

AN EMPIRICAL ANALYSIS OF THE IMPACT OF TOURISM AND MACROECONOMIC VARIABLES ON ECONOMIC GROWTH OF SOUTH KOREA.

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Abstract: *This paper examines the relationship between tourism and economic growth in South Korea. The study also used macroeconomic variables such as physical capital, exports and expenditure on health in studying this relationship. The paper uses time series data for Gross Domestic Product (GDP) per capita and tourist recipient and the three macroeconomic variables mentioned above. The study employed the autoregressive distributed lag (ARDL) model to estimate the long run relationship model of GDP per capita and tourist recipient. The study tests the hypothesis that tourism induces economic growth and the findings revealed a positive relationship between economic growth and tourist recipient in South Korea. This suggests that tourists' activities induce economic growth in South Korea. Other control variables have also suggest positive relationship with economic growth. The implication of the study is that it provides evident that tourism enhances growth.*

Keywords: *Tourist Receipt, Economic Growth, Macroeconomic, ARDL, South Korea.*

Introduction

The United Nation World Tourism Organization (UNWTO) defined tourism as the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes that are not related to the exercise of an activity remunerated from within the place visited. The history of tourism started with Thomas Cook in year 1841 (Brendon 1991), which he organised his first tour to attend temperance rally in England. From that time, the demand for more assistance in making travel arrangements led him to provide full-time business travel services. There are advantages that can be derived from tourism, one of which is that it helps to diversify and sustains a country's economic growth. This can be explained by the fact that it provides extra tax revenues such as airport tax and sales tax to the Government. Besides, it gives many job opportunities to local people in that area. Lastly, touring became a source of knowledge by learning the new culture

and the past history of that area. There are many forms of tourism such as educational tourism, sport tourism, cultural tourism, leisure tourism, religious tourism and many more.

According to The World Tourism and Travel Council (WTTC), travel and tourism played an important role in development and growth of the global economy. WTTC Reports in 2014 that total contribution of Travel and Tourism to global economy rose up to 9.5 percent of global GDP. Tourism not just made economy become wider, it is also growing faster than financial and business services, manufacturing and transport. Approximately 266 million jobs were supported by Travel and Tourism during the year 2013. (*World and Tourism Council, 2014*).

South Korea is one of the Asian countries, located in the North-eastern part of the continent. It has a total land area of about 100,003 square kilo meters, neighbouring Japan, China and sharing a northern border with Democratic People's Republic of Korea (North Korea). With Seoul as its capital city, Korea is a centre for economic, cultural and arts activity. As of July 2015, the total population South Korea was 51,448,183. There are seven major cities and nine provinces in Korea. (*Ministry of Interior, Korea*).

This study chose South Korea because South Korea's economy is growing rapidly and it is an export-oriented economy with tourism features that seemed to have a big potential to contribute to economic growth. According to report by the Bank of Korea (2002), tourism expenditure had contributed 3.2 percent of total final demand. The value-added revenue from tourism-related industries also accounted up to 3.5 percent of GDP (Bank of Korea report 2002). Besides, government and other related tourism organisation and agencies such as Ministry of Culture, Tourism and Sports (MCTS) of South Korea are vigorously promoting this industry, year by year. For instance organising a program called 'Visit Korea Year', handling international events, providing new types of tourism such as medical tourism, ecotourism and sport tourism. Moreover, the country is currently promoting its locally manufactured products in entertainment industry. There is abundance of television dramas, variety of programs, commercials and documentary that have been broadcasted to many countries especially in Asian countries, and particularly, in Southeast Asia where increasing numbers of Korean based restaurants that served Korean cuisine can be seen. These are the strategies embarked upon by Korean to attract international tourists to come to South Korea to learn about their culture and feel the real experience in their country.

Even though tourism sector is growing year by year and have a great potential to induce economic growth, the contribution to country's GDP is not at a good ranked-based industry. A finding from World Travel and Tourism Council (WTTC) in 2013 revealed that travel and tourism ranked at 17th place and the percentage of contribution is only 2.1 per cent. There are twenty industries that are included and the top three industries are from radio, TV commercial equipment, real estate, public administration and defence. It shows that other industries are moving forward than tourism. This industry has a big potential that will bring many benefits to any nation's economic growth, as the number of tourist arrival increasing year by year. People nowadays tends to visit other country for many reasons and factors. Tourism impacts both direct and indirect effects for present and future development. In 2014, job opportunities have been generated by this industry and it is forecasted to grow year by year (WTTC, 2015). It can also encourage more investors from other countries and increase foreign direct investments (FDI). It develops new area and help people to increase their income form ecotourism activity. Most importantly, it increases government revenues and revitalise domestic economy in South Korea (OECD, 2015).

Therefore, the objective of this study is to investigate the long run relationship between tourism and economic growth of South Korea and to analyse the short run error correction term, with the inclusion of some macroeconomic variables such as health expenditure, export of goods and services and gross capital formation. The remnants of this paper is organised as follows; section 2 reviewed the literature related to this study, section 3 explains the methodology used by the study, section 4 contains the results and discussions on findings, and finally, section 5 concludes the study.

Literature Review

In particular, Irshad (2010)'s review of Page and Getz (1997) There are few literature on tourism and growth. A study by Oh (2005) disagreed with the assertion that tourism will lead to growth. The proxy for tourism used by Oh's study is tourism receipts and proxy of economic growth is real GDP. The study used VAR model to examine the relationship. On the other hand, the study found that economic growth influences tourism growth, as 1 percent increase in GDP led to 0.19 per cent growth in tourism in South Korea. Another time series study by Balaguer and Cantavella (2000) on Spain using quarterly data for the period 1975-1997 has found that Spanish economic growth had been affected positively by tourism. Other independent variable which is real effective exchange rates is found significant with the dependent variable. In Singapore, Katircioglu (2010) utilised annual data to investigate the relationship between tourism and growth using autoregressive distributed lag model and Granger causality test, and found positive relationship between tourism receipts and income. Lee and Chang (2008) found positive and significant relationship between tourism and growth in OECD and Non-OECD countries of Asia, Latin America and Sub-Saharan African.

Another study by Tugcu (2014) on Mediterranean region that involved Europe, Asia and Africa for the period 1998-2011 had tested four different hypotheses; the first hypothesis is growth hypothesis that measured unidirectional causality running from tourism to economic growth. Secondly the conservation hypothesis that proved the unidirectional causality from economic growth to tourism. The third hypothesis is feedback, which tested the bi-directional causality between tourism and economic growth. Lastly the neutrality hypothesis that indicates no existent relationship between tourism and economic growth. All the hypotheses were developed by Erkus-Ozturk (2010). The results showed that growth hypothesis exist in Asian countries, neutrality hypothesis in African countries and feedback hypothesis in European countries when use tourism receipts variable. However when using tourism expenditure variable, European and Asian countries proved feedback hypothesis and African indicates neutrality hypothesis.

Methodology

From the neoclassical growth model by Slow (1956), extended by Feder (1982) and Mankiw, et al. (1992) through the inclusion of exports and human capital respectively. In addition the inclusion of tourist recipient as a proxy of tourism to determine the growth and development of a country was an idea used by previous researches (see Durbarry (2004), Oh (2005) and Kim, et al. (2006)). Based on these studies, the basic model for this study is presented as follows.

$$\ln Y_t = \beta_0 + \beta_1 \ln TR_t + \beta_2 \ln K_t + \beta_3 \ln Export_t + \beta_4 \ln HE_t + \varepsilon_t \quad (1)$$

where Y denotes economic growth measured by GDP per capita annual growth rate, TR is the tourist recipient, K is the physical capital, $Export$ stands for export of goods and services and finally, HE stands for the expenditure on health made by the government of South Korea. All

data for the variables were collected from the World Bank's world development indicator (WDI) database. The expectation of this study is that tourism will have a positive impact on economic growth of South Korea, other independent variables are also expected to exhibit positive relationship with economic growth.

To achieve the objectives of this study, autoregressive distributed lag (ARDL) bounds testing approach developed by Pesaran, et al (2001) is used. The approach is based on the estimation of unrestricted error correction model (UECM) due to advantages it possesses, some of which are that the model can be applied for small sample size (30-80) data, it estimates for short run and long run model simultaneously and whether the variables are integrated of I(0) or I(1), and the selection of lags is done automatically (Pesaran, et al. 2001). Furthermore, to test for the cointegration or the existence of long run relationship between tourism and growth, we suggest the use of bounds test as mentioned earlier. Firstly, we estimate the following ARDL-UECM for the growth-tourism and other independent variables equation as follows.

$$\begin{aligned} \Delta \ln Y_t = & \alpha_0 + \sum_{i=1}^{\rho} \alpha_1 \Delta \ln Y_{t-1} + \sum_{i=0}^q \alpha_2 \Delta \ln TR_{t-1} + \sum_{i=0}^q \alpha_3 \Delta \ln K_{t-1} + \sum_{i=0}^q \alpha_4 \Delta \ln Export_{t-1} \\ & + \sum_{i=0}^q \alpha_5 \Delta \ln HE_{t-1} + \beta_1 \ln Y_{t-1} + \beta_2 \ln TR_{t-1} + \beta_3 \ln K_{t-1} + \beta_4 \ln Export_{t-1} \\ & + \beta_5 \ln HE_{t-1} + \epsilon_t \end{aligned} \quad (2)$$

where Δ is the difference operator, ρ and q are optimal lag length chosen; α_0 is constant term and ϵ_t is the disturbance term in the growth equation. At that point we employ the method suggested by Pesaran *et al.* (2001), to test for bounds cointegration, which means testing for the existence of long run relationships amongst variables of interest. An F -test, which can be denoted as $F_Y(Y/TR, K, Export, HE)$ is proposed. The null hypothesis for non-cointegration is $H_0: \beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = 0$ against the alternative hypothesis $H_a: \beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq 0$, which is rejection of the null hypothesis that cointegration between variables exists, hence, tourist recipient, physical capital, exports of goods and services and health expenditure affect income.

The value of the F -statistics is compared with upper and lower critical values provided by Narayan (2005). If the F -statistics exceeds the upper critical value, we reject the null hypothesis and conclude that a long run relationships exists. If the F -statistics fall below the lower critical value, we fail to reject the null hypothesis of no cointegration and then we continue the estimation under the assumption that no log run relationship. The result is inconclusive if the F -statistics fall between the two bounds.

In the event that income and tourism and other independent variables are cointegrated after estimating equation (2), the following ARDL equation will be estimated and modified to account for spurious effects as the ARDL-ECM:

$$\begin{aligned} \ln Y_t = & \theta_0 + \sum_{i=1}^{\rho} \theta_{1i} \ln Y_{t-1} + \sum_{i=0}^q \theta_{2i} \ln TR_{t-1} + \sum_{i=0}^q \theta_{3i} \ln K_{t-1} + \sum_{i=0}^q \theta_{4i} \ln Export_{t-1} \\ & + \sum_{i=0}^q \theta_{5i} \ln HE_{t-1} + \epsilon_t \end{aligned} \quad (3)$$

The optimal lag length in equation (3) is selected based on Schwartz Bayesian Criterion (SBC) as suggested by Pesaran *et al.* (1996). If cointegration exists, we then specify an ARDL-ECM equation as follows:

$$\begin{aligned} \Delta \ln Y_t = & \gamma_0 + \sum_{i=1}^{\rho} \gamma_{1i} \Delta \ln Y_{t-1} + \sum_{i=0}^q \gamma_{2i} \Delta \ln TR_{t-1} + \sum_{i=0}^q \gamma_{3i} \Delta \ln K_{t-1} + \sum_{i=0}^q \gamma_{4i} \Delta \ln Export_{t-1} \\ & + \sum_{i=0}^q \gamma_{5i} \Delta \ln HE_{t-1} + \lambda ECM_{t-1} + \mu_t \end{aligned} \quad (4)$$

where ECM_t is the error correction term define as

$$\begin{aligned} ECM_t = & \ln Y_t - \left[\theta_0 + \sum_{i=1}^{\rho} \theta_{1i} \ln Y_{t-1} + \sum_{i=0}^q \theta_{2i} \ln TR_{t-1} + \sum_{i=0}^q \theta_{3i} \ln K_{t-1} \right. \\ & + \sum_{i=0}^q \theta_{4i} \ln Export_{t-1} \\ & \left. + \sum_{i=0}^q \theta_{5i} \ln HE_{t-1} \right] \end{aligned} \quad (5)$$

From equation (4), $\gamma_1, \gamma_2, \gamma_3, \gamma_4$ and γ_5 are short run dynamic coefficients of the model's convergence to equilibrium, λ is the speed of adjustment parameter and ECM is error correction term.

This study uses time series data and the sources of the data varies; data for tourism measured by the international tourist recipient was collected from the Korea Tourism Organisation (KTO), while data for GDP per capita, exports (measured by total exports of goods and services), health expenditure and physical capital (measured by gross capital formation) have been collected from the World Bank's world development indicator (WDI). All data are from year 1981 until year 2014.

Results and Discussions

In this section, we present the results. Table 1 reports the unit root test results, which checks the level of stationary of all variables under study. The Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) were used in checking the stationarity of the data both at level (I(0)) and at first difference (I(1)), as well as at constant with no trend and constant with trend.

Table 1 Results of the Unit root test

Variable	ADF		PP	
	Constant	Constant &Trend	Constant	Constant &Trend
Level I(0)				
$\ln Y_t$	-1.6139	-1.6098	-1.6754	-1.6781
$\ln TR_t$	-2.1349	-2.0734	-2.0362	-2.1073
$\ln K_t$	-2.6692*	-1.9784	-6.2468***	-1.0842
$\ln HE_t$	0.8678	1.4776	1.1459	-1.4113
$\ln Export_t$	-1.1299	-1.0087	-1.1725	-1.2685
First Difference I(I)				
$\ln Y_t$	-4.6307***	-4.7751***	-4.5889***	-4.7114***
$\ln TR_t$	-4.0326***	-4.1411**	-4.0294***	-4.1423**
$\ln K_t$	-5.2736***	-6.1550***	-4.7159***	-10.344***
$\ln HE_t$	-5.1640***	-5.4456	-5.1656***	-5.5642***
$\ln Export_t$	-4.5706***	-4.6924***	-4.4493***	-4.6160***

Note: ***, ** and * denotes significant at 1%, 5% and 10% significance level, respectively.

All the variables in Table 1 are stationary at first difference, both using ADF and PP at 1 percent level of significance. Therefore the variables are integrated, hence we reject the null hypothesis and proceed to next step.

ARDL Bounds Test

Based on the findings in Table 2, the computed value of F – statistics is 5.0901. This value is greater than the critical value of the upper bound in Narayan (2005) table at 5 percent. It indicates the existence of cointegration between the dependent variable and the independent variables. Therefore we can reject the null hypothesis that there is no co-integration between the variables, and thus we can proceed to estimate long run coefficients and short run model.

Table 2 Result of the Bound test for cointegration

F- statistics = 5.0901** (n=34, k=4)		
Critical Value	Lower Bound I(0)	Upper Bound I(I)
1%	4.768	6.670
5%	3.354	4.774
10%	2.752	3.994

Note: ** denotes significant at 5% level.

Long run coefficient

Table 3 Result of the Long-run coefficient

Dependent variables $\ln Y_t$		
Independent variables	Coefficient	T-ratio [Prob]
$\ln TR_t$	0.58629 (0.1666)	3.5185 [0.002]***
$\ln K_t$	0.83505 (0.1879)	4.4425 [0.000]***
$\ln HE_t$	0.71837 (0.2011)	3.5707 [0.001]***
$\ln Export_t$	0.75483 (0.2382)	3.1679 [0.004]***
Constant	-6.6789 (4.0149)	-1.6635 [0.109]

Note: *** denotes significant at 1% level. Values in Parenthesis are standard errors

Table 3 above reports the coefficients of the long run relationship between economic growth and tourism and other independent macroeconomic variables. Based on the reports from the Table 3, all the all the explanatory variables exhibit significant impacts on economic growth of South Korea. For instance, tourist recipient positively and significantly, affects economic growth of South Korea. A 1 percent increase in the number of tourist leads to 0.58 percent increase in economic growth, this shows that tourism activities contribute immensely to the development of South Korean economy. Hence, this study confirms the previous findings of Balaguer and Cantavella (2002), Durbarry (2004) and Ridderstaat *et al.* (2014). Therefore effort to create, upgrade, manage and maintain effectively are hereby recommended by this study.

Physical capital also reveals a positive relationship with growth of South Korean economy, in which a 1 percent increase in gross capital formations explosively triggers a 0.83 percent growth of the economy of that country, and the relationship is significant at 1 percent level of significance. This means that investment on physical capital such as machinery, natural resources like land, and human capital will induce economic growth of South Korea. The findings is in line with the studies of Jin (2011) and Jalil, et al. (2013) for Hong Kong and Pakistan respectively. For health expenditure, the relationship is positive, which reports that an increase in health expenditure by 1 percent will increase GDP per capita by 0.72 percent. It implies that increasing the expenditure on health in Korea through vaccination programs and public health campaigns is pertinent for providing highly productive and skilled workers, which in turn lead to economic growth in the long run, Bloom, et al. (2004) also found this relationship.

Lastly, Exports of goods and services revealed a positive relationship with economic growth; a 1 percent increase in exports induces a 0.75 percent increase in economic growth of South Korea.

Short run relationship

Table 4 Results of Short run coefficient and Error correction Model

Dependent variables : $\ln Y_t$		
Independent variables	Coefficient	T-ratio [Prob]
$\ln TR_t$	0.1503 (0.024)	6.1658 [0.000]***
$\ln K_t$	0.2141 (0.082)	2.6063 [0.015]***
$\ln HE_t$	-0.8735 (0.096)	-9.0114 [0.000]***
$\ln Export_t$	0.1843 (0.118)	1.5592 [0.131]
Constant	-1.7131 (1.408)	-1.2163
$\ln ECM_{t-1}$	-0.2564 (0.065)	-3.9219 [0.001]***

Note: *** denotes significant at 1% level, Values in Parenthesis are standard errors

In Table 4 above, reports of the short run relationship among the variables of interest and the error correction adjustment are presented. The lag of error correction coefficient, $\ln ECM_{t-1}$ is negative and the probability value is significant and below 5 per cent. The coefficient also shows the speed of adjustment back to long run equilibrium at 25.6 percent. This is indicated by the value of $\ln ECM_{t-1}$, which is -0.25649. The Table also revealed that all variables showed significant relationship with economic growth at 1 percent significance level except for exports. Moreover, the short run effect of health expenditure on growth is negative, contrary to the long run impact revealed above.

Diagnostic test

Table 5 Results of the Diagnostic test

Test statistics	F-version
Serial correlation	1.4188 [.245]
Functional form	1.0481 [0.316]
Normality	Not applicable
Heteroskedasticity	3.1605 [0.085]

The result in Table 5 represents the diagnostic tests of the model. They include the values of serial correlation, functional form misspecification, normality test and heteroskedasticity. The model is free from serial correlation and heteroskedasticity problems based on the p-value of the F- version, which are more than 0.05. The value of functional form is 0.316, which indicates evidence of the absence of misspecification of the model.

Based on this analysis, the result in this study is consistent and in line with other previous researches where tourism contributes positively and significantly to economic growth, especially, in the long run. The example of research with most similar finding is by Tang and Tan (2015) on Malaysia. The finding also consistent with Oh (2005) that used the same country but different set of data, sample size, method use of variables.

Conclusions

This study shows that there is a relationship between tourism and economic growth in South Korea. Empirically, a 1 per cent increase in international tourism receipts contributes about 0.15 percent and 0.58 percent increases in GDP per capita growth in short run and long run, respectively. This shows how relevant tourism sector is to the development of the economy of South Korea. The other control variables such as physical capital, health expenditure also contribute to the growth of the economy, too. Government should therefore, embark on implementing policies and allocating more funds with the sole aim of boosting these sectors, particularly, the tourism sector by improving the existing policies and possibly new ones.

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