ANALYZING TOURIST FLOW FROM JAPAN TO TAIWAN

Yen-Hsun Chen[1], Hsin-Hong Kang[2], Ping-Chang Lee[3]

[1]Department of Business Administration, National Cheng Kung University
No.1, University Road, Tainan City 701, Taiwan (R.O.C.)
Deparment of Leisure and Sports Management, Far East University
No.49, Zhonghua Rd., Xinshi Dist., Tainan City 74448, Taiwan (R.O.C.)
yhchen@cc.feu.edu.tw
[2]Department of Business Administration, National Cheng Kung University
No.1, University Road, Tainan City 701, Taiwan (R.O.C.)
hhkang@mail.ncku.edu.tw
[3]Department of Business Administration, National Cheng Kung University
No.1, University Road, Tainan City 701, Taiwan (R.O.C.)
lpc809@gmail.com

ABSTRACT

This paper tries to investigate long and short-run relationships between international tourist arrivals from Japan, Japan GDP, living cost, and substitute prices. For relationship and impact, the cointegration test and vector error correction model are used, respectively. Three cointegration vectors are obtained by the Johansen method based on VAR, which means the long-run relationship between the four model variables exists. In addition, the short-run equilibrium adjustment processes are discussed by generalized impulse response analysis. Basically, the short-run results confirm theoretical findings such that the tourist arrival has positive relationship with GDP and negative one with the cost of living.

Keywords: *cost of living, substitute price, cointegration test, vector error correction model, generalized impulse response*

INTRODUCTION

Tourism has become one of the major players in international commerce, and represents at the same time one of the main income sources, especially for many developing countries (World Tourism Organization, 2006). There are some reasons which Schubert (2010)[34] generalized from the early literatures such as Andriotis (2002)[2], Croes (2006)[8], Fagance (1999)[14] and Lin & Liu (2000)[28]. First, tourism is an important earner of foreign exchange, allowing to pay for imported capital goods or basic inputs used in the production process. Second, tourism plays a significant role in spurring investments in new infrastructure and competition between local firms and firms in other tourist countries. Third, tourism stimulates other economic industries by direct, indirect and induced effects. Fourth, tourism contributes to

generate employment even for relatively unskilled labor and simultaneously to increase national income. Fifth, tourism can cause positive exploitation of economies of scale in national firms. Finally, tourism is an important factor of diffusion of technical knowledge, stimulation of research and development, and accumulation of human capital.

For boosting tourism industries to raise economic development further, analyzing tourism demand is the foundation which all tourism-related business decision makings ultimately rely on. Song & Witt (2006)[36] proposed the following reasons why tourism demand analysis is so important for policy makers. First, companies such as airlines, ocean liners, tour agents, hotels, casinos, other recreation facility providers, and shop owners are very interested in the demand for their products. The success of many tourism-related businesses depends largely on the state of tourism demand, and ultimate management failure is quite often due to the failure to meet market demand. It is clear that accurate analysis and forecasts of tourism demand are essential for efficient planning by tourism-related businesses, particularly given the perishable nature of the tourism product. Secondly, tourism investment requires long-run financial commitments from public finances especially for infrastructures, then, accurate analysis of the tourism demand situation will help governments and tourism-related industries to formulate and implement appropriate medium- to long-term strategies.

The focused destination country, Taiwan, is an island country located on the southeast of China, opposing each other across the Taiwan straits, furthermore the neighbor countries, Japan and Korea at Taiwanese north and Philippine at the south. In short, it is obvious that Taiwan almost locates on the center of the Asia and substantially occupies a significantly geographic and commercial position in Asia. In obeying traditional island economic model, the last five decades have seen sharp economic growth principally based on a great deal of export in Taiwan, and the dramatic growth of Taiwanese GDP appeared over 260 times from 1961 to 2011. Within the course of economic development, the Taiwanese gross export value mainly contributed by manufacturings has the same tendency with GDP year-on-year. (The financial database of the Taiwan Economic Journal, TEJ) Recently, especially in the last decade, due to facing immense competition, principally of manufacturing industries, only manufacturing export has not been able to provide enough energy to sustain Taiwanese economic growth completely. For stimulating the impotent economy, Taiwan must aggressively make unremitting efforts to carry out an industrial transit such as raising output value of service industry, like tourism.

In order to rise up the output of the tourism industry, many actions have been done by Taiwan government in the ten years. For example, the government targets various markets by promoting packages to local travel agencies as well as to potential clients via the media, in addition to the packages, special events and activities to tourists also being boosted such as

recently “Tour Taiwan Years 2008-2009: Great Quarterly Tourist Giveaway Program”, “the Key-Words marketing”, and the “The Best Trip in the World - Taiwan Explorers Wanted” contest. After these promotions taking place in 2009, the number of inbound visitors to Taiwan increased by 14.3% year-on-year, 29.47% of which came for sightseeing purposes (Taiwan Tourism Bureau). Moreover, in July 2008, a very important policy that the Taiwan government formally opened the gates to Mainland Chinese tourists was passed and implemented, which has contributed to the fact that Taiwanese inbound visitors in 2010 exceeded five millions marking a new record. Overall, the number of tourist arrivals to Taiwan increased year-by-year by about 18 times between 2010 and 1968 along tourism evolution.

In the past, the main source (origin) countries of tourist arrivals to Taiwan were almost Japan, Hong Kong, US, Singapore, South Korea, Thailand, and so on. However, till 2010 China fleetly exceeded all countries as the top one of tourist source countries, due to the open to Chinese tourists which will get more and more important position in Taiwanese tourism. Empirical studies of the correlation between tourism demand and economic conditions of Taiwan have been done by some authors. For example, Kim, Chen, & Jing (2006)[24], and Lee & Chien (2008) both used Taiwan’s overall tourist arrivals as a proxy of tourism growth to discuss the relationship between tourism development and macroeconomic growth. Nevertheless, tourism arrival change from individual source (origin) country responding to different macroeconomic condition has hardly been discussed. In this paper, an individual source (origin) country will be chosen to find out the relationship between its tourism demand and economic conditions, which could be effectively in favor of more detailed policy makings. However, which country is more interested? In the meanwhile China must be the answer through a structure break - the open to Chinese tourists, but lacking enough datasets to do. In addition, Japan would be another attractive research goal. Japan and Taiwan always keep the friendly relationship no matter in economic, political, technical, business, education, civil, or cultural affairs. Not merely, in 2011 the number of tourist arrival from Japan ranked at the second position, just less than China. Therefore, this paper is trying to investigate the long and short-run relationship between international tourist arrivals from Japan to Taiwan and economic factors including Japan GDP, tourism living cost, and substitute prices. In order to verify the relationships and impacts, the cointegration test, vector error correction model (VECM), and generalized impulse function are adopted.

The remainder of the paper is organized as follows. Section 2 reviews recent publications about tourism economies, which will provide the rationale for using the chosen research topic and methodology for this study. Section 3 describes the model, data, and results, while the last section summaries the conclusions.

LITERATURE REVIEWS

The existing literature shows that there had been very few published papers in international academic journals concerning the relationship of Taiwan's tourism demand and economic factors. The reason may be that Taiwan has not been regarded as a traditional and famous destination by international tourists. Indeed, many Americans and Europeans can not accurately understand where Taiwan is, let alone select Taiwan as a visiting destination. Until 2006 by Kim, Chen, & Jing[24], a paper concerning the relationship between tourism and economy of Taiwan did not appear. The paper examined the causal relationship between tourism expansion and economic development in Taiwan with the tourist arrival and the GDP variables, and indicating a long-run equilibrium relationship and further a bi-directional causality between the two factors. However, it could be found that all these literature just concern the overall tourist arrivals but of individual source (origin) countries or regions.

Dritsakis (2004)[10] tried to investigate changes in the long-run demand for tourism to Greece by Germany and Great Britain, which used a number of leading macroeconomic variables, including income in origin countries, tourism prices in Greece, and transportation cost and exchanges rates. In the same years, Lim [27] analyzed the seasonal patterns of tourist arrivals from South Korea to Australia, and used econometric time series modeling to quantify the factors affecting the flow of international tourists between Australia and Korea. The paper in Song & Witt (2006)[36] used VAR to forecast tourist flows to Macau from eight major origin countries, suggesting that Macau will face increasing tourism demand by residents from mainland China. Nevertheless, the tourist arrivals to Taiwan by major source (origin) countries or regions still have not been discussed separately in academic papers. In this paper, an important source country where many tourist arrivals come from, Japan, will be chosen to analyze the relationship between Taiwan's tourist arrivals from Japan and economic factors.

With regard to research about economy and tourism, it is important to verify which economic factor should affect tourism demand closely. Lim (1997)[27] argued that discretionary income should be used as the appropriate measure of income in the demand model. However, this is a subjective variable and the data cannot be easily obtained in practice. Therefore, alternative income measures have to be used as a proxy for tourists' discretionary income. (Song & Witt, 2006)[36] Among these alternatives such as GDP, GNP, PDI, and GNI, real gross domestic product (GDP) is a more suitable proxy which works in the demand models that relate to sum of visitors including holiday, visiting friends, relatives travel, and so on. So, the quarterly data of real GDP is chosen as one of the economic factors in this paper.

The own price of tourism is another variable that has been found to have an important role determining international tourism demand. Song & Witt (2006)[36] pointed out that this

variable should contain two components in theory: the cost of living at the destination and the transportation cost to the destination. However, in many studies transportation cost was omitted, by acquiring data difficultly, so transportation costs will not also be considered in this paper. The cost of living at the destination is normally measured by the destination consumer price index (CPI) relative to the origin CPI. Another important factor that affects the cost of living in the destination is the exchange rate between the origin country and destination country currencies. Qiu & Zhang (1995) and Witt & Witt (1992) used the exchange rate between the destination and origin as well as a separate CPI variable to account for the cost of tourism, while the majority of the published studies, especially the most recent ones such as Song & Witt (2006)[36] have employed an exchange rate adjusted relative price index between the destination and origin as the own price variable. In this paper, the exchange rate adjusted relative price index is calculated for the variable of living cost.

In addition to the own price, substitute prices in competitive destinations have also proved as important determinants.[36] There are two forms of substitute prices that have been used: one allows for the substitution between the destination and a competitive destination as Kim & Song (1998), Song et al. (2000), Song & Witt (2006), and the other calculates the cost of tourism in the destination under consideration relative to a weighted average cost of living in various competing destinations, and this index is also adjusted by relevant exchange rates. The weight is the relative market share of each competing destination (Song & Witt, 2006)[36]. In this study, the first form is adopted by setting a hot destination, Hong Kong as the single competing destination, because market share ratios of major competing countries are hard to obtain. In addition, Hong Kong region locates very near Taiwan and has the similar tourism and business model.

THE MODEL, DATASET, AND RESULTS

The econometric method applied to model a long-run relationship between tourist arrivals from Japan and economic factors is the cointegration methodology which estimates the quarterly dataset of tourist arrivals from Japan, the GDP of Japan, the own prices, and the substitute prices over the period from third quarter, 2001 to first quarter, 2011. In this study, the cost of living is deemed as the index variable of own prices in Taiwan normally measured by the Taiwanese consumer price index (CPI) divided by the CPI of Japan and adjusted by the appropriate exchange rates. The substitute price is measured by the relative CPI of Hong Kong to that of Taiwan adjusted by the appropriate exchange rate, because Hong Kong is generally regarded as the most major opponent of Taiwan in tourism industries. There are four model variables: tourist arrivals from Japan gotten from Tourism Bureau, Ministry of Transportation and Communications, Republic of China (Taiwan), GDP of Japan gotten from the financial database of Taiwan Economic Journal (TEJ), the cost of living and the substitute

prices calculated with exchange rates and CPI of Taiwan, Japan, and Hong Kong also gotten from TEJ. Then, the four model variables were all transformed by the use of natural logarithms to ease interpretation of coefficients. Besides, there is a concern of removing important information while adjusting for seasonality, unadjusted data are used.

Before cointegration test, the unit root of the variables must be tested firstly to know the cointegration order of the four model variables. Further, we applied the method developed by Johansen (1988) based on the Vector Autoregression (VAR) to test whether the cointegration exists among the four model variables. In addition, in order to understand the response of tourism demand from Japan to the change of the economic factors including the GDP of Japan, the cost of living, and the substitute prices, the impulse response analysis based on vector error correction model (VECM) was used.

Unit root for the order of integration

In general, the first step for economic data analysis is to study the integration order of the series by using a unit root test (Schubert, Brida, and Risso, 2010)[34]. Integration means that past shocks remaining undiluted affects the realizations of the series forever and a series has theoretically infinite variance and a time-dependent mean (Enders, 1995)[11].

In this paper, famous Augmented Dickey–Fuller (ADF) and Phillips–Perron (PP) tests are made use of verifying whether the time series variable is non-stationary or stationary. All procedures allow for fitted drift in the time series model. The ADF test account for temporally dependent and heterogeneously distributed errors by including lagged innovation sequences in the fitted regression. In contrast, the Phillips and Perron procedure accounts for n.i.i.d. (non-independent and identically distributed) processes using a nonparametric adjustment to the standard Dickey-Fuller (DF) procedure. The results of testing the order of logarithm variables of tourist arrivals from Japan (LJTA), the GDP of Japan (LJGDP), the cost of living (LJCL), and the substitute prices (LJSP) are shown in Table 1. The tests strongly sustain the null hypothesis of non-stationarity for the level variables of the GDP of Japan (LJGDP) and the substitute price (LJSP), and reject ones for the level variables of tourist arrivals from Japan (LJTA) and the cost of living (LJCL). Then, the first differenced series of all four model variables are stationary due that the null hypothesis was rejected at 1% level. In short, the variables of tourist arrivals from Japan (LJTA) and the cost of living (LJCL) are significantly belonged to the zero order of integration I(0) whereas the GDP of Japan (LJGDP) and the substitute price (LJSP) are I(1).

The unit root test shows that there exist different orders of integration, I(0) and I(1), for the four level variables, which means the approach of conventional regression and unrestricted

vector autoregression (VAR) is not avail to use. When we study with nonstationary time series, the regressions usually produce significant OLS parameter estimates yet, but the residuals are ordinarily nonstationary, thus violating the standard assumption of classical econometrics. This problem is known as spurious regression. The VAR model has the same problem. In addition, Toda and Yamamoto (1995) noted that conventional asymptotic theory is, in general, not applicable to hypothesis testing in levels VARs if the variables are integrated, I(1). Therefore, we follow the remark of Phillips (1986) that cointegration techniques have to be applied for nonstationary time series, and, for different integration orders, the Johansen cointegration test is selected here.

TABLE 1. RESULTS OF UNIT ROOT TESTS

Variables	LJTA		LJGDP		LJCL		LJSP	
Test method	ADF	PP	ADP	PP	ADF	PP	ADF	PP
Level	-3.15** (0.032)	-4.06*** (0.0031)	-2.24 (0.19)	-1.82 (0.364)	-2.43** (0.017)	-1.59* (0.08)	-2.90 (0.17)	-0.92 (0.26)
Lag	1	2	3	3	2	2	1	2
First Differenced	-8.52*** (0.00)	-17.75*** (0.00)	-4.62*** (0.00)	-4.66*** (0.00)	-6.79*** (0.00)	-5.94*** (0.00)	-5.10*** (0.00)	-4.75*** (0.00)
Lag	1	3	1	2	1	1	1	1

Notes: The optimal lag length determined selected on Akaike Information Criterion (AIC). Numbers without ( ) are the t-statistics for each kind of the unit root tests. Numbers in brackets ( ) are probabilities, p-values. To reject the null hypothesis of having a unit root at different significant levels 1%, 5%, or 10%, which means that a time series is stationary. *** indicates the t-statistics is at the 1% significance level, in the same way, ** and * at the 5% and 10% significance level, respectively.

Testing for cointegration

On the application of unit root tests in this paper, both the time series of the tourist arrivals from Japan (LJTA) and the cost of living (LJCL) are well characterized to be integrated of order zero, denoted I(0) which means stationarity that the mean and the variance of these series are constant through time and the autocovariance of the series is not time varying. However, the time series of the GDP of Japan (LJGDP) and the substitute price (LJSP) are I(1) meaning that past shocks remaining undiluted affects the realizations of the series forever and either series has theoretically an infinite variance and a time-dependent mean. Since the

dependent variable, the tourist arrivals from Japan to Taiwan, and the other three economic variables have not the same order of integration, the Johansen cointegration test is an adequate method to verify whether the cointegration exists among the four model variables.

The Johansen test, named after Saren Johansen, is a procedure for testing cointegration. This test permits more than one cointegrating relationship so is more generally applicable than the Engle–Granger test which is based on the Dickey–Fuller (or the augmented) test for unit roots in the residuals from a single estimated cointegrating relationship. There are two types of likelihood ratio tests, either with trace or with maximum eigenvalue to test for the number of cointegrating relationships, and the results might be a little bit different. Table 2 and Table 3 separately shows results of the trace and maximum eigenvalue statistics of the cointegration test between the four model variables. When the trace statistic and the maximum eigenvalue statistic are greater than Osterwald-lenum (1992) 5% critical values, the null hypothesis of r cointegrating vectors against the alternative of r+1 vectors is rejected, r denoting number of cointegration equations. Regardless of the trace statistic or the maximum eigenvalue one, three hypotheses (r = 0, 1, and 2) were rejected at the 5% significance level, which indicated the existence of three cointegrating equations between the four model variables. Enders (2004) states that cointegrated variables share the same stochastic trends and so cannot drift too far apart. It is concluded that there is a long-run equilibrium relationship between the four model variables of the tourist arrivals from Japan, the GDP of Japan, the cost of living, and the substitute price.

TABLE 2. COINTEGRATION TESTS BY TRACE

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.857358	124.3495	40.17493	0.0000
At most 1 *	0.707426	60.08458	24.27596	0.0000
At most 2 *	0.390679	19.52632	12.32090	0.0026
At most 3	0.091805	3.177783	4.129906	0.0884

Notes: CE means cointegration equations. The optimal lags selected based on AIC. *denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

TABLE 3. COINTEGRATION TESTS BY MAXIMUM EIGENVALUE

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.857358	64.26487	24.15921	0.0000

At most 1 *	0.707426	40.55826	17.79730	0.0000
At most 2 *	0.390679	16.34854	11.22480	0.0058
At most 3	0.091805	3.177783	4.129906	0.0884

Notes: CE means cointegration equations. The optimal lags selected based on AIC. *denotes rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) p-values.

Vector error correction model

There is an error correction representation for cointegrated series. Engle & Granger (1987) reveal that, if the series are cointegrated, then the possibility of the estimated regression being spurious due to tribulations such as omitted variable bias, autocorrelation, and endogeneity is ruled out. Since the series tested above are cointegrated, a vector error correction model (VECM) can be specified. Observing the long-run and short-run properties of the series may provide very useful insights especially for policy makers. (Gune, 2007) In addition, because the cointegrating vectors bind the long run behavior of the variables, the VECM could be expected to produce results in impulse response analysis that more accurately reflect the relationship between the variables than the standard unrestricted VAR.

Due that three cointegrating vectors exist among these variables, the vector error correction model (VECM) can be written as follows:

$$\Delta \mathrm{LJTA}_t = \alpha_1 + \sum \lambda_1(i)\Delta \mathrm{LJTA}_{t-i} + \sum \beta_1(i)\Delta \mathrm{LJGDP}_{t-i} + \sum \gamma_1(i)\Delta \mathrm{LJCL}_{t-i} + \sum \delta_1(i)\Delta \mathrm{LJSP}_{t-i} + \phi_1 \mathrm{ECT}_{t-1} + \varepsilon_{t1} \quad (1)$$

$$\Delta \mathrm{LJGDP}_t = \alpha_2 + \sum \lambda_2(i)\Delta \mathrm{LJTA}_{t-i} + \sum \beta_2(i)\Delta \mathrm{LJGDP}_{t-i} + \sum \gamma_2(i)\Delta \mathrm{LJCL}_{t-i} + \sum \delta_2(i)\Delta \mathrm{LJSP}_{t-i} + \phi_2 \mathrm{ECT}_{t-1} + \varepsilon_{t2} \quad (2)$$

$$\Delta \mathrm{LJCL}_t = \alpha_3 + \sum \lambda_3(i)\Delta \mathrm{LJTA}_{t-i} + \sum \beta_3(i)\Delta \mathrm{LJGDP}_{t-i} + \sum \gamma_3(i)\Delta \mathrm{LJCL}_{t-i} + \sum \delta_3(i)\Delta \mathrm{LJSP}_{t-i} + \phi_3 \mathrm{ECT}_{t-1} + \varepsilon_{t3} \quad (3)$$

$$\Delta \mathrm{LJSP}_t = \alpha_4 + \sum \lambda_4(i)\Delta \mathrm{LJTA}_{t-i} + \sum \beta_4(i)\Delta \mathrm{LJGDP}_{t-i} + \sum \gamma_4(i)\Delta \mathrm{LJCL}_{t-i} + \sum \delta_4(i)\Delta \mathrm{LJSP}_{t-i} + \phi_4 \mathrm{ECT}_{t-1} + \varepsilon_{t4} \quad (4)$$

where Δ is the first-difference operator, ECT is the error correction term coming from the long-run cointegrating relationship. The coefficients of ECT_{t-1}, $\phi_1, \ldots, \phi_4$, capture the adjustments of $\triangle \mathrm{LJTA}_t$, $\triangle \mathrm{LJGDP}_t$, $\triangle \mathrm{LJCL}_t$, and $\triangle \mathrm{LJSP}_t$ towards long-run equilibrium. The coefficient vectors of the error correction terms (ECT) of the VECM results obtained from equations (1) to (4) are shown in Table 4. After the cointegration test, it is verified that

there exist three cointegration vectors, so followed three coefficient vectors of error correction terms (ECT). For the first coefficient vector ECT1 of error correction terms in Table 4, the ECT1 coefficient of equation (1) is significant and has negative sign at 1% significant level. For the second coefficient vector ECT2, the ECT2 coefficients of equation (2) and (3) are significant separately at 5% and 10% levels and have negative signs. Finally, the ECT3 coefficient of equations (1) is significant and has negative sign at 5% significant level. These imply that the series can not sway too far and convergence is achieved in the long run. Hence, each ECT coefficient indicates that how long a deviation from the long-run equilibrium value in a given time will be corrected for depends on the size of that coefficient.

TABLE 4. RESULTS OF VECTOR ERROR CORRECTION MODEL

Dependent variable Equation	△LJTA Eq(1)	△LJGDP Eq(2)	△LJCL Eq(3)	△LJSP Eq(4)
Coefficient vector ECT1	-3.294***	0.056	0.132	0.063
Coefficient vector ECT2	1.748	-0.139**	-0.224*	-0.044
Coefficient vector ECT3	-1.802**	0.121	-0.026	0.034

Generalized impulse response analysis

An impulse response function measures the time profile of the effect of shocks at a given point on the expected future values of variables for a dynamic system. This study uses analysis of the generalized impulse response functions (Pesaran & Shin, 1998) to analyze the short-run dynamics of the variables. Unlike orthogonalized impulse response functions are unique solution and invariant to the ordering of the variables in VECM. The dynamic response of the tourist arrivals (tourism demand) to innovations in the macroeconomic factors can be traced out by the generalized impulse response analysis. We could see the responses of the tourist arrivals from US (LUSTA) to the personal disposable income of US (LUSPDI), the cost of living (LUSCL), and the substitute price (LUSSP) as given in Figure 1, such that the tourism demand function takes the form

$$LUSTA_t = f(\ LUSPDI_t, LUSCL_t, LUSSP_t) \qquad (5)$$

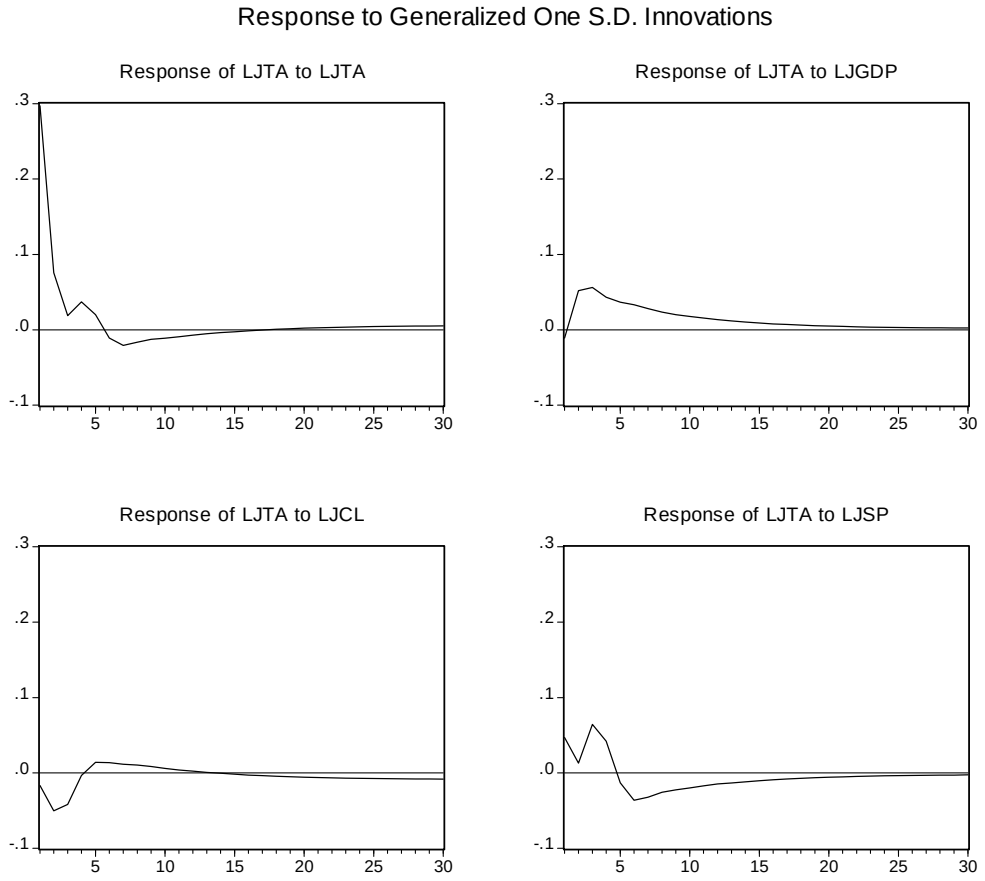

FIGURE 1. GENERALIZED IMPULSE RESPONSE

The top-left panel of Figure 1 shows that a shock in the variable itself of the tourist arrivals from Japan will have a relatively larger impact on the current level of tourist arrivals and this impact will gradually die off and disappear after 15 periods. In top-right panel of Figure 1, the response of the tourist arrivals from Japan to a shock in the GDP of Japan is positive, which shows the tourism demand increases if incomes rise. The outcome implies that tourism demand elasticity is positive and the kind of tourism products is normal goods. The shock in cost of living (LJCL) as shown in the bottom-left has a negative impact on tourism demand for Japan, being consistent with the basic law of demand. With responding to the shock in substitute prices (LJSP), tourism demand for Japan (LJTA) has positive sign at the beginning and then turn into negative before dying off as shown in the bottom-right panel, which may mean that more Japan tourists choose Taiwan as their destination as soon as living cost of Taiwan's main competing region, Hong Kong, rises and later Japanese will rechoose Hong Kong to travel because they may have been adapted to high living cost. Fundamentally, the results of generalized impulse response analysis are almost consistent with the theoretical findings.

CONCLUDING REMARKS

The tourism industry may be another major contributing factor to Taiwan's economic growth. The 2002 annual statistics of Tourism (Tourism Bureau of Taiwan, 2003) reported that Taiwan's tourism receipts accounted for 4.2 percent of the gross domestic product (GDP) in 1996. This figure exceeded the contribution of the agricultural sector to GDP, thereby making tourism as one of the major industries in Taiwan (Kim, Chen, & Jang, 2006). Besides, the Taiwan government has aggressively promoted inbound tourism over many years by a lot of policies such as "Tour Taiwan Years 2008-2009", "The Best Trip in the World - Taiwan Explorers Wanted" contest, "The multiplying project of international tourists", and so on. The tourism development not only increases nation income but also diversifies the range of industries, particularly, the industrial diversity can reduce the risk of export-oriented economy if economic recession occurs. Therefore, tourism has played a very important role for Taiwanese future.

Tourism demand analysis is absolutely regarded as a necessity of tourism policy makings. This empirical study is intended to understand how the important economic factors that include the GDP of Japan, the cost of living, and the substitute price affect the tourist arrivals from an individual host country, Japan. It was found that there exists a stable long-run relationship between the four model variables. However, for the short-term, the response of the tourist arrivals from US to a shock in GDP of Japan is positive, the shock in cost of living has a negative impact on tourism demand for Japan, and the response of tourism demand for Japan to the shock in substitute prices initially has a positive relation. Overall, the short-run equilibrium adjustment process is consistent with the basic economic theory.

This study suggests that Taiwanese government and tourism industry must pay more attention to these macroeconomic factors as making policy decisions especially for Japan tourists because of the tested long-run stable relationship. In the future, we hope to compare different important host countries or regions such as Hong Kong, Korea, Singapore, and Thailand to get more detailed information for tourism industry. In addition, Taiwan government have formally opened the gates to Mainland Chinese tourists since July 2008, which has contributed to the fact that Taiwanese inbound visitors in 2010 exceed five millions, so China will also be an important research target we must focus on.

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