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KOREAN INBOUND TOURISM TO THE PHILIPPINES – A MACROECONOMETRIC EVALUATION

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Abstract: For the last six years in a row, Korea has been the Philippines top international tourist generating market. Avid observers of the Philippine-Korean affairs may want to answer the question - "What can explain the recent phenomenon of Korean nationals coming in droves to the Philippines as tourists"? In order to address this problem, alternative structural econometric models of Korea's demand for Philippines tourism are developed, with a view in identifying the critical factors that explain the phenomenon as well as determining crucial decision-making parameters most important to tourism policy planners. The study is able to uncover a unique cointegrating relationship between Korean arrivals and its main determinants. Empirical results signify that the Korean market is highly income elastic and that Koreans are not price conscious travelers at the destination but are highly sensitive to price signals from Thailand which traditionally has been Koreans top tropical destination. Inward Korean tourism traffic to the country is also determined to be seasonal which dips significantly during the second quarter of each year but kicks in almost equally strongly during the three other quarters. Short-run discrepancies of actual arrivals from their long run equilibrium are corrected within a quarter at a staggering adjustment speed of 70.26 percent. Short-run and long run elasticity figures for the two significant predictors of Korean demand for the country's tourism – real gross domestic product and exchange rate adjusted relative prices in Thailand, in light of foreseen sustained growth of Korea's economy and inflation in Thailand suggest the continued massive inflows of Korean tourists to the Philippines.

Key Words: Korean Inbound Tourism, Long Run & Short Run Elasticities, Cointegration

1. INTRODUCTION

Korea[*] had been the perennial third ranked player in the Philippines inbound tourism market after the United States and Japan over the years. However, in 2006, with inward tourism traffic of 572,133 arrivals, Korea relegated the United States (567,355 arrivals) to second place to become the market leader. Japan, which prior to 2005 has been the usual second ranked country, became just the third largest market of Philippine international tourism with 421,808 arrivals in 2006. In 2007, Korea replicated the feat it accomplished during the previous year by capturing 21.1% of the market and posted an impressive 14.2 % growth rate. The United States on the other hand registered an anemic 2.0% growth while Japan suffered a 6.4% decline over the 2006 figures. Together, the three countries captured more than half of the Philippines inward

[*] In this study Korea refers to South Korea

tourism market (52.6% combined share) in 2007. From then on the massive inward traffic of Korean tourist continued, that in the years 2010 (with 740,622 arrivals or 21.04 share of total and 48.78% growth over 2009) and 2011 (with 925,204 arrivals or 23.62% of total and 24.92% growth over 2010), Korea cornered more than one fifths of international tourist arrivals – the only country that registered such an achievement **(**Department of Tourism. (2012a)). For the first 8 months (January to August) of 2012, Korean tourism inflows posted a robust 9.78% growth over the same period in 2011 **(**Department of Tourism. (2012b)).

Being one of the nearest tropical countries from Korea, as well as a cheap destination for Korean nationals wanting to learn quality English, the Philippines is a veritable natural magnet to Korean tourists, students and business travelers, that in recent years they come in massive numbers than ever before. This modern exodus, reminiscent of the Korean Diaspora of the past constitutes an interesting area of empirical application of time series econometric analysis that may uncover a number of useful insights with enormous policy implications.

The main research agenda of the study is anchored in answering the question foremost in the minds of avid observers of the Philippines-Korea affairs – "What can explain the recent phenomenon of Korean nationals coming in droves to the Philippines as tourists"? Specifically, this study will attempt to give empirical solution to this research problem – What are the key determinants of Korean tourism arrivals to the Philippines?

2. METHODOLOGY

Model Specification

On the basis of the list of potential demand shaping factors suggested by economic theory, various models can emerge in empirically examining the phenomenon of Korean arrivals to the Philippines as tourists. Each of the alternative models has it own assumptions that underlie the data generating process of the phenomenon. The single equation double logarithmic form is used as the functional specification of the relationship of the dependent and independent variables. Both the Ordinary least Squares (OLS) and Generalized Least Squares (GLS) procedures will be implemented to examine the comparative performance of the two estimation methodologies. The common explanatory variables are the real per capita income of Korea, the relative exchange rates and relative prices between Korea and the Philippines, while the dependent variable is the inward tourism inflow of Koreans to the Philippines representing Korean demand for Philippine tourism products. In consumer demand analysis, the double logarithmic functional form is regarded as the most useful algebraic form of relationship since demand elasticities can be easily derived from the estimated parameters. The most basic model of Korean tourism demand for Philippine tourism can be specified as follows:

$$TA_t = \alpha RI_t^{\beta_1} RP_t^{\beta_2} BT_t^{\beta_3} SP_t^{\beta_4} \exp(u_t) \quad (1)$$

where, TA_t represents Korean tourist arrivals during quarter t

RI_t = Real Income of Koreans at quarter t (Real GDP)

$RP_t =$ Exchange Rate Adjusted Relative Price of Tourism in the Philippines and is defines as $RP_t = (CPI_{Kt} / CPI_{Pt}) / RE_t$ with

$RE_t =$ Relative Exchange Rate at quarter t, or Korean Won to one unit of Philippine Peso

$BT_t =$ Exchange Rate Adjusted Bilateral Trade between Philippines and Korea at quarter t

$SP_t =$ Exchange Rate Adjusted Relative Price of Tourism in Substitute Destination (Thailand) $SP_t = (CPI_{Kt} / CPI_{Tt}) / RE_t^s$ with

$RE_s^* =$ Korean Won to one unit of Thai Bath at quarter t

Taking the natural logarithm of model (1) results in the double logarithmic demand model (2) with $\theta = \ln(\alpha)$:

$$\log(TA_t) = \theta + \beta_1 \log(RI_t) + \beta_2 \log(RP_t) + \beta_3 \log(BT_t) + \beta_4 \log(SP_t) + u_t \quad (2)$$

In model (2) the parameter coefficients may be interpreted as elasticities which have to be estimated with precision using appropriate estimation procedure under ideal conditions (i.e., u_t is assumed to be identically and independently distributed (i.i.d.) white noise series. The expected algebraic signs of the parameters are as follows:

$\beta_1 > 0$, $\beta_2 < 0$, $\beta_3 > 0$ and $\beta_4 > 0$

Sample period of the study corresponds to the quarterly time frame of First Quarter of 1993 to the Fourth Quarter of 2010, which adequately covers the turning point periods of Korean inbound tourism. This 8 years (72 quarters) epoch is adequate enough to undertake both long run and short run analyses of the phenomenon.

2.1 Tourism Demand Model with Seasonality

Models (1) and (2) presuppose the absence of seasonal factors in the quarterly arrival process of Koreans to the Philippines. If we assume a multiplicative seasonal form for Model (1) which can easily be transformed into a log-additive model, Model (2) can be extended to capture the seasonal effects to come up with Model (3).

$$\log(TA_t) = \theta + \beta_1 \log(RI_t) + \beta_2 \log(RP_t) + \beta_3 \log(BT_t) + \beta_4 \log(SP_t) + \psi_1 Q_{1t} + \psi_2 Q_{2t} + \psi_3 Q_{3t} + u_t \quad (3)$$

In this extended specification, the seasonal dummy variables $Q_{it} = 1$ when the t period is the ith quarter ($i = 1, 2, 3$) zero otherwise, and ψ_i represents the differential seasonal effect of the ith quarter relative to the fourth quarter, which in this model is the base quarter. Without this extension, a certain form of omitted variable bias will be committed if there truly is seasonality in the quarterly arrival process of Korean tourists, whereby estimates of the elasticity parameters will be suspect.

If cointegration can be established, information loss due to short run dis-equilibrium due to transitory shocks can be recaptured by undertaking an error correction analysis via the short

run equivalent of the long run relationship. The highlight of this analysis is the estimation of the so-called Error Correction Model, which in our tourism demand modeling is:

$$\Delta\log(TA_t) = \delta + \theta_1\Delta\log(RI_t) + \theta_2\Delta\log(RP_t) + \theta_3\Delta\log(BT_t) + \theta_4\Delta\log(SP_t) + \lambda u_{t-1} + \psi_1 Q_{1t} + \psi_2 Q_{2t} + \psi_3 Q_{3t} + v_t \quad (4)$$

Here, Δ denotes the first differencing operator (i.e. Δ = 1 – L, where L is called the lag operator with the property $L^d y_t = y_{t-d}$), such that $\Delta y_t = (1-L)y_t = y_t - y_{t-1}$ or the first difference of y_t. The term v_t is a white noise (or stochastic disturbance term with desirable properties i.e. i.i.d.). All variables in Model (4) are stationary hence standard regression methods are valid. This model contains both the long run and short run relationships and is a meaningful short-run adjustment equation. The coefficient λ of the error correction term represents the adjustment towards long-run equilibrium after the process experience short run disequilibrium. This parameter is sometimes called speed of adjustment (Stock, J and Watson, M. 2007).

3. EMPIRICAL RESULTS

Each of the logarithmic transformed variables of the study are seen to contain one unit root at the zero frequency, they are integrated of order one at that frequency, which means that they are all non-stationary at level. Regression of these variables may produce spurious results unless the variables have long-run equilibrium relationship(s), or are said to be cointegrated. In this study the multivariable cointegration procedure introduced by Johansen (1988) which features two statistical tests for cointegration – the Trace test and the Maximum Eigenvalue test is used.

Table 1 summarizes the results of the two empirical cointegration tests. Both of the tests affirm in a highly significant manner the existence of a single (i.e., rejecting the null of zero cointegrating vector and accepting the alternative of at most one, or single cointegrating vector) equilibrium relationship linking the five logarithmic transformed variables of the study. This implies that there is a unique long run equation that may appropriately be labeled as the tourism demand equation for Korean visitors to the Philippines.

Table 1. Johansen Multivariate Cointegration Tests

Rank	Eigenvalue	Trace test	p-value	λ - max test	p-value
0	0.53551	93.710 ***	[0.0001]	54.444 ***	[0.0000]
1	0.25180	39.266	[0.2526]	20.596	[0.3118]

The Long Run Tourism Demand Equation for Korea

$$\widehat{\text{LN\_KTOURARV}} = \underset{(-4.334)}{-8.25462} + \underset{(9.139)}{2.65476}\,\text{LN\_RINC} + \underset{(1.008)}{0.458851}\,\text{LN\_RPER} + \underset{(3.180)}{1.90572}\,\text{LN\_SPER} - \underset{(-2.339)}{0.287326}\,\text{LN\_TVOLER} + \underset{(1.206)}{0.0856146}\,\text{dq1} - \underset{(-2.655)}{0.190613}\,\text{dq2} - \underset{(-0.321)}{0.0228453}\,\text{dq3}$$

$$T = 72 \quad \bar{R}^2 = 0.8974 \quad F(7, 64) = 89.722 \quad \hat{\sigma} = 0.21201$$

(t-statistics in parentheses)

Based on the diagnostic assessment of this initial long run demand model, a number of empirical failures are noted. For one, the model is highly autocorrelated by virtue of the Durbin-Watson p-value of 0.00316808, and with unstable estimated parameter, suggested by the Harvey-Collier CUSUM test with p-value of 0.02193. Marginally significant ARCH effect is also noted. Hence, it is prudent to consider alternative long run modeling options. A number of these alternative models, mostly the original model corrected for first-order autocorrelation (using different GLS procedures are presented in Table 2, which also shows the original model for comparison of parameter estimates. It may be gleaned from the table that in all of the autocorrelation corrected models, the trade volume variable becomes insignificant, leaving only Korean real GDP and exchange rate adjusted relative prices in Thailand as the only significant predictors of Korean arrivals. This finding suggests that Korean tourists to the Philippines are not price conscious at the destination and are deemed to make their travel decisions on the basis of their purchasing power and price signals from Thailand which traditionally is their top tropical tourism option.

Removing insignificant variables, the final long run demand model is the autocorrelated corrected model presented as the Prais-Winsten estimated model no. 6 in Table 2.

Table 2. Alternative Korean Long-Run Tourism Demand Models

Dependent variable: Log of Quarterly Korean Tourist Arrivals

Regressors	(1)	(2)	(3)	(4)	(5)	(6)
	OLS	CORC	HILU	PWE	OLS	PWE
Constant	-8.255**	-7.216**	-7.219**	-7.588**	-5.563**	-6.203**
	(1.905)	(2.605)	(2.601)	(2.560)	(1.701)	(2.498)
LN_RINC	2.655**	2.251**	2.253**	2.253**	1.990**	1.991**
	(0.2905)	(0.3316)	(0.3314)	(0.3310)	(0.1085)	(0.1653)
LN_RPER	0.4589	0.7561	0.7551	0.7278		
	(0.4551)	(0.5732)	(0.5726)	(0.5722)		
LN_SPER	1.906**	1.354*	1.357*	1.360*	2.206**	2.025**
	(0.5992)	(0.7157)	(0.7151)	(0.7152)	(0.2308)	(0.3259)
LN_TVOLER	-0.2873**	-0.1187	-0.1194	-0.1029		

	(0.1228)	(0.1324)	(0.1324)	(0.1310)		
Q_1	0.08561	0.08426	0.08432	0.07812	0.07338	0.06594
	(0.07097)	(0.05867)	(0.05871)	(0.05769)	(0.07376)	(0.05579)
Q_2	-0.1906**	-0.2088**	-0.2087**	-0.2100**	-0.2172**	-0.2194**
	(0.07178)	(0.06508)	(0.06511)	(0.06470)	(0.07369)	(0.06209)
Q_3	-0.02285	-0.03222	-0.03218	-0.03170	-0.04175	-0.03863
	(0.07118)	(0.05779)	(0.05783)	(0.05739)	(0.07375)	(0.05526)
T	72	71	71	72	72	72
Adj. R^2	0.8974	0.9042	0.9042	0.9071	0.8886	0.9070
lnL	13.76				9.682	
Standard Errors in Parentheses		*,**,*** - indicate significance at 10%, 5% & 1% respectively				

The Short-Run Error Correction Model

The residual of the above (model (6)) statistically and econometrically adequate long-run model is extracted, and the one-period lagged value of which is introduced as additional regressor to the short-run model to produce an Error Correction model presented below. The coefficient of this error correction term in the model is equivalent to the speed of adjustment, which in this case is extremely significant statistically ($p<0.0001$), with a magnitude of **-0.70262.** When interpreted, this figure is equivalent to the proportion (70.26%) by which deviations from equilibrium tourism arrivals will be corrected within a quarter. With $\Delta\log(TA)$ as dependent variable, the following are the RHS elements of the Error Correction Model.

Var.	***Coefficient***	***Std. Error***	***t-ratio***	***p-value***	***Sig.***
const	-0.00404	0.0497684	-0.0813	0.93549	
$\Delta\log(RI)$	**5.07065**	1.6586	3.0572	0.00326	***
$\Delta\log(SP)$	**1.07334**	0.539637	1.9890	0.05098	*
Q_1	0.03790	0.0650257	0.5829	0.56204	
Q_2	-0.33203	0.0645717	-5.1421	<0.00001	***
Q_3	0.15601	0.0661545	2.3583	0.02142	**
u_{t-1}	**-0.70262**	0.127983	-5.4900	<0.00001	***

Evaluation of the diagnostic results of the above short-run Error Correction model reveals its relative adequacy. The only departure from model's sufficiency is the residual normality diagnostic with a p-value of 0.01578 ($p<0.05$). The estimated coefficients of the short-run model are interpreted as short-run elasticities, hence, in the short-run Koreans are extremely sensitive to their financial capability in making their travel decisions to the Philippines (as evidenced by the short-run income elasticity of **5.07** (compared to long-run income elasticity of **1.99**) but almost unitary elastic to price signals from their alternative destination Thailand, with substitution

elasticity of **1.07 (**compared to the estimated long run substitution elasticity of **2.03**). Highly significant seasonal components of the short run model are also noted.

Concluding Remarks and Policy Implications

This study aims to evaluate econometrically the modern phenomenon of massive inflow of Korean tourists to the Philippines. Long run and short run analysis of which are conducted using relevant quarterly data and the double logarithmic functional specification to produce reliable estimates of tourism elasticities important in planning. Seasonality assessment of the Korean tourism inflow is also conducted to check whether this recurring time series component should be incorporated in both the long run and the short run model, to avoid some form of omitted variable bias.

The study uncovers a unique long run equilibrium Korean tourism demand model whose significant regressors are the Real GDP of Korea and the exchange rate adjusted price ratio at the alternative destination (which is Thailand – substitute destination). The price ratio at the destination, adjusted for the effect of exchange rate variations (which proxies for the cost of living at the destination) proved to be inconsequential, and so with the exchange rate adjusted bilateral trade of Philippines and Korea (which represent the economic activity of business travelers). This result implies that Korean tourists are not price conscious at the destination but are sensitive to price signals from Thailand. The insignificance of the trade variable may imply the crowding out of business travelers by pleasure and special interest groups of Korean tourists.

Tourism demand from the Korean market is shown to be highly income elastic. The magnitudes of both the short run and long run income elasticity of demand of 1.99 and 5.07 respectively highlight the importance of Korea's economic performance to the inflow of Korean tourists to the Philippines; a well performing Korean economy augurs well for the Philippines tourism sector. The long run price elasticity at the substitute destination of 2.025 and the corresponding short run elasticity of 1.0733 highlight the stiff competition between the Philippines and Thailand in attracting Korean tourists.

With Korea's Real GDP expected to grow 2.8% in 2013 from 2.0% in 2012 (Samsung Economic Research Institute (2013)) and Thailand's inflation to increase to 3.3 in 2013 from 3.2 in the previous year (Asian Development Outlook 2012 Update (October 2012)), the massive inflows of Korean tourists to the Philippines will continue.

The stable seasonality of Korean tourism to the Philippines as revealed by both the long run and short run models indicates the need for planning in anticipation of the lean and peak arrival quarters. The significant dip during the second quarter and the spikes in arrivals in the other quarters may result in inefficient use of resources if not carefully planned for. The stability of the equilibrium (long run) model may be gleaned from the very high adjustment speed of 70.26 percent, which implies that adjustment to equilibrium almost instantaneously within a quarter.

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