Measuring Impacts of International Tourism Development on Economic Development: The Case of ASEAN Countries

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ABSTRACT

The relationship between tourism development and economic development has been long determined and measured. This paper primarily aims to measure this relationship in ASEAN countries in the 2001-2009 period. The result indicates that tourism development has a positive effect on economic development, specifically increasing per capita income. Countries with high urbanization levels show even stronger impacts of tourism on per capita income. The structural changes in ASEAN economies to industry and services has not only helped attain high economic growth, but also contributed to improving personal income.

Keywords: international tourism development, economy, per capita income

1. INTRODUCTION

Economic benefits are usually considered as one of the main motivations for governments of ASEAN countries (both developed and developing) to build development strategies for international tourism over the past decades. The importance of international tourism development to economic development was determined long ago (Ivanov & Webster, 2007; Lee & Chang, 2008; Sequeira & Maçãs, 2008). In fact, receipts from this sector not only contribute greatly to the GDP of a country, but also help improve the lives and income of local residents who are engaged in tourism activities and products (Brau *et al.*, 2007).

Although the world economy was greatly affected by recent economic crises which led to unemployment, decreased income, and increased prices, statistics of international tourism showed an upward trend. According to the UNWTO, international tourist arrivals were 935 million in 2010, up 6.7% from 2009 and yielded receipts of US$ 920 billion, up 7.5%. More details on the development trend of international tourism are provided in Table 1.

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Table 1: Facts of World Tourism in 2000-2010

Indicator	Unit	2000	2005	2006	2007	2008	2009	2010
Tourist arrival	Million	682	810	856	914	930	894	935
Receipt	US$ billion	560	829	899	1,038	1,144	1,029	1,070
Growth rate								
- Tourist	%	-	5.0	5.3	6.4	1.7	-4.0	6.7
- Receipt	%	-	7.1	7.8	13.4	9.3	-12.1	3.8
- World economy	%	-	3.6	4.0	3.9	1.5	-1.9	4.2

Source: UNWTO and WB

The world tourism regained recovery from the economic crises of 2008 and 2009, and attained such a high growth rate as that of the world economy. The high tourism growth in 2010 can be attributed to global events such as World Cup 2010 held in South Africa and Winter Olympics in Canada. As the UNWTO predicted, the global tourism would maintain a growth rate of at 4-5% in 2011 with the Asia-Pacific and the Middle East at 7-9% and 7-10% respectively.

The Asia-Pacific is regarded as one of the most visited region (second only to Europe) during the past two decades. The UNWTO statistics show that the region was leading the world in international tourist arrivals, with a growth of 13% in 2010. As can be seen from Figure 1, international tourist arrivals in developing countries were rising while an opposite trend was found in Europe and America.

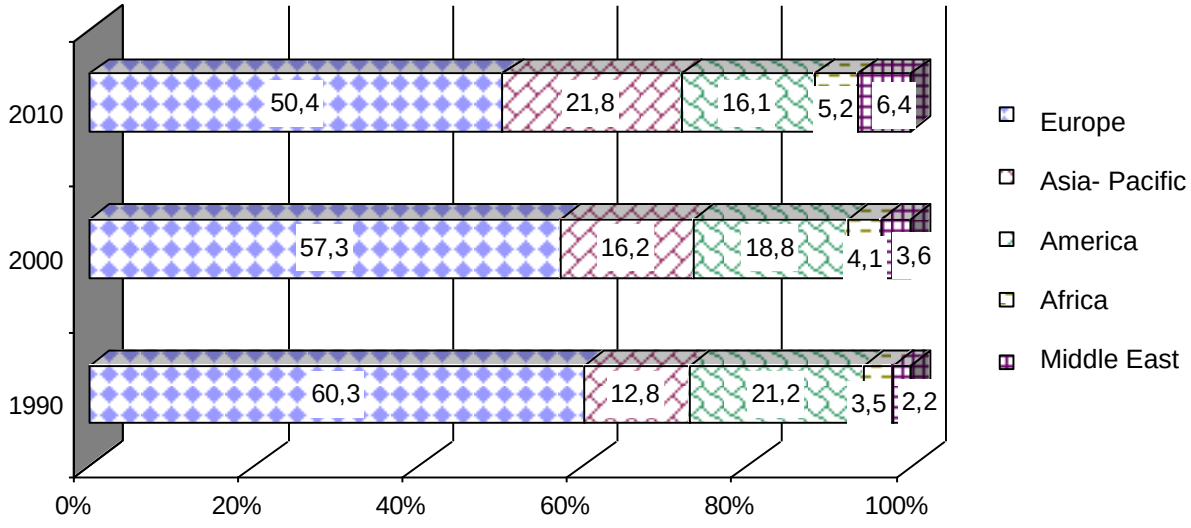

Figure 1: International Tourists to Developing Countries

Source: UNWTO, 2010 (http://www.worldbank.org/data)

Economic and international tourism development in Asian developing countries has attracted the attention of economic researchers. The noticeable case of ASEAN countries has provided much

important evidence of the contribution of international tourism to economic development as an important sector of the economy (Chon, 2000; Hitchcock & King, 1993).

Hence, this paper focuses on providing estimated evidence of the impacts of international tourism on economic development of ASEAN countries as well as presenting the current state of Vietnam.

The rest of the paper is presented in the following order: theory summaries and estimated evidence of the connection between the tourism industry and economic development (Section 2); data sources, estimated variables and estimation model for impacts of tourism on economic development (Section 3); analysis and hypothesis tests of the estimation model (Section 4); and conclusions (Section 5).

2. INTERNATIONAL TOURISM DEVELOPMENT AND ECONOMIC DEVELOPMENT

a. Figures:

Attaining economic development by changing the economic structure was mentioned in classical economic theory in the middle of the 20th century and was applied by developing countries several decades ago. Specifically, it was the switch from traditional agricultural production to industrial production and gradually to the modernization of and focus on development of services.

International tourism is considered as an important factor in development of services in particular and economic development in general in most countries (Brau *et al.*, 2007; Hampton, 1998; Kaplan & Çelik, 2008; Lee & Chang, 2008). Table 1 indicates that there were 935 million international tourist arrivals in 2010 which yielded over US$ 1,000 billion for visited countries. Receipts from international tourists accounted for 6.42% of the aggregate export value and 1.75% of the world's total GDP (UNWTO, 2010).

In ASEAN countries, tourism figures are very impressive. International tourist arrivals in this region rose from 36.9 million in 2000 to 65 million in 2009, making up 32.7% of Asia-Pacific's total arrivals and 6.7% of the world's total arrivals (UNWTO, 2010). Typical examples of this include Thailand, Singapore and Indonesia where tourism industries flourish and play an important part in economic development. In terms of contribution to economic development, tourism ranks the first place in Thailand's economy, second place in the Philippines' and third place in Singapore's. Some other countries with budding tourism like Cambodia, Vietnam and Laos have also achieved impressive achievements in attracting international tourists. Specifically, Vietnam's inbound tourist arrivals rose from 187,000 in 1990 to 3.7 million in 2009 while this figure for Laos also increased from 173,000 to 1.2 million in 2009 (UNWTO, 2010).

Concerning Vietnam, its tourism development is reflected by the following indicators. First, FDI in the tourism industry between 1988 and 2010 was worth US$19.7 billion, accounting for 9.3% of the country's total FDI (GSO, 2010). More than 400 investment projects in tourism were mainly involved in hotels and restaurants, resorts, golf courses, amusement parks, and tourism services (Vietnamnews, 2010). Second, tourism receipts leapt from US$ 1.1 billion in 2001 to US$3.6 billion in 2009 with non-public tourism businesses and FDI respectively making up 53.7% and 31.7% of the total receipts. According the GSO (2010), tourists came to Vietnam for travel and sightseeing (59.8%) and for business (19.8%). Third, tourism made a positive contribution to economic development with 16.6% of

the GDP in 2009. Moreover, it also created 450,000 direct jobs and about one million indirect jobs (GSO, 2010).

ASEAN's tourism development is attributed to the following factors. First, the cultural differences and tourism products (e.g. ecotourism) are the main attractions to international tourists. Second, cooperation in and promotion of tourism development between ASEAN members contribute to each country's tourism development. Third, the emergence of several economies such as Vietnam and Cambodia has attracted global investment. Finally, cultural and socioeconomic summits held in the region, e.g. APEC and ASEM, are also an effective way of promoting ASEAN's image to international friends.

It is obvious that international tourism has brought development opportunities to the world economy in general and ASEAN economies in particular. In a microeconomic view, tourism has helped improve the balance of payments and attract FDI to the economy. It also plays a positive role in stimulating development of other industries like air and road transport, construction, and traditional trades (tourism products). In a macroeconomic view, tourism creates employment and income for local residents.

b. Estimation Method:

The importance of tourism toward economic development has been long confirmed and has drawn the attention of economists. Therefore, methods for estimating the relationship between the two factors are diverse, depending on available data. In general, research data for this subject are usually in form of a time series of independently observed identities (country, region, province, etc.) and are called panel data. Usually, the method for relationship estimation is presented as a econometric model which allows estimated coefficients to change according to observed identities over time (Cameron, 2005):

$$Y_{it} = \alpha_{it} + \beta_{it} X_{it} + u_{it} \text{ , i = 1,...,N and t = 1,…,T} \quad (1)$$

where Y_{it} is a dependent variable,

X_{it} is a vector composed of explanatory factors,

u_{it} is the composite error,

i is an index of independently observed identities (country, province, company, etc.)

t is an index of time series

Based on the general econometric model presented in equation (1), the impacts of tourism on economic development are often estimated in various contexts. For instance, Kaplan & Çelik (2008), Durbarry (2004) saw the GDP factor in form of logarithm as a dependent variable in their estimation models. Meanwhile, in another research on the rapid development of countries with emerging tourism, Brau et al. (2007) measured the effects of tourism on the growth rate of per capita income as a dependent variable. More recently, Sequeira & Maçãs (2008) and Martin et al. (2004) used per capita income (in logarithm) to measure changes of tourism-related factors like receipt share in the GDP and international tourist share in the total population.

3. DATA AND ECONOMETRIC MODEL

a. Data and Description of Variables:

Data used in this research are mainly collected from the UNWTO statistics including information related to macroeconomic and tourism indicators of eight ASEAN countries (with Brunei and Myanmar being absent due to insufficient data) in the 2001-2009 period. Hence, the data source is described as a panel with i=8 and t=9.

Two major indicators employed to evaluate a country's tourism are international tourist arrivals (A) and receipts (R) from international tourists in a particular year. In general, the latter is used more often and calculated in form of a proportion in GDP (RGDP) to show specialization level of tourism in an economy (Eugenio-Martín *et al.*, 2004; and Sequeira & Maçãs, 2008). An important indicator of economic development is per capita income (pGDP) and usually selected as a dependent variable to assess the impacts of tourism on economic development (Eugenio-Martín et al., 2004; and Sequeira & Maçãs, 2008).

Besides tourism specialization, other macroeconomic indicators, namely economic openness and proportion of urban residents, also contribute significantly to per capita income. Specifically, economic openness (O) is determined by the ratio of total export value to GDP and implies free trade of a country ($O \geq 0$). If $O = 0$, then the economy is closed. This ratio signifies that free trade will engage foreign investors in exploring investment opportunities and lead to travel between countries.

According to *Niên giám thống kê* (Statistical Yearbook) 2010, about 20% of international tourists came to Vietnam for business. In addition, this indicator is an important part of GDP and directly affects per capita income. Finally, the proportion of urban residents (U) is considered as an important indicator that is in direct proportion to per capita income (Kojima, 1996).

Table 2 : Description of Variables

Indicator	Unit	Mean	Standard deviation	Min.	Max
pGDP	USD	5,360	9,798	306	39,950
RGDP	%	2.43	1.38	0.64	4.95
O	%	154.6	106.1	45.5	438.1
U	%	48.0	25.8	17.5	100.0

Source: Calculations based on UNWTO data.

Table 2 shows that the dependent variable pGDP has a standard deviation greater than its mean value, implying a lack of normal distribution. It is thus necessary to convert it before estimation to produce a near-normal distribution and better results (Chatterjee & Hadi, 2006). There are usually different conversion methods depending on the distribution shape of the variable (left or right-tilted). Based on the H_0 hypothesis on normal distribution described in Appendix A, the testing for normal distribution of the converted dependent variable shows that it can be converted in one of the three forms: log(pGDP), $1/\sqrt{(pGDP)}$, and 1/(pGDP).

b. Estimation Model:

Based on equation (1) and given indicators, the estimation model for impacts of tourism on economic development is presented below:

$$pGDP_{it} = \alpha_{it} + \beta_{1it} RGDP_{it} + \beta_{2it} O_{it} + \beta_{3it} U_{it} + u_{it} \quad (4)$$

According to the theory of the estimation model with panel data, there are two methods for evaluating equation (4), namely fixed effects (FE) model and random effects (RE) model (Gujarati, 2004).

- In the FE model, the slope (α_{it}) for each country (i) is allowed to change, but is fixed in time (t). Thus, equation (4) is re-presented as follows:

$$pGDP_{it} = \alpha_1 + \sum_{k=2}^{8} \alpha_k N_k + \beta_{1it} RGDP_{it} + \beta_{2it} O_{it} + \beta_{3it} U_{it} + u_{it} \quad (5)$$

where N_k stands for dummy variables corresponding to each country (i), and $u_{it} = \lambda_t + \mu_i$ is called a time-affected error (λ_t) and varies among countries (μ_i). With the use of dummy variable, equation (5) is called the least squares dummy variable (LSDV) model.

- In the RE model, each country is supposed to be randomly observed. Therefore, the slope of each country (i) includes random errors:

$\alpha_{i1} = \alpha_1 + \varepsilon_i$ (6) where α_1 is the mean value of the slope and ε_i is an error.

Substituting equation (6) for general equation (4) results in the following RE model:

$$pGDP_{it} = \alpha_1 + \beta_{1it} RGDP_{it} + \beta_{2it} O_{it} + \beta_{3it} U_{it} + u_{it} + \varepsilon_i \quad (7)$$

or

$$pGDP_{it} = \alpha_1 + \beta_{1it} RGDP_{it} + \beta_{2it} O_{it} + \beta_{3it} U_{it} + w_{it} \quad (8)$$

Last, the Hausman test is employed to determine whether the FE model or RE model is more appropriate for the estimation (Cameron, 2005) with the null hypothesis that there is no correlation between non-observed factors and explanatory factors in the models [$Cov(\varepsilon_i, X_{it}) = 0$].

4. RESULTS AND DISCUSSIONS

Most of the estimation coefficients of both aforementioned models can show a statistical and theoretical significance. Specifically, tourism development greatly contributes to economic development of ASEAN countries and increases income of their residents. Additionally, the positive relationship between free trade and per capita income enhancement is also identified. Like the research results by Kojima (1996), the estimation results in this research point out that the higher the proportion of city dwellers, the higher the income of residents of ASEAN countries.

Table 3: Estimation Results

Model	Fixed Effect		Random Effect	
	Coefficient	**Standard error**	**Coefficient**	**Standard error**
RGDP	0.123***	0.035	0.216***	0.044
	(3.54)		(4.90)	
O	0.503***	0.001	0.232*	0.001

	(5.07)		(1.90)	
U	0.124***	0.007	0.084***	0.008
	(16.21)		(10.81)	
Constant	0.478	0.385	2.598***	0.475
	(1.24)		(5.47)	
R^2	0.880		0.844	
σ_u	2.621		0.608	
σ_ε	0.116		0.116	
Prob>F. (χ^2)	0.000		0.000	

***,* statistical significance level with p < 0.01 and 0.1

On the whole, all coefficients of both models are statistically significant and similar in the impacts of improving per capita income of ASEAN residents. As mentioned earlier, it is necessary to select a more suitable model. According to the Hausman test result, Chi2 has a value of 362.86 at the statistical significance level of 0.000 (Prob>Chi2). This means that the H_0 hypothesis is rejected, leading to the conclusion that the FE model is more suitable.

Empirically, the explanatory factors in the model show correlation with non-observed variables and between themselves. In other words, the RE model seldom fulfills conditions for measurement of economic indicators (Gujarati, 2004). In this research, the cross-testing of factors indicates correlation between explanatory factors to some extent (see Appendix B). Hence, Table 4 is to present the coefficients of impacts of tourism on per capita income, corresponding to two indicators, namely the proportion of urban residents and economic openness.

Table 4: Estimation Coefficients of RGDP in FE Model

Coefficient	**Percentage of Urban Residents (%)**					**Economic Openness**	
	20	40	60	80	100	≤1	>1
RGDP	0.061	0.251	0.130	0.037	0.329	0.126	0.172
Error	1.61	3.61	0.78	0.74	3.24	2.69	3.64
Value (p)	0.354	0.001	0.472	0.471	0.018	0.015	0.000

From the data of Table 4, countries with a percentage of urban residents ranging from between 20% and 40% such as Laos (27.5%), Thailand (32.4%) and Vietnam (26.5%) to over 80% like Singapore (100%) show positive effects of tourism on per capita income. As analyzed earlier, Thailand and Singapore have long developed tourism industries while Laos and Vietnam have recently been considered as attractive destinations for international tourists due to their new tourism forms and political stability.

Furthermore, trade liberalization has increased the contributions of tourism to economic development by attracting foreign investment to services including tourism. Trade liberalization also stimulates travel of investors and creates favorable conditions for tourism to develop along with economic development.

5. FORECASTS AND POLICY RECOMMENDATIONS

Forecasts in this research has an empirical significance to policy recommendations connected with the relationship between enhancement of living standards and tourism development as well as economic openness and urbanization in developing countries. For example, more tourism receipts can increase personal income, and so can trade liberalization and urbanization because the residents can have more access to the labor market.

The data of 2001-2009 can help predict changes in the above-mentioned indicators in the 2010-2020 period (with the mean value belonging to 2015). Here are two basic prediction methods consistent with characteristics of these indicators:

- The forecast of per capita income (pGDP) and trade liberalization (O) can be conducted with the following formula:

$$pGDP_{it} = pGDP_{i0}(1+r_i)^t \text{ s}$$

- Urbanization and proportion of international tourism receipts in GDP only vary to the maximum of 100% (V_j = [0,100], j = U, RGDP). In other words, the variation is presented as a logistic function. Here is the formula for the forecast of these indicators:

$$V_{it} = \frac{100}{1 + A.e^{-\rho.t}}$$

Parameters A and ρ can be worked out by solving the equation with the values of U and RGDP given in the 2001-2009 period.

The forecast results are provided in Table 5.

Table 5: Changes Between Periods of 2010-2020 and 2001-2009 (%)

Country	pGDP	RGDP	O	U
Cambodia	11.00	3.89	0.89	2.88
Indonesia	14.94	-4.39	-5.22	2.11
Laos	14.36	2.40	0.54	3.73
Malaysia	7.63	3.09	-2.12	1.24
Philippines	8.71	-2.71	-5.88	1.10
Singapore	7.36	0.36	1.73	0.07
Thailand	9.86	2.59	0.10	0.87
Vietnam	13.19	6.54	3.51	1.64

The per capita income indicator is predicted to rise by over 10% on average in 2010-2020. Vietnam is expected to attain a growth of over 13% in per capita income. Noticeably, tourism receipts are forecast to grow faster than trade liberalization and urbanization.

The forecast results are suitable for Vietnam situation where tourism is in process of development with more and more artistic, cultural and natural attractions being recognized in the world and preserved. This is important for international tourists to know of and choose the country as their destination. Hence, the promotion and popularization of tourism not only enhance its development potentials, but also increase personal income.

5. CONCLUSION

Contributions of tourism to economic development such as employment creation and income improvement have long been recorded in many studies. In general, this research will hopefully provide a closer look at the role of tourism development in economic development of ASEAN countries which have witnessed impressive economic and tourism growth in recent years. Several major points of this research are summarized as follows:

First, panel data are pretty appropriate for estimation of the relationship between tourism development and economic growth. Specifically, the FE model with the correlation between explanatory factors indicates the high practicality of the estimation.

Second, countries with an average proportion of urban residents show greater effects of tourism on personal income because most of them have agriculture-dependent economies, hence a high proportion of rural residents. As a result, economic changes toward industry and services as in Vietnam will definitely promote tourism's impacts on economic development in general and increase personal income in particular.

In conclusion, the research results are empirical evidence that offers researchers and administrators an overview on measuring impacts of macroeconomic factors like tourism and free trade on economic development.

Appendices

Appendix A: Conversion and Testing of Hypotheses

Conversion	Chi2	P(Chi2)
$(pGDP)^3$	55.8	0.000
$(pGDP)^2$	47.8	0.000
$(pGDP)^{1/2}$	24.5	0.000
log(pGDP)	7.2	0.028
1/(pGDP)	8.0	0.018
$1/(pGDP)^{1/2}$	7.4	0.024
$1/(pGDP)^2$	23.7	0.000
$1/(pGDP)^3$	34.9	0.000

Appendix B: Cross-testing of factors

Factor	Log(pGDP)	RGDP	O	U
Log(pGDP)	1			
RGDP	0.421*	1		
O	0.834*	0.511*	1	
U	0.883*	0.160	0.743*	1

* statistical significance level with $p < 0.01$.

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