators and the normalization of data.

***Outbound Tourism.*** Outbound tourism represents the tourism expenditure output of Korean tourist departures and their expenditure at international destinations. These statistics are collected and published monthly by the Bank of Korea.

***Inbound Tourism.*** Inbound tourism represents the tourism receipts of international tourist arrivals and their expenditure in Korea. These statistics are collected and published monthly by the Bank of Korea.

***Exchange Rate.*** Exchange rate represents the real exchange rate of the Korean won against the US dollar. These statistics are collected and published monthly by the Bank of Korea.

All these three economic series of data are collected and retrieved from the Bank of Korea Economic Statistics System (http://ecos.bok.or.kr/) database published by the Bank of Korea. The sample is restricted to those periods for which monthly time series data are available from January 1990 to September 2010 (249 observations).

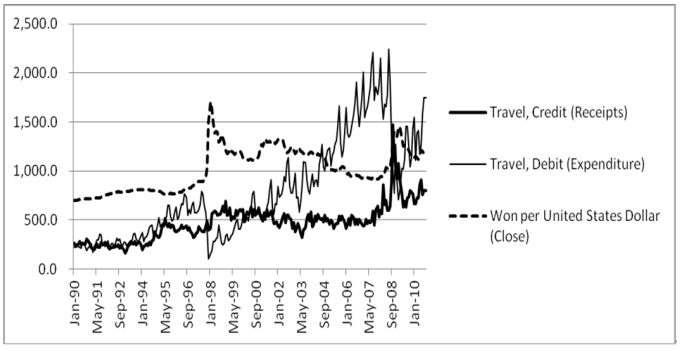
Normalization of the data is necessary before any aggregation can be made. It is important to transform the values to the same unit of measurement as exchange rates are expressed as a unit of Korean won whereas the other indicators are expressed as billion Korean won. In addition, the time series are seasonally unadjusted. Therefore, transformation into a natural log mitigates any possible distortions of dynamic properties of the series. Table 1 displays descriptive statistics along with various summary statistics for the time series. Table 2 displays the results of Pearson correlation analysis among the time series. Figure 1 displays a line chart of growth trends of major indicators.

<Table 1> Descriptive Statistics of Sample Series

| | Exchange rate[1] | Inbound tourism[2] | Outbound tourism[2] |
|---|---|---|---|
| Mean | 1,018 | 487,770 | 644,282 |
| Median | 1,009 | 482,600 | 550,800 |
| Maximum | 1,701 | 1,464,400 | 1,689,800 |
| Minimum | 698 | 211,694 | 62,200 |
| Std. Dev. | 219 | 169,963 | 364,425 |
| Observations | 249 | 249 | 249 |
| [1]Exchange rate of Korean won to one United States dollar [2] Billion Korean won | | | |

<Table 2> Results of Pearson Correlation Analysis

| | Exchange rate | Inbound tourism | Outbound tourism |
|---|---|---|---|
| Exchange rate | 1.000 | | |
| Inbound tourism | 0.646*** | 1.000 | |
| Outbound tourism | 0.132** | 0.402*** | 1.000 |
| Note : ***, p-value < 0.01; **, p-value < 0.05 Correlation is significant (2-tailed). | | | |




<Figure 1> Line Chart of Growth Trends of Major Indicators

### 3.2. Unit Root Test

It is recognized in the literature that the data generating process for many economic variables is characterized by stochastic trends that might result in spurious inference if the time series properties are not carefully investigated. A time series is said to be stationary if the autocovariances of the series do not depend on time. The formal method for testing the stationarity of a series is the unit root test. There are several well-known tests for this purpose based on individual time

series. They are the augmented Dickey-Fuller (1979), the Phillips-Perron (1988), the GLS-detrended Dickey-Fuller (Elliot et al., 1996), the Elliott-Rothenberg-Stock's Point Optimal (Elliot et al., 1996), and the Ng and Perron (2001) unit root tests.

The entire unit root tests described above test the null hypothesis: a series has a unit root (non-stationary). Kwiatkowski et al.(1992) propose a different approach from the unit root tests described above in which the series is assumed to be stationary under the null hypothesis.

### 3.3. Cointegration Test

Engle and Granger (1987) point out that a linear combination of two or more non-stationary series may be stationary. If such a stationary linear combination exists, the non-stationary time series are said to be cointegrated. The stationary linear combination is called the cointegrating equation and may be interpreted as a long-run equilibrium relationship among the variables. There are several tools for testing for the presence of cointegrating relationships among non-stationary variables in a multivariate setting. They are the Johansen (1991) cointegration test, and the Engle-Granger (1987) and the Phillips-Ouliaris (1990) residual-based cointegration tests.

The Engle-Granger and the Phillips-Ouliaris tests obtain only one single cointegration relationship based on ordinary least squares whereas it is possible to obtain more than one cointegration relationship with the Johansen test. The Johansen approach uses the two ratio tests of (a) a trace test and (b) a maximum eigenvalue test for testing the number of cointegration relationships. Both can be used to determine the number of cointegrating vectors present, although they do not always indicate the same number of cointegrating vectors. If, during the Johansen cointegration test, a different result is found by the trace statistic and the maximum eigenvalue statistic, the result of the latter test will be preferred in this study owing to the benefit of separate tests on each eigenvalue.

### 3.4. Granger Causality Test

The conventional approaches to modeling the relationship among several variables employ the estimation and analysis of vector autoregressive and vector error correction models. These models are used to test the direction of Granger causality in a multivariate setting. Engle and Granger (1987) and Granger (1988) reported that if two or more 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 vector error correction model is a technique that facilitates the capture of both the dynamic and the interdependent relationships of regressors and is a special type of restricted vector autoregressive for correcting a disequilibrium that may shock the whole system.

The vector error correction model implies that changes in one variable are a function of the level of disequilibrium in the cointegrating relationship as well as changes in the other explanatory variables.

Therefore, a vector error correction model can be constructed as shown in Equation 1.

$$\Delta \ln EXR_t = \alpha_1 + \sum_{j=1}^{n-1} \beta_{1j} \Delta \ln INB_{t-j} + \sum_{j=1}^{n-1} \beta_{1j} \Delta \ln OUTB_{t-j} + \sum_{j=1}^{n-1} \gamma_{1j} \Delta \ln EXR_{t-j} + \theta_1 ECT_{t-1} + \varepsilon_{1t} \quad (1)$$

where Δ is the difference operator (indicates the first difference in this study), In is the natural logarithm of the variables under consideration, $j$ is the lag length and is decided on the basis of the Schwarz Bayesian criterion, α is the deterministic component, β is the parameter to be estimated and $ECT_{t-1}$ is the error correction term obtained from the cointegrating vectors. The dependent variable is regressed against past values of itself and other variables. All variables in the model were reported as a change in exchange rates (EXR), a change in inbound tourism demand (INB) and a change in outbound tourism demand (OUTB).

The vector error correction model can distinguish between the short-run and long-run Granger causality because it can capture both the short-run dynamics between the time series and their long-run equilibrium relationship. The long-run causality is implied by the significance of the t-statistics of the lagged error correction terms. The short-run Granger causality in the vector error correction model can be tested by the Wald test. The block exogeneity Wald test in the vector error correction system provides Chi-squared statistics of coefficients on the lagged endogenous variables, which are used to interpret the statistical significance of coefficients of the regressors. The hypothesis in this test is that lagged endogenous variables do not Granger-cause the dependent variable.

## 4. Results

Table 3 reports the results of unit root tests. The null hypothesis of a unit root cannot be rejected on the level of the series, but all null hypotheses of a unit root are rejected in the first difference of the series. The results in Table 3 unanimously confirm that all series are integrated in the order of one (1). The optimal lag in the augmented Dickey-Fuller test is automatically selected and based on the Schwarz information criterion and the bandwidth for the Phillips-Perron test is automatically selected and based on the Newey-West estimator (Newey and West, 1994) using the Bartlett kernel function.

<Table 3> Results of Unit Root Test

| Methods | Exchange rate(0) | Exchange rate(1) | Inbound tourism(0) | Inbound tourism(1) | Outbound tourism(0) | Outbound tourism(1) |
|---|---|---|---|---|---|---|
| ADF test | -1.900 | -11.165*** | -2.328 | -20.228*** | -2.524 | -16.317*** |
| PP test | -1.882 | -8.678*** | -2.501 | -30.669*** | -2.060 | -18.498*** |
| DF-GLS | -0.504 | -11.146*** | -0.943 | -12.358*** | -1.320 | -16.253*** |
| NP test | -0.511 | -9.612*** | -0.924 | -7.334*** | -1.305 | -7.853*** |
| KPSS test | 1.090*** | 0.083 | 1.514*** | 0.218 | 1.686*** | 0.041 |

Note : All test equations were tested by the method of least squares, including an intercept but no time trend in the model. In the ADF, PP, and DF-GLS tests, probability values for rejection of the null hypothesis of a unit root are employed at the 0.05 level based on MacKinnon (1996) one-sided p-values. In the NP test, probability values for rejection of the null hypothesis are based on the Ng and Perron (2001) p-values. In the KPSS test, probability values for rejection of the null hypothesis are based on the Kwiatkowski, Phillips, Schmidt and Shin (1992) LM statistic p-values (***, p-value < 0.01 and **, p-value < 0.05).

Table 4 displays the results of the Johansen cointegration test.

Table 4 indicates that the trace statistic and the maximum ei-

genvalue statistic are larger than the critical values; the trace test indicates at least one cointegrating equation at the 0.05 level and the maximum eigenvalue test indicates at least one cointegration at the 0.05 level. Table 4 indicates that the null hypothesis of no cointegration is rejected at the 5% significance level. The results indicate that there exists a long-run equilibrium relationship among the variables at the 0.05 level. Therefore, Hypothesis 1 testing whether there is a longrun equilibrium relationship between exchange rates, inbound tourism demand and outbound tourism demand is supported and is statistically significant at the 0.05 level.

<Table 4> Results of Johansen Cointegration Test

| Number of cointegrating | Trace test | Maximum eigenvalue test |
|---|---|---|
| $r = 0$ | 31.295** | 21.826** |
| $r \leq 1$ | 14.469* | 12.330* |
| $r \leq 2$ | 2.139 | 2.139 |

Note: The probability value for rejection of the null hypothesis of no cointegration is based on the MacKinnon-Haug-Michelis (1999) p-values (**, p-value < 0.05 and *, p-value < 0.10).

Table 5 displays the results of Granger causality tests. In Table 5, the numeric values in the cells are the coefficients of the regressors, which represent the short-run elasticity, and standard errors in parenthesis.

Hypothesis 2 testing whether a change in exchange rates leads to a change in tourist arrivals and expenditure is not supported and is not statistically significant at the 0.05 level. Hypothesis 3 testing whether a change in exchange rates leads to a change in tourist departures and expenditure is supported and is statistically significant at the 0.01 level.

Table 5 shows that an increase in exchange rates has a negative impact on Korean tourist departures and expenditure at international destinations and is statistically significant at the 0.01 level. It also suggests that a 1% increase in exchange rates reduces outbound tourism demand by 0.035%. It appears that the depreciation of local currency is deterring many local tourists from travelling abroad. The results are consistent with different lag selections. In other words, it can be said that a change in exchange rates in South Korea does not seem to play a critical role in changing inbound tourism demand of international tourists although it is discouraging many Korean tourists from travelling abroad.

<Table 5> Results of Granger Causality Test

| | "X" / "Y" | Exchangerate | Inbound tourism | Outbound tourism |
|---|---|---|---|---|
| Long-run dynamics | | -0.009<br>(0.870) | 0.148<br>(3.563)*** | -0.011<br>(0.174) |
| Short-run | Exchangerate | | -0.226<br>(0.846) | -.0279<br>(0.433) |
| dynamics | Inbound tourism | 0.020<br>(1.185) | | -0.226<br>(2.178)** |
| | Outbound tourism | -0.035<br>(2.656)*** | -0.081<br>(1.618) | |
| | Adj. R-squared | 0.228 | 0.101 | 0.009 |
| | F-statistic | 19.176 | 7.878 | 1.591 |

Note: The probability value for rejection of the null hypothesis is employed at the 0.05 level(***, p-value < 0.01 and **, p-value < 0.05).

## 5. Discussions and Policy Implications

The results of the study show that a change in tourism demand is not affected by a change in exchange rates in South Korea. This finding suggests that a change in exchange rates and a change in inbound tourism demand work independently of one another in the economy. Interestingly, international tourist arrivals are not sensitive to a change in exchange rates. This means that most international tourists are less sensitive to the variability of prices and would not change their travel plans owing to a change in exchange rates.

Given the historical importance of exchange rates described in the past literature, it is surprising that the results of this study differ from previous studies. The findings of this study show that the impacts of tourism price competitiveness are changing quite significantly with regard to destination competitiveness. In other words, the elasticity of tourism price over tourism demand has been moderated.

Price competitiveness in tourism is essentially to do with the prices of the goods and services that tourists buy. There is widely accepted evidence that price is one of the most important factors when tourists choose destinations and decide whether or not to undertake trips. Price competitiveness can be assessed by many sets of hard data such as the consumer price index, purchasing power parity and exchange rates. Different proxy measures shed light on different aspects of tourism competitiveness and the measures that are most useful for a given purpose depend on the questions being addressed.

Therefore, policymakers and tourism managers in Korea must consider new policies and strategies to promote inbound tourism, beyond the exchange rate effect. For example, as international touristarrivals are less sensitive to changes in exchange rates and prices in Korea, tourism managers should consider various tour packages that attract international tourists seeking to maximize their tour benefits rather than their monetary spending. The findings of this study further imply that the promotion of leisure travel arrivals plays a more critical role in the growth of the tourism sector in the economy. As no causality between exchange rates and inbound tourism demand was found, tourism promotion appears to be essential to stimulate international tourist arrivals. The most efficient strategy would be to allocate more resources to the promotion of leisure travel arrivals.

Korean tourist departures are sensitive to change in exchange rates. The results imply that Korean tourists are still concerned about the price of international travel. The results of the study imply that flexible pricing strategies for domestic tourism destinations would be effective in convincing Korean tourists to forgo other international destinations as a substitute for domestic tours. In this case, tourism managers should consider various tour packages to attract local tourists seeking to maximize their benefits with a domestic tour.

The results of this study support the notion that there is an urgent need for policymakers and tourism managers to acknowledge the changes in tourism trends and their impact on tourism policies. Having made a remarkable improvement in its global awareness and improved the national brand image since the early 2000s, South Korea has a large number of enterprises with international competitiveness in many industries. Policymakers and tourism managers should consider how they can leverage this to benefit the tourism

sector. Policymakers and tourism managers should also acknowledge the recent rise of leisure travel arrivals from Japan and China as major consumers of the tourism sector in Korea, despite the pattern of uneven economic recovery and growth of their home country.

## 6. Conclusions and Research Limitations

To illustrate the impact of exchange rates on the price competitiveness of the tourism sector in South Korea, this study demonstrates how changes in exchange rates will affect tourism demand and expenditure at destinations. Accordingly, tourist arrivals and their expenditure in Korea have been used to estimate the total impact of exchange rates on a change in inbound tourism demand. A given percentage change in the exchange rate is assumed to lead to a change in inbound tourism demand by international tourists. Consequently, the elasticity of tourist arrivals and expenditure allows for estimation of the impact of exchange rates on inbound tourism demand.

There are several limitations of this research and some suggestions for future research. First, although this study focuses on cointegration and Granger causality between exchange rates and tourism demand, the aggregated tourist arrivals and expenditure (including non-tourism arrivals, i.e. education arrivals and conference convention arrivals) were used for analysis. For example, the education arrivals could generate a large number of tourism receipts because education is usually a long-term consumption item and the tourism sector benefits from students and passengers travelling to visit friends and families. If those sectors are segregated from total arrivals, the interactions between changes in exchange rates and changes in 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 is suggested.

Second, as this study focused on the relationship between changes in tourism demand and changes in exchange rates, it was limited in terms of including other macroeconomic factors that might influence the causal relationship. In addition, it has limitations in terms of examining the impacts of tourist psychographics and behavioral factors on tourism demand. Third, more general conclusions could be drawn if this research were to be replicated with data from other countries, as the impact of exchange rates on tourism demand may be different from country to country. It would be interesting to see how important role price competitiveness plays in forecasting tourism demand in different countries.

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