

## Article

# Does Tourism Affect Economic Growth of China? A Panel Granger Causality Approach

Yong Su <sup>1</sup>, Jacob Cherian <sup>2</sup>, Muhammad Safdar Sial <sup>3</sup>, Alina Badulescu <sup>4</sup>, Phung Anh Thu <sup>5,\*</sup>, Daniel Badulescu <sup>4</sup> and Sarminah Samad <sup>6</sup>

<sup>1</sup> Law and Public Management School, Leshan Normal University, Leshan City 614000, China; suyong.123-@163.com

<sup>2</sup> College of Business, Abu Dhabi University, P.O. Box 59911, Abu Dhabi, United Arab Emirates; jacob.cherian@adu.ac.ae

<sup>3</sup> Department of Management Sciences, COMSATS University Islamabad (CUI), Islamabad 44000, Pakistan; safdar.sial786@gmail.com

<sup>4</sup> Department of Economics and Business, Faculty of Economic Sciences, University of Oradea, 410087 Oradea, Romania; abadulescu@uoradea.ro (A.B.); dbadulescu@uoradea.ro (D.B.)

<sup>5</sup> Faculty of Finance and Accounting, Nguyen Tat Thanh University, 300 A Nguyen Tat Thanh Street, District 4, Ho Chi Minh City 700000, Vietnam

<sup>6</sup> Department of Business Administration, College of Business and Administration, Princess Nourah Bint Abdulrahman University, Riyadh 11671, Saudi Arabia; sarminasamad@gmail.com

\* Correspondence: pathu@ntt.edu.vn

**Abstract:** The main purpose of the current study is to investigate if tourism affects economic growth of China. The data set has been acquired from the Beijing Municipal Bureau of Statistics, and the time span of the data set takes into account a 20-year time period, from 2000 to 2019. To determine the strength of the above-mentioned relationship previous models that have been used for this research are mainly VAR (vector auto-regression) and VECM (vector error correction) models. The VAR and VECM models have been conducted together with the Granger causality test. The internal revenue generated from tourism-related activities is taken as being the main indicator for the tourism industry, while economic growth is determined by GDP (gross domestic product). We support the above-mentioned notion, as we found that a strong relationship exists between the development of the tourism industry and economic growth. Moreover, our analysis also indicates that this industry has a major impact on long-term economic growth in the region as well. This study thus provides further support to the existing literature on the topic of tourism and the impact that tourism-related activities have upon economic development and growth. The existence and the impact of tourism-related activities upon long-term economic growth were confirmed by the results of the VAR models. At the same time, the unidirectional results of VECM models have confirmed the existence of economic growth in the short term. In our case, the cardinal relationship between the development of the tourism industry and the economic growth in the Beijing region of China have managed to provide strong empirical support to the earlier stated notions and to the literature alike.

**Keywords:** tourism; economic growth; cointegration test; VAR model; VECM model



**Citation:** Su, Y.; Cherian, J.; Sial, M.S.; Badulescu, A.; Thu, P.A.; Badulescu, D.; Samad, S. Does Tourism Affect Economic Growth of China? A Panel Granger Causality Approach. *Sustainability* **2021**, *13*, 1349. <https://doi.org/10.3390/su13031349>

Academic Editor: Fabio Carlucci  
Received: 30 December 2020  
Accepted: 24 January 2021  
Published: 28 January 2021

**Publisher's Note:** MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



**Copyright:** © 2021 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

## 1. Introduction

In the global perspective, tourism is considered one of the vital driving forces behind economic development. Tourism, one of the largest industries around the globe, is also being considered as a new tool for the growth and development of regional economies; moreover, tourism has a great impact on socio-economic development.

The tourism industry has seen rapid growth after the end of the Second World War. This rapid growth has led to it becoming one of the largest industries in the world [1]. In the case of China, the development of tourism has been rapid and has itself been considered one of the main drivers of the country's rapid economic growth. At the same time, we must

also consider the potential damage that result from tourism activities, especially affecting the natural environment. Even though it is imperative to keep in mind socio-economic conditions and factors, the decipherment of the relationship between economic growth and tourism activities is a task that poses many challenges.

There is a large consensus regarding the contribution of tourism to economic growth, what does entail numerous inquiries are the environmental issues, which may themselves, to some extent, lower the speed of economic progress [1]. The quality of economic and social growth also has to be considered the result and the byproduct of tourism activities Wise, N [2], and, given that regional socio-economic development and tourism go hand in hand, one cannot ignore any element of the relationship in terms of research and study potential, a neglect which would lead to errors and biased results regarding the actual relationship between economic growth, the tourism industry, and its impact on the environment. It is important to mention that the main issue here refers to the nature and extent of the relationship between economic growth, the tourism industry and environment. In order to determine the strength of this relationship, one must conduct in-depth research using appropriate statistical models, to determine and further explore these underlying connections. This is another important objective of this research.

Although there are no doubts concerning the importance and the role of tourism in the general development of the economy, it is important to note that such an effect tends to be more significant in the case of developing countries such as China [3]. The tourism industry creates jobs and serves as a vital instrument for increasing the income level of the region where it takes place [4]. It allows for the flow and exchange of various currencies, both national and foreign, which is expected to have as a result the development of both local and foreign trade, through the import of commodities, services, and capital goods. The latter tend to not only have a positive impact on industrial development, but also raise the level of social welfare [5]. Researchers have suggested three major economic effects of the development of the tourism industry [6]. The first effect concerns the establishment of the hotel and leisure industry. As these develop and grow, they not only provide employment opportunities for the local population, but they also increase and promote local economic activities, through the purchase of required goods and services from the local community. A second effect refers to increased regional income: The increase in revenues of local hotels and related industry generally increases the overall income level of the region directly. Thirdly, the owners of these hotels and related industries also tend to spend their additional income (in the form of capital expenditures) on further developing their activities. Namely, we refer here to the expansion of facilities and increasing the quality of services, which further benefits the local community, hence leading to a multiplier and trickle-down effect [7].

However, economic and social development must take into account the imperatives of environmental protection, and nowadays tourism and development are intrinsically related, mediated by the principles of sustainability [8,9]. The main idea underlying tourism primarily relates to the positive impact that tourism has upon the environment. Rather than having an adverse impact, this positive effect also helps keep the economy afloat, as it (the economy) mainly depends upon the overall environment [10]. One must also keep in mind that the tourism industry further comprises many different industries, such as transport, hotels, restaurants, shops, and food and beverages to name but a few. Moreover, tourism activities also include traveling for recreational purposes or on official business trips, for personal reasons, or together with family members [11]. The growth of the tourism industry entails two aspects regarding its effects: although it has a positive economic and social impact, at the same time, it is noteworthy to mention that it also brings forth an adverse impact on the environment. The latest academic debates seem to center around tourism and the ways in which this can be achieved [12].

In terms of economic and social impact, the travel and tourism sectors are of great importance [13]. Many developing and developed countries are chiefly dependent upon this industry for the bulk of their economic activities Ardoin, N.M. [14], as previously

highlighted by Hwang and Lee [15], who analyzed the importance of senior citizen tourism in the development of the Korean economy. At the same time, the main reason for participating in tourism activities relates to the level of satisfaction perceived by tourists, given that such increased satisfaction levels usually lead to improvements in future behavior [16]. The tourism industry is one of the main contributors to the foreign exchange inflows in the economy of developing countries [17]. Increases in foreign exchange also help developing countries to better fund efforts such as economic growth [18]. In most cases, the flow of foreign exchange enables countries to stabilize their financial system, subsequently leading to improved economic stability as well. The tourism industry is financing the infrastructure and economic development of many countries, and respectively economic development influences businesses and entrepreneurs to undertake travels, which ultimately contributes to the increase of national income [13,19].

It is clear that there is a positive relationship between economic growth and the development of the tourism industry. This topic has been the focus of a significant body of research, and yet the results have been inconclusive, especially regarding the direction of growth (if the growth is bidirectional or unidirectional). This lack of consensus is the starting point of the present research, given that in recent times, the direction of research seems to have changed.

Our study attempts to describe the direction of this relationship by VAR, VECM models and the Granger causality test to verify and validate the underlying relationship. The statistical data used in our study was acquired from the Beijing municipal bureau of statistics for a 20-year period, and refers to the region of Beijing, given that the perspective of the current research is set in the wider economic and social settings of this region of China. First and foremost, the study explores the existing link between tourism and economic growth, while at the same time taking an in-depth look at the importance of economic growth and its impact on the tourism industry in the local Chinese context as well. Secondly, the current study plans to explore the impact of economic growth on the local tourism industry, by developing a statistical model which encompasses this relationship. Thirdly, the present research is also of great importance for policymakers, as it manages to highlight the importance of decision making for the growth of the tourism industry within the Beijing region and in China. The importance of the tourism industry is vital for the global and local economy as well. Moreover, the importance of the tourism industry and sector is backed by extensive reviews of the topic by researchers, studies, and previous literature.

The study is comprised of several sections. Section 1 provides a brief introduction, followed by a review of relevant literature in Section 2. The data and methodology are detailed in Section 3. The results of the research are presented in Section 4, which also explains the implication of the statistical results. Section 5, the final section, consists of the conclusions of the study and is followed by a description of the limitation of the study along with some directions for future studies on this topic.

## 2. Background and Literature Review

In the last three decades, the tourism industry in China has undergone drastic changes, starting from 1978, when government reforms led to the country's opening to the world. Since then, China has become the third most favored tourist destination. A more in-depth analysis needs to take into account the two categories of tourists, namely local and international tourists. According to government statistics, 56 million international tourists have visited China, while domestic tourists were numbering 1.61 billion, and have been increasing over time. Income in terms of Chinese earnings of foreign exchange amounted to 45 billion US dollars, thus placing it on the fourth position globally. Domestic income from tourism in China has been reported at 777.1 billion Yuan. The impact of the tourism industry has thus given rise to numerous benefits for multiple industries, from tourism-based industries to infrastructural development [20].

The revenues that are directly attributed to domestic tourism in China are estimated to be worth CNY (Chinese Yuan) more than 4.57 trillion in 2019, with an average growth rate of almost 15% per annum. The contribution of the tourism industry to the Chinese economy cannot be ignored as it is considered as one of the most important employers, directly hiring 28.25 million individuals and providing jobs for almost 80 million people indirectly. To put numbers into even more perspective, the Chinese tourism sector accounts for approximately 10.28% of the total Chinese job sector.

The relationship between economic development and the tourism industry has been the subject of an abundance of studies. This paper includes economic and social perspectives, which in turn include statistical as well as theory-based research. Numerous researchers have applied a multitude of econometric and statistical models in order to advance and support their point of view, using both local and global data. Du, Lew [21], on a dataset of 109 countries, came to the conclusion that tourism has a significant impact and influence on the long term economic development of any country. Mathieson and Wall [22] established the multiplier effect of tourism, quantifying the impact of the tourism industry on economic development, a theory based on the increase in GDP and per capita GDP, which is considered to result directly from the total number of tourists. On a local level, Rizal and Asokan [23], in their study, have used data from the Indian state of Sikkim to reach similar conclusions.

Researchers have used panel data with time series data. Furthermore, to improve upon available knowledge, another layer of the data analysis usually employed the Granger causality test in order to determine the direction of the relationship between the tourism industry and economic development of a region or a country. Concurrently, the cointegration theory was used by Balaguer and Cantavella-Jorda [24] to study the same relationship, more specifically in order to assess the long-term impact and equilibrium between the development of the Spanish economy and the promotion of the tourism industry. The model determined the relationship to be unidirectional (from tourism to economic development), further supporting the important role of tourism in the development of the overall Spanish economy. Similar results were obtained by Akama [25] for Kenya, on data from 1980 to 2013.

Based on the literature review, the conclusions reached by the studies can be divided into three broad categories, regardless of the underlying theories and the statistical models that have been applied. The first category relates to the studies that supported the unidirectional nature of tourism and economic development. These include Khoshkhou, Alizadeh [26], who have used the input-output model to determine this relationship; their study has focused on the Iranian context. Seetanah [27] has studied this relationship by using data from 19 island nations, which mostly depended upon the tourism industry. He has found a strong unidirectional relationship between this industry and economic growth. Govdali and Direkci [28] have also reached similar conclusions using cross-sectional data for 34 OECD countries from 1997 to 2012. Badulescu et al. [29] (p. 869) confirm, on another emerging country, Romania, the growth-led tourism hypothesis (i.e., the economic growth contributes to the development of the tourism sector) on the long run (with respect to both international tourism receipt, and international tourism arrivals). However, on a short term, the tourism-led growth hypothesis is only supported for the relationship between GDP and international tourism receipt.

The second category consists of studies that support the bidirectional relationship between the development of the tourism industry and economic growth. This includes the study of Demiroz and Ongan [30], who used Turkish data from 1980 to 2004, and concluded that in the case of Turkey this relationship was bi-directional. Roudi, Arasli [31], analyzing small island countries, came to a similar conclusion by using the Granger causality test to determine this relationship. Besel and Uygun [32], using Fourier cointegration, identified a bidirectional relationship for Turkey. The same relationships are identified in Taiwan between 1959 and 2003 [33], Ecuador [34], for Mediterranean countries between 1988 and 2011 [35], for nine Caribbean countries [36] etc. Examining the impact of the economic

growth on the number of international tourism arrivals and also on the international tourism receipts during 1995–2015, in eleven Central and Eastern European economies, Badulescu et al. [37] find a short-run bidirectional relationship both between GDP and international tourism in Croatia and Romania, and a long-run bidirectional relationship in Poland.

The third category consists of studies that failed to identify any relationship between the tourism industry and economic development. For example, Arslanturk, Balcilar [38], using the VECM model on Turkish data from 1963 to 2006 did not identify Granger causality between income generated by tourism and an increase in GDP, and concluded that economic growth led by the tourism industry is not a valid hypothesis. Similarly, Kokotovic [39] arrived to a similar conclusion, by using Czech and Croatian economic and tourism-related data, Brida et al. (2011) [40] for Latin America, Kasimati (2011) [41] for Greece, Tang and Jang (2009) [42] for US, and Badulescu et al. (2018) [37] for Hungary (between 1995 to 2015). Finally, Shahbaz, Ferrer [43] also support this hypothesis for the top ten global tourist destinations from 1990 to 2015.

The history of domestic tourism in the case of China is as old as Chinese history and culture, but the tourism in the Beijing region may be considered as being a new trend resulting from the opening of trade and cultural centers by the Chinese government. At the same Sofield and Li [44] have stated that the history of tourism in China dates back to over three millennia in case of domestic tourism, while international tourism can be linked to the above-mentioned event (the opening of trade and cultural centers by the Chinese government).

According to Chiu [45], in 2014, the US was ranked first in terms of revenues generated from international tourism, with revenues of \$177.2 billion, which represents an increase of 2.5% from the previous year. The same author has shown that China had ranked third in terms of revenues from tourism, generating \$56.9 billion in revenue. In the case of China, the previously mentioned revenue levels from tourism activities represent an increase of 10.2% relative to the previous year. In terms of expenditures for the development of tourism, China topped the ranking by spending \$164.9 billion, which amounted to an increase of 27.14% relative to 2013. The second position is held by the US, with the expenditure levels reaching \$110.8 billion, amounting to a 6.4% increase from the previous year [46]. These figures/statistics depict the role and importance of the Chinese and US economies in global tourism industry.

Given the importance of this industry in terms of generated revenue and jobs created, both at present and its future potential, it is paramount that the analysis of the relationship between tourism and economic growth in the region be explored. Subsequently, we propose the following hypothesis.

**Hypothesis 1.** *There is a positive relationship between domestic tourism and economic growth.*

### 3. Data and Methodology

#### 3.1. Data and Measurement of Variables

The present study is based on the analysis of the impact of tourism on economic growth in the Beijing region of China. Data for the time frame 2000–2019 was acquired from the Beijing Municipal Bureau of Statistics, and statistical analyses were performed in Stata.

To estimate tourism-based revenues, we used as proxy the natural log of revenues generated by tourism in the region, following Gunduz\* and Hatemi-J [47], as there is no universally accepted proxy for this measure. According to Gunduz\* and Hatemi-J [47], this proxy is the most accurate proxy given that it encompasses the most relevant measure. As for measuring the economic growth, the proxy has been calculated by computing the natural log of GDP for the region. The use of natural log is always preferred over raw data simply because raw data usually contains issues related to the heteroscedasticity of data, which decreases the reliability of the results.

### 3.2. Econometric Model

Vector autoregression (VAR), the Granger causality test, and the error correction model (ECM) have been applied in the present study to assess the impact of tourism on economic growth. The main reason for the choice of these models is related to the fact that VAR is flexible and of widespread use in time series analysis, especially for forecasting financial and economic trends, and allows users to develop real-time equation modeling.

The stationarity of data has been checked by applying the Unit root test. The stationarity in GDP data and revenues generated by the tourism industry have been checked by applying the Augmented Dickey-Fuller (ADF) model developed by Dickey and Fuller [48].

The integration between the variables has been achieved by applying the cointegration test. For this purpose, the Engle-Granger two-step approach was applied as stated by (Engel and Granger 1987), along with the method suggested by Johansen [49]. According to this approach, two time-series are integrated independently, but some of their linear combinations have a lower order of integration, and if this situation occurs, then they are said to be cointegrated. The mathematical formula is illustrated below:

$$X_t = \alpha_0 + \alpha_1 X_t + \varepsilon_t.$$

where  $X_t$  = vector of time series variable;  $\alpha$  is vector of intercept;  $\alpha_1$  is coefficient matrices; and  $\varepsilon_t$  is unobservable.

## 4. Empirical Results and Discussion

### 4.1. Augmented Dickey-Fuller (ADF) Unit Root Test

Table 1 indicates the results of the ADF unit root test, which shows that neither time series is stationary, but only their first order difference. Thus, one cannot accept the null hypothesis related to the unit root test and the time series is considered to integrate at the first-order difference. After this, the cointegration and Granger causality analysis can proceed between both variables.

**Table 1.** Augmented Dickey-Fuller (ADF) Unit Root Test.

	ADF Test Statistics	Critical Value 1%	Critical Value 5%	Critical Value 10%	Prob	Result
LnGDP	−2.934325	−2.768482	−2.374532	−1.453288	0.2329	Non-stationary
LnTOUR	−1.823654	−2.367281	−3.734276	−2.253612	0.6217	Non-stationary
DLnGDP	−4.5467717	−4.987423	−4.366278	−3.728911	0.0002	Stationary
DLnTOUR	−5.742911	−5.872721	−5.983282	−4.728172	0.0008	Stationary

Note: LnGDP is natural log of gross domestic product, LnTOUR is the natural log of tourism revenue, D represents the first-order difference to the time series.

### 4.2. Co-Integration Test

To investigate the long-term relationship between different time series, the cointegration test is used. However, it should be kept in mind that occasionally, the cointegration test fails to reveal the clear picture of the relationship. In such cases, in order to avoid errors and ambiguity concerning the regression, the two-step cointegration methods defined by Engle and Granger [50] and Johansen [49] are applied. To this study, we have also followed the approach commonly known as the ordinary least squares (OLS). The results of the OLS test provided in Table 2 indicate that both variables are significant.

**Table 2.** Co-Integration Test.

	Coefficient	T-Value	Prob
LnGDP	3.873783	9.74287	0.0000
LnTOUR	1.437774	4.83289	0.0000

The results of the ADF residual test are provided in Table 3. The results of the residual unit root test indicate that the value of ADF is less than the 1% critical value, which in turn implies that the sequence residuals are stationary. These results also point to the existence of co-integration between the LnGDP and LnTOUR. Besides this, the length of lag is determined by the VAR model results which are provided in Table 4. Since the value of the first difference of the time series has proper stationary lag values, therefore, further analysis is possible.

**Table 3.** ADF Residual Test.

	ADF Test Statistics	Critical Value 1%	Critical Value 5%	Critical Value 10%	Prob	Result
$\epsilon_t$	−2.287362	−2.237862	−2.263272	−1.829378	0.0002	Stationary

**Table 4.** Vector autoregression (VAR) Model.

	LogL	LR	FPE	AIC	SC	HQ
0	18.27846	3.823748	0.000737	−4.872362	2.897232	−3.723671
1	53.82781	2.824541	0.000053	−2.897232	2.897232	−5.287821
2	58.92873	4.642532	0.000023	−6.827821	2.897232	−6.842732
3	62.82388	4.762277	0.000062	−7.843783	2.897232	−4.278382
4	65.82781	1.723821	0.000053	−6.346723	2.897232	−4.842738
5	70.72791	1.723856	0.000032	−3.671627	2.897232	−6.824372

Table 4 provides the appropriate lag lengths of LR (Likelihood), FPE (Final Prediction Error), AIC (Akaike Information Criterion), SC (Schwarz Information Criterion), and HQ (Hannan–Quinn Information Criterion). According to our estimation, based upon the above tests the lag value was estimated to be “1”, which is considered the lag value for this study.

#### 4.3. Vector Autoregression (VAR) Model

##### 4.3.1. Setup of VAR Model

Since the above-mentioned estimates indicated first-order stationarity with a lag of 1, therefore the lag value of the “1” vector is going to be used for the autoregression model. The results of this estimate are provided in Table 5.

**Table 5.** Vector autoregression (VAR) Model.

	LnGDP	LnTOUR
LnGDP (−1)	0.656342 ** (0.04821)	0.236627 * (0.07236)
LnTOUR (−1)	0.826326 ** (0.03532)	0.728721 * (0.07627)
Constant	1.782372 * (0.05727)	1.92872 * (0.07237)
Adj-R <sup>2</sup>	86.72	84.21

Note: \* and \*\* shows level of significance.

The goodness of fit of the model is determined by the adjusted R-square, whose high values confirm that the model performs well in highlighting the relationship between both variables. The changing factors of LnGDP relate to its lag factor LnGDP (−1) and LnTOUR (−1) and for the main factor influencing it is a lag factor LnGDP (−1); although local tourism revenues seem to have been affected by this, the impact is not significant. The lag factor influencing LnTOUR also has its lag factor LnGDP (−1) and the same value is held for LnTOUR, which is (−1).

#### 4.3.2. VAR Model and Its Stability Test

As presented in Table 6, our model is stable and economically meaningful, since the results concluded by applying the VAR root test of both time series show that they are jointly stationary as their lag length has a value of “1”. As the value of the VAR unit root test is held to less than 1 i.e., 0.832782, the results indicate that model is stable. This leads us to the interpretation that a long-term and dynamic equilibrium relationship exists between our two variables, namely domestic tourism and economic growth in the region of Beijing, China.

**Table 6.** Roots of the characteristic polynomial.

Roots	Modulus
0.832782	0.832782
0.223657	0.223657

#### 4.3.3. Granger Causality Test

The Granger causality test is widely used in research for identifying a long-run relationship, as stated by Bui [51], who tested the existence of a long-run causal relationship between Vietnamese stock market performance and the exchange rate. In our study, via cointegration analysis, we have found a long-run relationship between the growth of the tourism industry and economic growth in the region of Beijing, China. The lag value “1” further obtained via testing also enforces our findings in this regard. The details of the results of the Granger causality test are provided in Table 7.

**Table 7.** Vector autoregression (VAR) Model.

Null Hypothesis	Obs	F-Statistics	Prob
LnTOUR does not Granger cause LnGDP	43	17.8321	0.0001
LnGDP does not Granger cause LnTOUR	43	5.4536	0.0421

Our results show that at 95% both variables are significant, and there is ample proof of the existence of the long-run relationship between the LnTOUR and LnGDP. So, in our case, LnTOUR has a significant impact on the LnGDP for the stated region, thus proving our earlier held hypothesis. The existence of a causal relation is evident from Table 7. Our results are also in line with [52], who also contended the same hypothesis. To summarize the results, we can safely assume that a causal, long term relationship between LnGDP and LnTOUR exists, as this implies that the development of domestic tourism in the Beijing region of China has positively impacted the local economic development of the area. Not only that, but it has also had a positive impact on tourism as a whole in the region.

#### 4.4. Vector Error Correction Model (VECM)

By using the unrestricted VAR models, we have established the existence of long-term causal relation between both variables. At the same time, we have also established that the short-run relationship between the variables remained unclear. To study this relation, we applied the Vector Error Correction Model (VECM), which is a restricted form of VAR. VECM allows for short-term adjustments in the dynamics of data as it cointegrates the relationship by default and thus it restricts the long-run behavior of variables that are endogenous and allows them to congregate into their cointegrating relations. The details of the VECM are provided in Table 8.



**Table 8.** Vector error correction model (VECM).

Error Correction Model	D(LnGDP)	D(LnTOUR)
Constant	0.028137 (0.38763)	0.073121 (0.05822)
D(LnGDP(−1))	0.518282 (0.12138)	0.7126782 (0.04323)
D(LnTOUR(−1))	0.732717 (0.02765)	0.345464 (0.56361)
Adjusted R <sup>2</sup>	23.67%	28.46%
F-Value	45.76	76.32

The main influencing factors as per VECM are for first-order differential D (LnGDP) “−1” and D (LnTOUR) “−1” respectively. This denotes that D (LnGDP) “−1” has a positive impact on D (LnTOUR). These results also confirm that the tourism industry in the Beijing region has a positive impact on the economic growth of the region in the short-term as well. Thus, these results, in their combined form, are indicative of the bidirectional relationship that exists between the tourism industry and its positive impact on the regional economy of the region of Beijing, China.

## 5. Conclusions and Future Research

The development of the tourism industry in the Beijing region has resulted in a positive change in terms of economic and social progress over the past few decades. It has enabled the local economy to absorb foreign exchange at a lower cost, as well as helping many other related industries to flourish. Industries such as transportation, insurance, health, banking & finance, and telecom have thus developed at a rapid pace to accommodate and facilitate the tourism industry. According to recent estimates, the tourism industry directly caters for over 5 million jobs, and Zhu (2001) stated that it employs almost 25 million people around China. The present study aims at conceptualizing the relationship between the tourism industry and economic growth by applying an econometric model. The results of this current study have established the existence of a bidirectional relationship between both variables.

The tourism industry holds a vital place in Beijing’s economic growth, and has been supported by government aid in the form of policies that have helped tourism to establish its roots and to grow. These policies can mainly be linked to reforms that have been instituted by the government of the People’s Republic of China. These reforms have enabled this industry, which initially consisted of only a few service units, to grow into its modern-day status as a vital part in the economic and social development of the region. The motivation of the present study stems from the fact that the Chinese government aims to double the volume of the tourism industry by increasing domestic spending on this growing industry. Our study has aimed to establish the bidirectional relationship between the development of the tourism industry and economic growth in the Beijing region, by using a twenty-year data set related to tourism. Our results proved the existence of the above-mentioned relationship in the region. This comes as no surprise, given that evidence of such a relationship can be found in existing literature as well [53,54]. The result of the present study is important for governments and for the industry alike, especially given that governments tend to spend many resources on the development and establishment of this industry, including promotion and advertising.

The results of the VAR model indicate that the economic growth of the Beijing region is strongly influenced by the tourism industry as a vital sector for the local economy in terms of revenues and the creation of job opportunities, both directly and indirectly. The rapid growth of the tourism industry has also enabled connected industries to grow and develop as well. The growth of these adjacent industries and sectors, e.g., energy, public sector, domestic consumption [55] further promotes tourism, as suggested by the results of the Vector error correction model, as a unidirectional relationship. Our findings provide

further support to the previous findings of SanchezCarreraetal. [53], Lu et al. [54], Balaguer and Cantavella-Jorda [24], or Caglayan et al. [56].

Our results have important implications for policymakers of the region, as they indicate the existence of both long-run and short-run relation between economic growth and the development of the tourism industry. Thus, these results justify the fact that policymakers should continue paying attention to this industry, encouraging both domestic and international tourists to visit the Beijing region, by formulating and developing tourism-friendly policies. The tourism industry can maintain and improve its standing by lowering the overall cost and further improving the services related to hospitality for both domestic and international tourists. One of the main distinctions of this study is the simultaneous application of different models to rigorously test and establish the above-stated relationship in the context of the Beijing region.

Our study has some limitations, along with its theoretical and empirical contributions. Although the results indicate a positive relationship between economic growth and the tourism industry, given that the context of the research is limited to the Beijing region of China, one should not conclude that all the development in the region is the result of the tourism industry. The main limitation of the study relates to the domestic nature of the study as the data used mainly consisted of domestic tourism statistics. Thus, future researchers can incorporate international data for the purpose and theme of the research. What is more, the perspective of the research can also be broadened by including country-based statistics or by using regional economy-based statistics. In this way, future researchers and future findings can eliminate the generalizations of the results, given that the nature of this relationship might change depending on the economic and social circumstances. Researchers can also add different other variables to their research, such as the number of tourists, the time they spent in the host nation, the statistics related to the real exchange rate, and equally important, future researchers can also add other statistical techniques to determine the relationship between the development of the tourism industry and economic growth.

**Author Contributions:** All authors have contributed equally to all sections of this manuscript. All authors have read and agreed to the published version of the manuscript.

**Funding:** This research received no external funding.

**Institutional Review Board Statement:** Not Applicable.

**Informed Consent Statement:** Not Applicable.

**Data Availability Statement:** Data of present study, will be available on request from corresponding author.

**Acknowledgments:** We would like to thank Nguyen Tat Thanh University, Ho Chi Minh City, Vietnam for the support of time and facilities for this study.

**Conflicts of Interest:** The authors declare no conflict of interest.

## References

1. Buckley, R. Tourism and environment. *Ann. Rev. Environ. Res.* **2011**, *36*, 397–416. [[CrossRef](#)]
2. Wise, N. Outlining triple bottom line contexts in urban tourism regeneration. *Cities* **2016**, *53*, 30–34. [[CrossRef](#)]
3. Liu, A.; Wall, G. Planning tourism employment: A developing country perspective. *Tour. Manag.* **2006**, *27*, 159–170. [[CrossRef](#)]
4. Khalil, S.; Kakar, M.K.; Malik, A. Role of tourism in economic growth: Empirical evidence from Pakistan economy [with comments]. *Pak. Dev. Rev.* **2007**, *46*, 985–995. [[CrossRef](#)]
5. Durbarry, R. Tourism and economic growth: The case of Mauritius. *Tour. Econ.* **2004**, *10*, 389–401. [[CrossRef](#)]
6. Dwyer, L.; Forsyth, P.; Madden, J.; Spurr, R. Economic impacts of inbound tourism under different assumptions regarding the macroeconomy. *Curr. Issues Tour.* **2000**, *3*, 325–363. [[CrossRef](#)]
7. Khan, H.; Seng, C.F.; Cheong, W.K. Tourism multiplier effects on Singapore. *Ann. Tour. Res.* **1990**, *17*, 408–418. [[CrossRef](#)]
8. Shi, F.; Weaver, D.; Zhao, Y.; Huang, M.-F.; Tang, C.; Liu, Y. Toward an ecological civilization: Mass comprehensive ecotourism indications among domestic visitors to a Chinese wetland protected area. *Tour. Manag.* **2019**, *70*, 59–68. [[CrossRef](#)]
9. He, M. *A Human Rights-Based Approach to Conserving Protected Areas in China: Lessons from Europe*; Intersentia: Cambridge, UK, 2016.

10. Ma, Z.; Chen, Y.; Melville, D.S.; Fan, J.; Liu, J.; Dong, J.; Tan, K.; Cheng, X.; Fuller, R.A.; Xiao, X. Changes in area and number of nature reserves in China. *Conserv. Biol.* **2019**, *33*, 1066–1075. [[CrossRef](#)]
11. He, M.; Cliquet, A. Challenges for Protected Areas Management in China. *Sustainability* **2020**, *12*, 5879. [[CrossRef](#)]
12. Li, W.; Zhang, Q.; Liu, C.; Xue, Q. Tourism's impacts on natural resources: A positive case from China. *Environ. Manag.* **2006**, *38*, 572–579. [[CrossRef](#)] [[PubMed](#)]
13. Hines, J.M.; Hungerford, H.R.; Tomera, A.N. Analysis and synthesis of research on responsible environmental behavior: A meta-analysis. *J. Environ. Educ.* **1987**, *18*, 1–8. [[CrossRef](#)]
14. Ardoin, N.M.; Wheaton, M.; Bowers, A.W.; Hunt, C.A.; Durham, W.H. Nature-based tourism's impact on environmental knowledge, attitudes, and behavior: A review and analysis of the literature and potential future research. *J. Sustain. Tour.* **2015**, *23*, 838–858. [[CrossRef](#)]
15. Hwang, J.; Lee, J.J. Understanding customer-customer rapport in a senior group package context. *Int. J. Contemp. Hosp. Manag.* **2019**, *31*, 2187–2204. [[CrossRef](#)]
16. Hwang, J.; Lee, J. Relationships among senior tourists' perceptions of tour guides' professional competencies, rapport, satisfaction with the guide service, tour satisfaction, and word of mouth. *J. Travel Res.* **2019**, *58*, 1331–1346. [[CrossRef](#)]
17. Ekanayake, E.; Long, A.E. Tourism development and economic growth in developing countries. *Int. J. Bus. Financ. Res.* **2012**, *6*, 61–63.
18. Shahzad, S.J.H.; Shahbaz, M.; Ferrer, R.; Kumar, R.R. Tourism-led growth hypothesis in the top ten tourist destinations: New evidence using the quantile-on-quantile approach. *Tour. Manag.* **2017**, *60*, 223–232. [[CrossRef](#)]
19. Mahmoudinia, D.; Salimi Soderjani, E.; Pourshahabi, F. Economic growth, tourism receipts and exchange rate in MENA zone: Using panel causality technique. *Iran. Econ. Rev.* **2011**, *15*, 129–146.
20. Zhang, L.; Gao, J. Exploring the effects of international tourism on China's economic growth, energy consumption and environmental pollution: Evidence from a regional panel analysis. *Renew. Sustain. Energy Rev.* **2016**, *53*, 225–234. [[CrossRef](#)]
21. Du, D.; Lew, A.A.; Ng, P.T. Tourism and economic growth. *J. Travel Res.* **2016**, *55*, 454–464. [[CrossRef](#)]
22. Mathieson, A.; Wall, G. *Tourism, Economic, Physical and Social Impacts*; Longman: London, UK, 1982.
23. Rizal, P.; Asokan, R. Measuring the Impact of Tourism Industry on Regional Economy of Sikkim State, India. *J. Int. Acad. Res. Multidiscip.* **2016**, *1*, 411–419.
24. Balaguer, J.; Cantavella-Jorda, M. Tourism as a long-run economic growth factor: The Spanish case. *Appl. Econ.* **2002**, *34*, 877–884. [[CrossRef](#)]
25. Akama, E. *International Tourism Receipts and Economic Growth in Kenya 1980–2013*; University Library of Munich: Munich, Germany, 2016.
26. Khoshkhou, M.; Alizadeh, V.; Pratt, S. The Economic Contribution of Tourism in Iran: An Input-output Approach. *Tour. Anal.* **2017**, *22*, 435–441. [[CrossRef](#)]
27. Seetanah, B. Assessing the dynamic economic impact of tourism for island economies. *Ann. Tour. Res.* **2011**, *38*, 291–308. [[CrossRef](#)]
28. Govdeli, T.; Direkci, T.B. The relationship between tourism and economic growth: OECD countries. *Int. J. Acad. Res. Econ. Manag. Sci.* **2017**, *6*, 6. [[CrossRef](#)]
29. Badulescu, A.; Badulescu, D.; Simut, R.; Dzitac, S. Tourism-Economic growth nexus. The case of Romania. *Technol. Econ. Dev. Econ.* **2020**, *26*, 867–884. [[CrossRef](#)]
30. Demiroz, D.M.; Ongan, S. The contribution of tourism to the long-run Turkish economic growth. *Ekonom. Čas.* **2005**, *9*, 880–894.
31. Roudi, S.; Arasli, H.; Akadiri, S.S. New insights into an old issue—Examining the influence of tourism on economic growth: Evidence from selected small island developing states. *Curr. Issues Tour.* **2019**, *22*, 1280–1300. [[CrossRef](#)]
32. Besel, F.; Uygun, U. The relationship between economic growth and tourism income: The case of Turkey. In Proceedings of the 3rd SCF International Conference on “Economic and Social Impacts of Globalization”, Antalya, Turkey, 5–7 October 2017; pp. 5–7.
33. Lee, C.C.; Chien, M.S. Structural breaks, tourism development, and economic growth: Evidence from Taiwan. *Math. Comput. Simul.* **2008**, *77*, 358–368. [[CrossRef](#)]
34. Rivera, M.A. The synergies between human development, economic growth, and tourism within a developing country: An empirical model for Ecuador. *J. Destin. Mark. Manag.* **2017**, *6*, 221–232. [[CrossRef](#)]
35. Tugcu, C. Tourism and economic growth nexus revisited: A panel causality analysis for the case of the Mediterranean region. *Tour. Manag.* **2014**, *42*, 207–212. [[CrossRef](#)]
36. Apergis, N.; Payne, J. Research note: Tourism and growth in the Caribbean-evidence from a panel error correction model. *Tour. Econ.* **2012**, *18*, 449–456. [[CrossRef](#)]
37. Badulescu, A.; Badulescu, D.; Simut, R. The Complex Relationship between International Tourism Demand and Economic Growth: An Analysis on Central and Eastern European Economies. *Amfiteatru Econ.* **2018**, *20*, 935–950. [[CrossRef](#)]
38. Arslanturk, Y.; Balçilar, M.; Ozdemir, Z.A. Time-varying linkages between tourism receipts and economic growth in a small open economy. *Econ. Model.* **2011**, *28*, 664–671. [[CrossRef](#)]
39. Kokotovic, F. Analysis of a maritime versus a landlocked tourism dependent economy: Croatia and the Czech Republic. *UTMS J. Econ.* **2017**, *8*, 319–328.
40. Brida, J.; Monterubbianesi, P.; Zapata-Aguirre, S. The impacts of tourism on economic growth and development: The case of the main Colombian destinations. *PASOS Rev. Tur. Patrim. Cult.* **2011**, *9*, 291–303.

41. Kasimati, E. Economic impact of tourism on Greece's economy: Cointegration and causality analysis. *Int. Res. J. Financ. Econ.* **2011**, *79*, 79–85.
42. Tang, C.; Jang, S. The tourism-economy causality in the United States: A sub-industry level examination. *Tour. Manag.* **2009**, *30*, 553–558. [[CrossRef](#)]
43. Shahbaz, M.; Ferrer, R.; Shahzad, S.J.H.; Haouas, I. Is the tourism-economic growth nexus time-varying? Bootstrap rolling-window causality analysis for the top 10 tourist destinations. *App. Econ.* **2018**, *50*, 2677–2697. [[CrossRef](#)]
44. Sofield, T.H.; Li, F.M.S. Tourism development and cultural policies in China. *Ann. Tour. Res.* **1998**, *25*, 362–392. [[CrossRef](#)]
45. Chiu, C.-N. Tourism expansion and economic development: Evidence from the United States and China. *J. China Tour. Res.* **2021**, *17*, 120–141. [[CrossRef](#)]
46. United Nations Statistics Division. *Advancing the System of Environmental-Economic Accounting (SEEA) Experimental Ecosystem Accounting: Expert Forum Minutes*; UNSD/UNEP/CBD: New York, NY, USA, 2015.
47. Gunduz, L.; Hatemi-J, A. Is the tourism-led growth hypothesis valid for Turkey? *Appl. Econ. Lett.* **2005**, *12*, 499–504. [[CrossRef](#)]
48. Dickey, D.A.; Fuller, W.A. Likelihood ratio statistics for autoregressive time series with a unit root. *Econ. J. Econ. Soc.* **1981**, *49*, 1057–1072. [[CrossRef](#)]
49. Johansen, S. *Likelihood-Based Inference in Cointegrated Vector Autoregressive Models*; Oxford University Press on Demand: Oxford, UK, 1995.
50. Engle, R.F.; Granger, C.W. Co-integration and error correction: Representation, estimation, and testing. *Econ. J. Econ. Soc.* **1987**, *55*, 251–276. [[CrossRef](#)]
51. Bui, M.T. Causality in Vietnam's Parallel Exchange Rate System during 2005–2011: Policy Implications for Macroeconomic Stability. *Economies* **2018**, *6*, 68. [[CrossRef](#)]
52. Dritsakis, N. Tourism as a long-run economic growth factor: An empirical investigation for Greece using causality analysis. *Tour. Econ.* **2004**, *10*, 305–316. [[CrossRef](#)]
53. Sanchez Carrera, E.J.; Brida, J.G.; Risso, W.A. Tourism's impact on long-run Mexican economic growth. *Econ. Bull.* **2008**, *23*, 1–8. [[CrossRef](#)]
54. Lu, C.; Pang, M.; Yang, J.; Wang, D. Research on interactions between the economy and environment in tourism development: Case of Qingyang, China. *Sustainability* **2018**, *10*, 4033. [[CrossRef](#)]
55. Begu, L.S.; Mester, I.T.; Simut, R.; Sehleanu, M.; Perticas, D. Economic and Environmental Implications of Energy Taxes: Evidence from Romania. *Econ. Comput. Econ. Cyb.* **2019**, *53*, 21–37. [[CrossRef](#)]
56. Caglayan, E.; Sak, N.; Karymshakov, K. Relationship between Tourism and Economic Growth: A panel Granger causality approach. *Asian Econ. Financ. Rev.* **2012**, *2*, 518–529.