

Tourism Development and Economic Growth Nexus: An Evidence from Tajikistan Economy

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Abstract

This study probes the causal relationship between economic growth and tourism development in Tajikistan from 2002 to 2017. Data for the gross domestic product (GDP) and tourism receipts were obtained from World Data Atlas. To test the data stationarity, this study employs the unit root test followed by a cointegration test to check whether there is a long-run relationship between GDP and tourism receipts. Furthermore, the Granger causality test was used to check the direction of the relationship between tourism development and economic growth. The findings of the study confirm a long-run relationship between tourism development and economic growth in Tajikistan. Moreover, the Granger causality test results showed a unidirectional relationship between two variables running from GDP growth to tourism development. The upshot from the results substantiates economic-led tourism growth in Tajikistan.

Keywords

Tajikistan, Tourism, GDP, Co-integration, Granger Causality, Economic Growth

Introduction

The United Nations World Tourism Organization (UNTWO) defines tourism as the movement of people outside their home environment for either economic or personal purposes. These people are called visitors and tourism has usually dealt with various activities including tourism revenue and expenditure (Paltrade Report, 2013; Tabash, 2017). Tourism is one of the rapid-growing industries in the world (UNWTO, 2002). According to UNWTO (2018), the tourism industry doubled in value during 2001-2017. Its value increased from \$0.62 billion in 2001 to \$1.4 billion in 2017. Birda and Pulina (2010) listed different channels through which tourism positively impacts economic growth. It increases the foreign exchange income, generates employment opportunities (Salleh, Othman, & Sarmidi, 2011). The foreign exchange brought by tourists could be used to import capital goods. Imported capital could be used to produce other types of goods and services. According to Sakai (2009), tourism stimulates investment in human capital, infrastructure, and technology. It also directly or indirectly affects other industries of the country, i.e., having 'positive economies of scale and scope'(Quan and Weng, 2004). It leads to economic growth and the development of other parts of the host country like political, social, and cultural environment (Tabash, 2017). Certain disadvantages are in vogue, like incurring costs for maintenance and infrastructure provision, increased

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pollution, and potential increase of crime and violence (Peace, 2014). While considering both advantages and drawbacks, it is conceded that the tourism sector may contribute to the country's economic growth.

Tajikistan is considered a potential tourist hotspot because of its natural assets, mountain topography, culture, and connectivity through the silk road. However, this potential has not been fully utilized due to various socio-economic loopholes like deficiency of adequate infrastructure, poor connectivity, and lack of favorable business environment (Project Readiness Financing Report, 2019). Tourism is an essential sector for the Tajikistan economy. It helps to generate more employment opportunities and enhancing the GDP of the country. In 2018, the tourism industry contributed about 8% to GDP and employed about 186.6 thousand persons. Although its contribution in terms of employment and GDP fluctuates in recent years, it shows an increasing trend from 1989-2018 (World Data Atlas). There is enough scope for its further expansion. The relationship between GDP and tourism has not been examined in this country. In this study, an endeavor has been made to investigate the causal relationship between GDP and tourism development from 2002 to 2017 by applying various time series econometric techniques like Unit root test, Cointegration, and Granger causality test.

Literature Review

Four hypotheses have stemmed from the literature concerning the relationship between economic growth and tourism development of the economy, which are as follows:

- I. Tourism-Led Economic Growth:** According to this hypothesis, there is a unidirectional relation running from tourism to economic growth. If this hypothesis is proven, policies in promoting tourism can enhance the economic growth of the country.
- II. Economic growth-Led Tourism Growth:** According to this hypothesis, there is a one-directional relation running from economic growth to tourism development. If this hypothesis is proven, economic growth can increase the tourism revenue of the economy.
- III. Bi-directional Tourism-Led Economic Growth:** According to this hypothesis, there is a bidirectional relationship between economic growth and tourism development.
- IV. No Significant Relationship:** According to this hypothesis, there is no significant relationship between economic growth and tourism development. Neither tourism development impacts economic growth nor economic growth increases the tourism revenue of the economy.

From the relevant literature, it was observed that different authors used different econometric techniques like Granger Causality Test, Vector Autoregression (VAR), Error-Correction Model (ECM), or Composite Regression Equation by taking the data of a single country over time (Time Series Analysis) or by examining these hypotheses among different group of countries over the period time (Panel Data Approach). Some of the essential empirical works, along with their methodology and findings therein, are presented in the following table-1.

Table 1: Empirical Literature Summary

Author/Authors	Country/Countries	Time-period	Technique Used	Findings
<i>Time series Approach</i>				
Dritakis (2004)	Greece	1960-2000	Cointegration, Granger Causality Test and VECM	<i>Bi-directional Tourism-Led Economic Growth</i>
Oh (2005)	South Korea	1995-2001	Bivariate VAR	<i>No Significant Relationship</i>
Kim et al. (2006)	South Twain	1971-2003	Cointegration, Granger Causality Test	<i>Bi-directional Tourism-Led Economic Growth</i>
Lee and Chain (2008)	Taiwan	1979-2003	Unit Root Test, Cointegration, Granger Causality Test	<i>Tourism-Led Economic Growth</i>
Bride et al. (2008)	Mexico	1980-2007	Unit Root Test, Cointegration, weak Exogeneity Test, Granger Causality Test	<i>Tourism-Led Economic Growth</i>
Katriciagau (2009)	Turkey	1960-2006	Unit Root Test, Cointegration, ARDL	<i>No Significant Relationship</i>
Chein and Chinou – Wei (2009)	South Korea & Taiwan	1975-2007	Unit Root Test, Cointegration, serial Correlation, Conditional Heteroscedasticity-EGARCH, M Modelling, Granger Causality Test	<i>Tourism-Led Economic Growth (Twain)</i> <i>Bi-directional Tourism-Led Economic Growth (South Korea)</i>

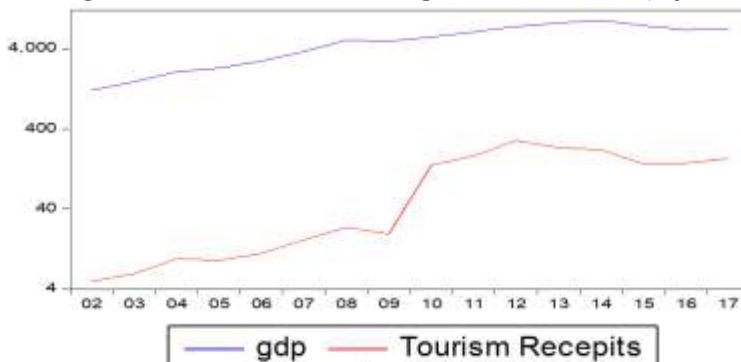
Tang and Jang (2009)	USA	1981-2005	Unit Root Test, Cointegration, Granger Causality Test	<i>Economic-Led Tourism Growth</i>
Bellourimi (2010)	Tunisia	1970-2007	Unit Root Test, Cointegration, VECM, Granger Causality Test	<i>Tourism-Led Economic Growth</i>
Kasimati (2011)	Greece	1960-2010	Unit Root Test, Cointegration, VECM, Granger Causality Test	<i>No Significant Relationship</i>
Ramphul Ohlen (2017)	India	1960-2014	Unit Root Test, Cointegration, VECM, Granger Causality Test, ARDL, Variance Decomposition.	<i>Tourism-Led Economic Growth</i>
Mosab I. Tabash (2017)	Palestine	1995-2014	Unit Root Test, Cointegration, Granger Causality Test,	<i>Tourism-Led Economic Growth</i>
Sharma & Punjab (2018)	India	1991-2017	Unit Root Test, Cointegration, Granger Causality Test.	<i>Tourism-Led Economic Growth</i>
<i>Panel Data Approach</i>				
Eugenio- Martin & Morales (2004)	134 countries	1980-1997	Panel GLS	<i>No Significant Relationship</i>
Lee and Chang (2008)	OECD and non- OCED countries (including Latin America and Sub African Countries)	1990-2002	Panel- Cointegration, Panel Granger Causality Test	<i>Tourism impacts more on GDP in non-OCED than in OCED countries</i>

Figini and Vici (2009)	A sample of 150 countries	1980-2005	Panel Regression	1980-85; <i>Tourism-Led Economic Growth</i> . 1990-95 & 1995-2005; <i>No Significant Relationship</i>
Cores (2011)	Sample of 17 Islands	2000-2007	Panel Unit Root Test, Regression (Trans Log Production Function).	<i>Tourism-Led Economic Growth</i>
Du and Ng (2011)	Multiple Countries	1995 (single year).	OLS Estimation (Tourism as a Dummy).	<i>No Significant Relationship</i>
Holznr (2015)	134 Countries	1970-2007	Ordinary Least Square	<i>Tourism-Led Economic Growth</i>
Seghir et al. (2015)	49 countries	1988-2015	Panel-Cointegration, Panel Granger Causality Test	<i>Bi-directional Tourism-Led Economic Growth</i>

Data

The data used in this study comprises gross domestic product (GDP) at 2010 prices in U.S dollars and tourism revenue receipts in U. S dollars. The data used was retrieved from World Data Atlas during the period 2002 to 2017. Figure-1 depicts the graphical representation of GDP and tourism data series for the period mentioned above.

Figure 1: GDP and Tourism Receipts from 2002-2017 (Tajikistan)



Source: Calculated by authors from World Data Atlas

Analytical Methods

a) Unit Root Test

The test is used to identify whether the given data series is stationary or not. Dealing with non-stationary leads to a problem of spurious regression with a high coefficient of determination (R^2) and significant regression coefficients, but coefficients do not carry any meaning (Tabash, 2017). Therefore, for meaningful results, the data series should be stationary. Various tests like Philip-Perron (PP) and Augmented Dicky-Fuller Test (ADF) are used to determine the stationarity of variables. ADF takes into account higher-order correlation by adding the lagged differences of variable and takes the form as:

$$\Delta X_t = \varphi + \gamma t + \beta X_{t-1} + \sum_{i=1}^k \beta_i X_{t-i} + e_t \quad (1)$$

Where X is the variable of interest, ΔX_t is the first difference ($\Delta X_t = X_t - X_{t-1}$), φ is the intercept, t is the time trend with coefficient γ , and e_t is the error term. The above test is based on the null hypothesis, that data series is non-stationary i.e., $\beta=0$ and the alternative hypothesis is that data series is stationary ($\beta \neq 0$).

The PP test developed by Phillips and Perron (1988) is non-parametric. The test is based on a regression equation which is Autoregressive of order one AR (1) process (Tabash, 2017).

b) Cointegration Test

A cointegration test was utilized to check whether there exists a long-run relationship between variables or not. After variables became stationary at the difference, the next step is to check Cointegration among the variables. Johansen and Juselius (1990) developed a Cointegration test that uses two test statistics to determine the Cointegration among variables; these are *trace statistics* and the *maximal eigenvalue*. The test is established on the null hypothesis that there is no Cointegration among variables and the alternative hypothesis is that variables are co-integrated in the long run.

c) Granger Causality Test

If the variables are co-integrated, then a dynamic relationship exists between them. To ascertain the direction of the relationship between the variables of interest, the Granger causality test has been used. The regression equations of the Granger Causality test is shown as:

$$\begin{aligned} \Delta GDP_t &= \varphi + \sum_{i=1}^k \beta_i \Delta GDP_{t-i} + \sum_{j=1}^k \alpha_j \Delta Tour_{t-j} + u_{1t} \quad (2) \\ \Delta Tour_t &= \varphi + \sum_{i=1}^k \beta_i \Delta Tour_{t-i} + \sum_{j=1}^k \alpha_j \Delta GDP_{t-j} + u_{2t} \quad (3) \end{aligned}$$

It is assumed that $(Cov(u_{1t}, u_{2t}))=0$

Here GDP denotes Gross domestic product and Tour represents Tourism of the country. Equation (2), specifies the economic growth-led tourism growth while equation (3) represents tourism-led economic growth.

Results and Discussion

i) Descriptive Statistics and Correlation Matrix

The descriptive statistics and correlation matrix of GDP and Tourism data series are shown in Table-2. Descriptive statistics of the data series were obtained by using software EViews 10. From table-2, it can be observed that during the year 2014 the maximum GDP of Tajikistan was \$ 9112 million. The same technique was applied to tourism revenues of the country and which also reached a maximum of \$286 million during the same year. The GDP is negatively skewed while tourism revenue is positively skewed.

From the correlation matrix, it can be seen from table 2 that GDP and tourism receipts are positively correlated to each other.

Table 2: Descriptive Statistics and Correlation Matrix

Statistics	GDP (U.S \$ millions)	Tourism Receipts (U.S \$ millions)
Descriptive Statistics		
Mean	5198.3	102.1
Median	5401.5	82.6
Maximum	9112	286.6
Minimum	1221	5
Std. Dev.	2617.1	98.95
Skewness	- 0.151	0.39
Kurtosis	1.645	1.67
Jarque-Bera	1.284	1.58
Probability	0.525	0.45
Observations	16	16
Correlation Matrix		
GDP	1.0	0.88
Tourism Receipts	0.88	1.0

Source: Calculated by authors using Eviews 10.

ii) Unit Root Test

The unit root test of both these variables is shown in Table-3. It can be seen from the table that both data series are non-stationary; however, they become stationary at first difference. Thus, it can be inferred from the table that both the variables are stationary at the first difference and therefore are having an order of integration I(1). After having stationary data, the next step is to check whether the variables are co-integrated or not.

Table 3: Unit Root Test

Variables with both intercept and trend	ADF Test		PP Test	
	Level 1	First Difference	Level 1	First Difference
	t-statistics (p-value)	t-statistics (p-value)	t-statistics (p-value)	t-statistics (p-value)
GDP	-0.148976 (0.9872)	-3.392384* (0.0995)	0.946695 (0.9994)	-5.219435** (0.0052)
Tourism	-1.285078 (0.8509)	-3.883094** (0.0433)	-1.469632 (0.7937)	-3.881316** (0.0434)

*, ** shows significance at 10 percent and 5 percent, respectively.

Source: Calculated by authors using Eviews 10.

iii) Johansen Cointegration Test

The Johansen Cointegration test for a long-run relationship between economic growth and tourism receipts in Tajikistan is summarized in table-4 and table-5. Table-3 shows the Trace Statistics with their probabilities, while table-5 shows the Maximum Eigen values with their probabilities. The results confirm the long-run relationship between economic growth and tourism development in Tajikistan. The existence of Cointegration leads to the existence of causality at least in one direction.

Table 4: Unrestricted Cointegration Rank Test (Trace)

Hypotheses	Eigen value	Trace Statistic	0.05 Critical Value	Probability *
None	0.427005	14.15633	15.49471	0.0787
At most 1 *	0.365100	6.360035	3.841466	0.0117

Source: Calculated by authors using Eviews 10.

Table 5: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypotheses	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Probability *
None	0.427005	7.796295	14.26460	0.3998
At most 1 *	0.365100	6.360035	3.841466	0.0117

Source: Calculated by authors using Eviews 10.

iv) Granger Causality Test

The results of the Granger Causality Test with F-statistics and respective probabilities are presented in Table 6. The first hypothesis that *Tourism Receipts does not Granger Cause GDP* is not rejected. Therefore, there is no “Tourism–Led Economic Growth in Tajikistan”. The second hypothesis that *GDP does not Granger Cause Tourism Receipts* is not accepted at a 10 percent level of significance. Thus there is “Economic Growth-Led Tourism growth in Tajikistan”.

The results of this paper confirm a unidirectional relationship between GDP and Tourism Receipts. It runs from GDP to Tourism Receipts. Thus GDP causes Tourism Receipts in the economy of Tajikistan.

Table 6: Pairwise Granger Causality Test

Null Hypothesis	Obs.	F-Statistic	Prob.
Tourism Receipts does not Granger Cause GDP	12	1.80815	0.3271
GDP does not Granger Cause Tourism Receipts	12	7.09661*	0.0696

* significance at p-value less than 0.10

Source: Calculated by authors using Eviews 10.

Conclusion

The paper examines the causal relationship between tourism receipts and GDP in Tajikistan during the time 2002-2017. The study unveiled a significant long-run relationship between tourism receipts and economic growth (GDP) in Tajikistan during the study period. Furthermore, the study reveals a unidirectional relation between GDP and tourism receipts running from GDP growth to tourism development. The results of the study motivate us to suggest the concerned authorities of Tajikistan to pay attention to the economic growth of the country as it is vital to increase the tourism revenue receipts. The development of tourism is crucial as it generates employment opportunities, increasing the income for the common masses, and also helps in reducing foreign dependence in terms of foreign aid and foreign gifts.

Based on the paper's findings, the policy implication that can be adopted by the government of Tajikistan is to foster economic growth to boost the tourism revenue receipts. First, the government should provide excellent infrastructure in the form of better roads, tourism sites, and commercial establishments offering to lodge to travelers and tourists. Second, the development of human capital to provide information and communication services to tourists. The third is to develop a feeling about Tajikistan as a peace-loving country using diplomatic and other necessary means required. Lastly, there should be easy mobility of tourists between different tourist places.

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