Does tourism drive growth or does growth drive tourism? Bounds test approach-based evidence from emerging Asian economies

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Abstract

This paper used bounds test approach to answer one unverified question- "Does tourism drive growth or does growth drive tourism within emerging Asian economies?" Our findings show bidirectional long-run link in case of China and India; and unidirectional long-run link in case of Philippines and Thailand. We compared the results in order to suggest appropriate policy/strategy implications to boost the tourism industry, which could probably lead toward economic growth. Further research direction is discussed.

Keyword: Tourism, economic growth, emerging Asian economies, bounds test approach

INTRODUCTION

Over the last few decades, tourism demand has grown (WTTC, 2023). Tourism has become one of the leading and fastest growing sectors in the world (Fang & Fang, 2020). It is also an important source for invigorating economic growth (Gunduz and Hatemi, 2005), exports, income, taxes, and employment (Su and Lin, 2014). In relative terms at regional level, Asia-Pacific region grew by 4% and contributed the largest increase in ITR, followed by the Americas and Europe (UNWTO, 2022). The upward increase in tourism of Asia raises a question that either tourism drives growth or growth drives tourism within emerging Asian economies?

Tourism-growth nexus concerned theoretical underpins belongs to export-led growth hypothesis (Brida, Cortes-Jimenez, & Pulina, 2016 and Perles-Ribes et al., 2017), which provides empirical foundation of tourism-led growth hypothesis (growth hypothesis) (Balaguer & Cantavella-Jordá, 2002) to researchers for further investigation in this topic. Since then, empirical literature contains dissimilarity in the results because of using different time period methodologies, datasets, and countries (e.g., De Vita & Kyaw. 2017; Dogru, & Bulut. 2018; Li, Jin, & Shi. 2018; Tang & Tan 2018; Nunkoo et al, 2020). Therefore, the contradictory empirical findings highlighted the sensitivity of estimates of growth hypothesis, which trigger greater need to emphasis on reporting estimates of growth hypothesis across a diversity of specification, methodological characteristics, and estimation choices (Nunkoo et al, 2020). Hence, "studies will almost never be precisely comparable in design, measures, and so forth, and the findings will typically vary across studies in bizarre ways" (Hunter, Schmidt, & Jackson, 1982, p. 129).

In context of empirical perspectives, studies revealed contradictory results on the nexus of growth and tourism, which are the four types: 1) tourism causes growth, 2) growth causes tourism, 3) bidirectional causal link between growth and tourism, and 4) no causality. Empirical literature contains dissimilarity in the results because of using different time period methodologies, datasets, and countries.[†] To conserve space, we have not reported the details literature. However, one should consider the previous studies for comprehensive literature review surveys (Castro-Nuño et al., 2013; Pablo-Romero & Molina 2013; Brida et al., 2014; Kumar, Loganathan, Patel, & Kumar, 2015; Brida, Cortes-Jimenez, & Pulina 2016; Tang & Abosedra, 2016). As, these studies have already conducted a literature survey in detail. As far as the empirical studies on link between growth and tourism within the context of emerging Asian economies are concerned, the literature is still limited and rare.

In this study, we aim to contribute to the literature and suggest- "Does tourism drive growth or does growth drive tourism within emerging Asian economies?" This letter is organized as follows: section II summarizes data sources, section III describes empirical methodology, and section IV contains results and discussion, followed by conclusion in the last section. According to a group of analysts of International Monetary Fund (IMF), seven countries (China, Pakistan, India, Malaysia, Indonesia, Thailand, and Philippines) can be considered as major emerging Asian economies within the region of Asia and the Pacific (IMF, 2012). Covering the period from 1985 to 2014, we obtained yearly time series data of growth (measured as GDP, current US$) and tourism (measured as international tourism receipts, current US$) from World Bank Indicators and economic data search tool of WTTC.

EMPIRICAL METHODOLOGY

This research uses bounds testing approach developed by Pesaran et al. (2001). To implement this procedure, we estimate the following models:

$$\Delta \ln T_{i,t} = a_0 + \pi_1 \ln T_{i,t-1} + \pi_2 \ln G_{i,t-1} + \sum_{j=0}^{p} a_{1j} \Delta \ln T_{i,t-j} + \sum_{j=0}^{q} a_{2j} \Delta \ln G_{i,t-j} + \varepsilon_t \quad (1)$$

$$\Delta \ln G_{i,t} = b_0 + \pi_1 \ln T_{i,t-1} + \pi_2 \ln G_{i,t-1} + \sum_{j=0}^{p} a_{1j} \Delta \ln T_{i,t-j} + \sum_{j=0}^{q} a_{2j} \Delta \ln G_{i,t-j} + \varepsilon_t \quad (2)$$

Where, first difference operator denoted by Δ, π_1 and π_2 denotes the long run multipliers, p and q denotes the optimal lag length, a_0 is the drifts, and ε_t denotes the residuals, which are assumed white noise and to be spherically distributed. "ln" indicates sign of natural logarithm, T and G denotes tourism and growth concerned economies, i denotes the emerging Asian economies under consideration (i.e., i = China (ch), Pakistan (pk), India (in),

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Malaysia (my), Indonesia (id), Thailand (th), and Philippines (ph)).

There are three steps of bounds testing approach. In the first step, we estimate equation (1) and (2) to find the existence of long-run cointegration. We use Narayan (2005) suggested critical values instead of Pesaran et al. (2001), because these critical values are appropriate for finite or small sample (Lamotte et al., 2013; Li & Lin, 2015).

In second step, once the presence of cointegration is found, the long-run models for $\ln T_{i,t}$ and $\ln G_{i,t}$ are estimated as:

$$\ln T_{i,t} = a_0 + \sum_{j=0}^{p} a_{1j}\Delta \ln T_{i,t-j} + \sum_{j=0}^{q} a_{2j}\Delta \ln T_{i,t-j} + \varepsilon_t \quad (3)$$

$$\ln G_{i,t} = b_0 + \sum_{j=0}^{p} b_{1j}\Delta \ln G_{i,t-j} + \sum_{j=0}^{q} b_{2j}\Delta \ln T_{i,t-j} + \varepsilon_t \quad (4)$$

This includes selection of the orders/value of p and q of the ARDL model based on Akaike information criteria (Owusu and Odhiambo, 2014).). In the last step, parameters of short-run link are obtained by computing Error Correction Model (ECM) connected with long-run computers. The econometric forms of these models are as follows:

$$\Delta \ln T_{i,t} = u_1 + \sum_{i=1}^{o} \phi_i \Delta \ln T_{i,t-i} + \sum_{j=1}^{p} \varpi_i \Delta \ln G_{i,t-i} + \Psi\, ECT_{t,t-1} + \varepsilon_t \quad (5)$$

$$\Delta \ln G_{i,t} = u_2 + \sum_{i=1}^{o} \varpi_i \Delta \ln G_{i,t-i} + \sum_{j=1}^{p} \phi_i \Delta \ln T_{i,t-i} + \Psi\, ECT_{i,t-1} + \varepsilon_t \quad (6)$$

Here, ϕ and ϖ are coefficients of short-run dynamics of the model's junction to the equilibrium. $ECT_{i,t-1}$ is one period lagged error-correction term, and ε_t denotes the residuals, which are assumed white noise and to be spherically distributed.

RESULTS AND DISCUSSION

The results of unit root tests revealed that except tourism of Pakistan all variables are stationary are first level. Before testing for cointegration, the optimal lag length of concerned variables was selected based on diagnostic tests. The results of estimated long run coefficients and calculated F-statistics for cointegration are presented in Table 3. As a conclusion, test found six cointegrating relationships between concern variables. China and India contain two cointegrating relationships, whereas Philippines and Thailand show one cointegrating relationship.

Table 1. Unit Root Tests

	ADF test		PP test	
	At level	At 1st difference	At level	At 1st difference
$\ln T_{t,cn}$	-2.136 (0.2305)	-5.998** (0.0000)	-2.522 (0.1103)	-5.833** (0.0000)
$\ln G_{t, cn}$	1.462 (0.9974)	-4.544** (0.0002)	1.637 (0.9980)	-4.538** (0.0002)
$\ln T_{t, in}$	-0.933 (0.7768)	-4.746** (0.0001)	-0.980 (0.7605)	-4.756** (0.0001)
$\ln G_{t, in}$	1.060 (0.9949)	-4.599** (0.0001)	0.995 (0.9942)	-4.611** (0.0001)
$\ln T_{t, id}$	-2.676 (0.0783)	-4.864** (0.0000)	-2.773 (0.0623)	-4.869** (0.0000)
$\ln G_{t, id}$	-0.571 (0.8773)	-5.311** (0.0000)	-0.503 (0.8915)	-5.326** (0.0000)
$\ln T_{t, my}$	-2.318 (0.1662)	-4.871** (0.0000)	-2.487 (0.1187)	-4.902** (0.0000)
$\ln G_{t, my}$	-0.787 (0.8229)	-4.463** (0.0002)	-0.785 (0.8235)	-4.435** (0.0003)
$\ln T_{t, pk}$	-8.279** (0.0000)	-	-6.801** (0.0000)	-
$\ln G_{t, pk}$	0.331 (0.9787)	-3.35** (0.0125)	0.142 (0.9688)	-3.346** (0.0130)
$\ln T_{t, ph}$	-1.999 (0.2871)	-5.540** (0.0000)	-1.989 (0.2913)	-5.627** (0.0000)
$\ln G_{t, ph}$	0.286 (0.9767)	-4.371** (0.0003)	0.209 (0.9728)	-4.384** (0.0003)
$\ln T_{t, th}$	-0.775(0.8262)	-5.928** (0.0000)	-0.750 (0.8334)	-6.031** (0.0000)
$\ln G_{t, th}$	-1.108 (0.7120)	-3.124** (0.0248)	-1.145 (0.6967)	-3.060** (0.0296)

Note: t-Statistic with p-values in parentheses.

* denotes the rejection of the null hypothesis of unit root at the 5% level.

Here, ch = China, ok = Pakistan, India = in, my =Malaysia, in = Indonesia, th = Thailand, and ph = Philippines.

Table 2. Optimal pre-estimation lag selection

Country	Variable	Lag	LR	df	p	FPE	AIC	HQIC	SBIC
China	$\ln T_{t,cn}$	2	4.909*	1	0.02	0.0000*	-7.56*	-7.52*	-7.41*
	$\ln G_{t,cn}$	1	114.5*	1	0.00	0.0071*	-2.09*	-2.07*	-1.99*
India	$\ln T_{t,in}$	3	5.237*	1	0.02	0.0000*	-8.08*	-8.03*	-7.88
	$\ln G_{t,in}$	1	100.7*	1	0.00	0.0063*	-2.21*	-2.19*	-2.12*
Indonesia	$\ln T_{t,id}$	1	17.96*	1	0.00	0.0000*	-6.88*	-6.86*	-6.78*
	$\ln G_{t,id}$	1	49.82*	1	0.00	0.0547*	-.066*	-.042*	0.031*
Malaysia	$\ln T_{t,my}$	1	59.69	1	0.00	0.0000*	-7.09*	-7.07*	-6.99*
	$\ln G_{t,my}$	1	70.81*	1	0.00	0.0159*	-1.30*	-1.27*	-1.20*
Pakistan	$\ln T_{t,pk}$	1	16.44*	1	0.00	0.0000*	-7.87*	-7.84*	-7.77*
	$\ln G_{t,pk}$	2	89.15*	1	0.00	0.0048	-2.48	-2.46	-2.38*
Philippines	$\ln T_{t,ph}$	1	13.12*	1	0.00	0.0001*	-5.72*	-5.69*	-5.62*
	$\ln G_{t,ph}$	1	74.58*	1	0.00	0.0111*	-1.65*	-1.63*	-1.55*
Thailand	$\ln T_{t,th}$	1	72.01*	1	0.00	0.0000*	-8.07*	-8.05*	-7.98*
	$\ln G_{t,th}$	2	4.01*	1	0.04	0.0144*	-1.40*	-1.36*	-1.25*

Note: Akaike Information Criterion (AIC), Schwartz Bayesian Information Criterion (SBIC), Final prediction error (FPE), Hannan–Quinn information criterion (HQIC) and Likelihood Ratio (LR).

Results also revealed that there are two long-run relationships in case of China and India when both variables act as dependent variables; alternatively bidirectional long-run causality exists from tourism to growth as well as from growth to tourism. Whereas there is one long-run link in case of Philippines and Thailand when tourism is the dependent variable; alternatively unidirectional long-run causality exists from tourism to growth.

Table 3. Cointegration and estimated long run coefficients using the ARDL approach.

Country	Dependent Variable	Computed F-statistic	Long-run Causality Decision	Estimated Coefficient of $\ln T_{t,i}$	Estimated Coefficient of $\ln G_{t,i}$
China	$\ln T_{t,cn}$	8.488***	$\ln G_{t,cn} \rightarrow \ln T_{t,cn}$		-.075436** [.036]
	$\ln G_{t,cn}$	4.238**	$\ln T_{t,cn} \rightarrow \ln G_{t,cn}$	-8.2376** [.030]	
India	$\ln T_{t,in}$	4.615**	$\ln G_{t,in} \rightarrow \ln T_{t,in}$		.0048046 [.700]
	$\ln G_{t,in}$	8.174***	$\ln T_{t,in} \rightarrow \ln G_{t,in}$	11.5459 [.437]	
Indonesia	$\ln T_{t,id}$	1.016	No		
	$\ln G_{t,id}$	1.603	No		
Malaysia	$\ln T_{t,my}$	1.033	No		
	$\ln G_{t,my}$	0.358	No		
Pakistan	$\ln T_{t,pk}$	1.039	No		
	$\ln G_{t,pk}$	1.478	No		
Philippines	$\ln T_{t,ph}$	2.450*	$\ln G_{t,ph} \rightarrow \ln T_{t,ph}$		-.025929* [.082]
	$\ln G_{t,ph}$	1.393	No	-2.8926 [.803]	
Thailand	$\ln T_{t,th}$	2.132*	$\ln G_{t,th} \rightarrow \ln T_{t,th}$		.2337E-3 [.978]
	$\ln G_{t,th}$	0.311	No	-42.9456* [.077]	

Narayan (2005)	k = 2, n = 30	
Critical Value	I(0) Lower bound	I(1) Upper bound
1%	5.155	6.265
5%	3.538	4.428
10%	2.915	3.695

Note: The asterisk *, **, and *** denotes 10%, 5%, and 1% level of significance.

→ arrow denotes direction of long-run relationship.

[] p-values in brackets.

ECM has been applied to capture the short-run dynamics of tourism and growth connected with long-run computes. Coefficients of cointegrating equations show the speed of adjustment in case of short run disequilibrium (see Table 4).

Table 4. Estimated short-run coefficients within error correction mechanism.

Country	Dependent Variable	ECM_{t-1}	Estimated Coefficient of $\Delta\ln T_{t,i}$	Estimated Coefficient of $\Delta\ln T_{t,i}1$	Estimated Coefficient of $\Delta\ln G_{t,i}$
China	$\Delta\ln T_{t,cn}$	-0.20603 [.079]	-	-	-.040372 [.003]
	$\Delta\ln G_{t,cn}$	-0.30511 [.053]	-7.5759 [.009]	6.0363 [.022]	-
India	$\Delta\ln T_{t,in}$	-0.49905 [.015]	-	-	.0023977 [.704]
	$\Delta\ln G_{t,in}$	-0.24995 [.025]	2.8859 [.422]		-
Indonesia	$\Delta\ln T_{t,id}$	-0.31886 [.005]	-	-	-.019110 [.010]
	$\Delta\ln G_{t,id}$	-0.36696 [.005]	-9.9696 [.001]		-
Malaysia	$\Delta\ln T_{t,my}$	-0.41479 [.026]	-	-	-.0025235 [.780]

	$\Delta \ln G_{t,my}$	-0.27984 [.083]	2.2485 [.472]		-
Pakistan	$\Delta \ln T_{t,pk}$	-1.0000	-	-	.018216 [.302]
	$\Delta \ln G_{t,pk}$	-0.07102 [.477]	4.7698 [.050]	-	-
Philippines	$\Delta \ln T_{t,ph}$	-1.0000	-	-	-.025929 [.082]
	$\Delta \ln G_{t,ph}$	-0.14220 [.275]	-.41133 [.815]		-
Thailand	$\Delta \ln T_{t,th}$	-0.54680 [.021]	-	-	-.12783 [.978]
	$\Delta \ln G_{t,th}$	-0.27182 [.007]	2.2430 [.650]	-	-

Note: The asterisk *, **, and *** denotes 10%, 5%, and 1% level of significance. [] p-values in brackets.

When tourism is the dependent variable, coefficient of cointegration equations is significant with a negative sign (except Pakistan and Philippines), which confirms the presence of short-run equilibrium relationship and reveals that adjustment of disequilibrium is due to first error correction term. Whereas coefficients of error correction term (i.e., China = -0.20603, Indian = -0.49905, Indonesia = -0.31886, Malaysia = -0.41479, Thailand = -0.54680) indicate that tourism adjusted by almost 20%, 49%, 31%, 41%, and 54% in one year and it takes almost 5, 2, 3, 3, and 2 years respectively to eliminate the disequilibrium.

When economic growth is the dependent variable, coefficients of cointegration equations are significant with negative sign (except for Pakistan and Philippines), which confirms the presence of short-run equilibrium relationship and reveals that adjustment of disequilibrium is due to first error correction term. Coefficients of error correction term (i.e., China = -0.30511, India = -0.24995, Indonesia = -0.36696, Malaysia = -0.27984, and Thailand = -0.27182) indicate that economic growth adjusted by almost 24%, 36%, 31%, 27%, and 27% in one year and it takes almost 3, 4, 3, 4, and 4 years respectively to eliminate the disequilibrium.

CONCLUSION

In this letter we contribute to the literature by using bounds test approach and suggest by answering one critical question- "Does tourism drive growth or does growth drive tourism within emerging Asian economies?" This letter found bidirectional long-run link between tourism and growth in case of China and India, in simple words both tourism and growth drive each other in long-run. Whereas, in case of Philippines and Thailand, a unidirectional long-run relationship exists, alternatively tourism drives growth in long-run. Further, results also revealed the presence of short-run equilibrium relationship and adjustment of disequilibrium is due to first error correction term between growth and tourism within emerging Asian economies except Pakistan and Philippines.

Therefore, in the context of management implications, findings indicate that concerned authorities of Philippines and Thailand should focus on tourism industry by improving/adopting tourism-oriented policies. Results also indicate that policy makers of China and India should keep focus on tourism activities to boost the tourism industry, which finally leads to economic growth and vice versa. This letter presented cross-sectional country level growth and tourism nexus within emerging Asian economies but does not indicate aggregate (panel) level picture. This blinking area leads toward future research.

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