ISSN (PRINT): 1994 - 7658 ISSN (ONLINE): 1314 - 0817

VARNA UNIVERSITY OF MANAGEMENT

European Journal of Tourism Research

http://ejtr.vumk.eu

Testing the tourism led growth hypothesis: A nonsensical exercise?

Jose Francisco Perles-Ribes [1]* and Luis Moreno-Izquierdo [2]

[1] Economics of Innovation and AI Research Group, Instituto de Economía Internacional, University of Alicante, Spain. Email: jose.perles@ua.es

[2] Economics of Innovation and AI Research Group, Instituto de Economía Internacional, University of Alicante, Spain. Email: luis.moreno@ua.es

*Corresponding author

Abstract

The Tourism-Led Growth Hypothesis (TLGH) posits a fundamental area of research, explored in hundreds of papers elucidating the relationship between tourism activity and economic growth. However, proposing the TLGH is not logical as the bidirectional relationship between tourism and economic growth is theoretically undeniable. In this paper, we advocate for a shift in the study perspective towards more ambitious hypotheses that extends the TLGH, which can be summarized in the Tourism as Optimal Choice Hypothesis (TOCH) and the Tourism-Led Genuine Economic Development Hypothesis (TLGDH).

Keywords: Tourism Led Growth Hypothesis, Tourism Led Genuine Economic Development Hypothesis, Tourism as Optimal Choice Hypothesis

Citation: Perles-Ribes, J.F. and Moreno-Izquierdo, L. (2024). Testing the tourism led growth hypothesis: A nonsensical exercise? *European Journal of Tourism Research*, 38, 3817. https://doi.org/10.54055/ejtr.v38i.3637.

Publication history:

Received: 07/02/2024; Revised: 04/04/2024, 23/04/2024; Accepted: 23/04/2024; Published online: 01/08/2024; Volume date: 01/10/2024

Coordinating editor: Estela Marine-Roig

1. Introduction

The close relationship between economic growth and development has been observed in numerous papers for decades. However, despite their theoretical proximity, they address distinct realities, with policies having different effects depending on which objective is sought (Arndt, 1987; Suri et al., 2011). While economic growth simply refers to "*increases in a country's production of goods and services or per capita income*" (Nafziger, 2012; p. 15) –typically assessed by Gross Domestic Product (GDP) – development also includes qualitative changes that take place in society. In words of Haler (2012), development means a "*qualitatively higher step of macro-economic evolution*" (p. 68), in comparison with economic growth.

In the case of the tourism sector, the analysis of its effects on the economy of destinations and countries has had a predominant focus on "economic growth", with the work of Balaguer and Cantavella-Jordá (2002) being the most referred theoretical framework. In their pioneering paper, the Tourism-Led Growth Hypothesis (TLGH), as extension of the well-known Export-Led Growth Hypothesis (ELGH), was presented. Thanks to the relative technical ease of the TLGH in testing the intricate dynamics between tourism and the prosperity of destinations, dozens of papers emerged during the last decade regarding the topic.

However, although most studies have confirmed the positive relationship between tourism and economic growth, the results have not been entirely conclusive, with the debate about the effects of the tourism industry on the economy far from concluded (Song & Wu, 2022). These results invite reflection on the resolution and formulation of the TLGH, at least from two perspectives. On one hand, research techniques have traditionally relied on the relatively limited scope of Granger causality, with some authors emphasizing the need to incorporate nonlinear methods for a more comprehensive understanding of causal relationship (Po and Huang, 2008; Brida et al., 2015). This has led to a continuous improvement in TLGH analysis, introducing greater complexity to research, as we expose in this paper.

On the other hand, researchers have predominantly focused their efforts on the relationship between tourism and economic growth. In this context, the same question posed by Petrakis (2020) arises: "*how adequate is a definition of growth that only includes references to the material level of growth?*" (p. 33). In the case of tourism, framing the relationship from the perspective of development is particularly important, as politically, the activity has often been conceived as an engine for underdeveloped economies not only in terms of convergence but also prosperity and well-being (Telfer &Sharpley, 2015).

Considering the apparent gap, this article seeks to redirect attention towards development, posing a critical question that remains unanswered despite advancements in recent years: *Does the TLGH –as currently discussed in the literature– enable us to understand the interaction between tourism and economic development?* To address this, this paper extensively delves into the validity of the TLGH as a hypothesis, on one hand, alternative hypotheses more aligned with current concerns in tourism economics, and on the other hand, different linear and nonlinear methods to test them. In this way, this research is framed within the stream of studies with a *Beyond GDP* perspective in the economics of tourism, which is increasingly widespread among researchers and policymakers (Dwyer, 2020).

The application of these methodologies is illustrated through the example of Spain, which also served as a case study in the initial TLGH exercise by Balaguer and Cantavella-Jordá (2002). With all of this, the document aims to provide innovative contributions at a methodological level regarding the hypotheses and mechanisms used to estimate the effects of tourism on destinations and countries.

2. Questioning the approach to testing the TLGH

In the TLGH it is argued that economic growth is driven by the arrival of tourists to destinations: the influx of tourists –an equivalent of tourism production, according to Zuo and Huang (2018)– becomes a stimulus for the demand and supply of goods and services, creating employment and motivating both public and private investments. This situation has been tested worldwide, both in developed and developing areas, regarding regions with social and economic features so different such as the European Mediterranean (Proença and Soukiazis, 2008; Cortes-Jimenez and Pulina, 2010; Mérida and Golpe, 2014), Latin America (Schlüter, 1993; Simundic et al., 2016; Tzeremes, 2022), or Asia (Liu and Song, 2018; Wu et al., 2020; Odeleye et al., 2022). Studies of this kind are not only applied to destinations where there is a clear specialization in tourism-related activities but also where tourism serves as a complementary agent, or even an economic catalyst for other primary activities, such as rural environments (Vidickienė et al., 2020).

At the same time, it is undeniable that economic growth has both a direct and indirect impact on promoting tourism development. Firstly, taxes generated by economic activity support public investment in infrastructure such as airports, or the preservation of public domain tourist attractions, such as national parks or historical monuments. Economic development also allows for direct capital injections to promote tourism as part of economic diversification, especially in emerging and developing countries (Lejárraga & Walkenhorst, 2013), ranging worldwide from small cultural projects to billion-dollar endeavors, like artificial islands in oil-producing nations.

Secondly, the capacity of destinations to attract tourists (*competitiveness*) is closely linked to the income and well-being thresholds of the resident population (Crouch & Ritchie, 1999; Dwyer & Kim, 2003). Tourists may not have knowledge of public spending levels, employment ratios, or wealth distribution. However, they do perceive essential factors that can influence their decisions, such as safety in the streets, healthcare infrastructure quality, public transportation, or the cleanliness of tourist areas (Jensen & Svendsen, 2016; Millar et al., 2017; Collins & Millar, 2021).

Based on this logic, as summarized in **Figure 1**, tourism and economic growth are unquestionably mutually reinforcing phenomena. This means that the TLGH transitions from a hypothesis to an axiom or proposition, rendering its empirical testing appear futile.

One might legitimately question why, if the theoretical relationship is so evident, there is a debate about the confirmation of the TLGH, as evidenced by Brida et al. (2016) or Perles-Ribes et al. (2017), or about the bilateral relationship between the factors, as occurs in Alcalá-Ordóñez et al. (2023), Benkraiem et al. (2021), or Pérez-Rodríguez et al. (2022). The reasons for such discrepancies have been continuously exposed in the literature, including factors like the marginal significance of tourism in the countries or destinations under examination, the limited effectiveness of the methodologies used, sample size limitations, or potential measurement errors in the selected variables, among other considerations.

This does not mean that the TLGH studies are inconclusive. Indeed, the results related to the TLGH, even those whose conclusions pose various interpretations, help us understand the impact of tourism in different countries and time periods (Antonakakis et al., 2019; Du et al., 2016), or the resilience of economies linked to tourism against shocks such as economic crises (Hatemi et al., 2018; Iglesias Garrido, 2018). Undoubtedly, this type of studies allows stakeholders to adopt better policies in the management and exploitation of tourism resources in a destination.

Additionally, it is important to recognize the methodological advancements, including the adaptation of models originally designed for financial markets, such as the developed in Hacker and Hatemi (2010) or Hatemi (2021), to tourism studies. However, since the original purpose of the TLGH approach is

already theoretically resolved in the description of the relationship between its parts (tourism and economic growth), researchers in the field of tourism economics should adopt more ambitious approaches. This requires posing deeper hypotheses, as described below.

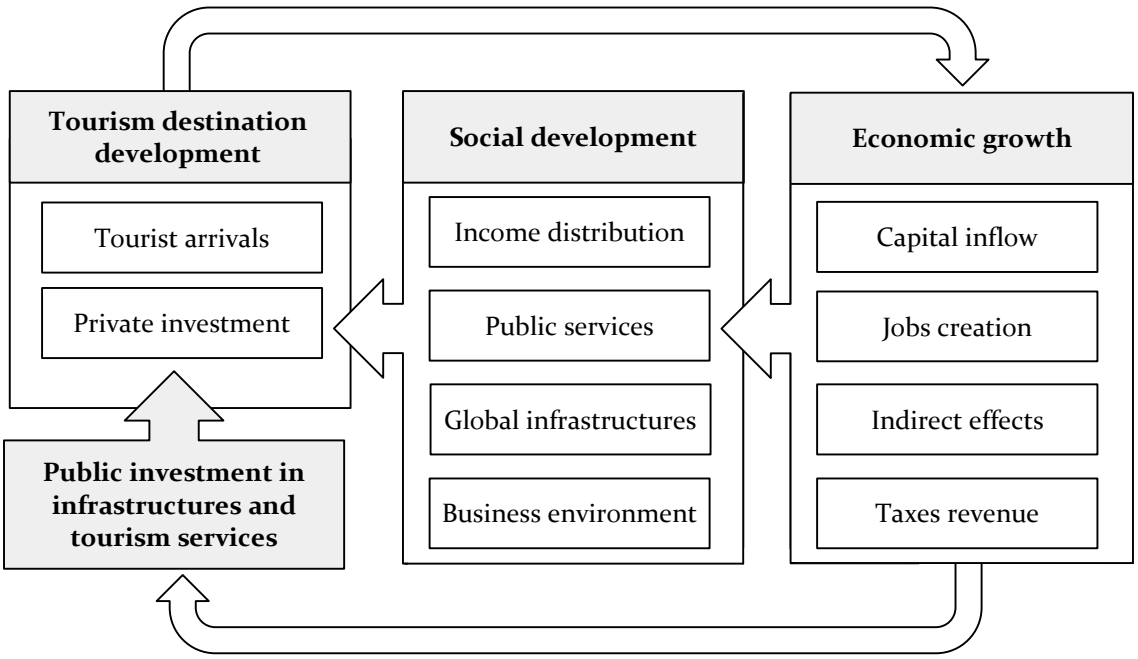

Figure 1. *Relationship among tourism destination development and economic growth.*

3. Alternative hypotheses regarding tourism activity and economic development.

In this research we present two research questions, along with some methodological insights, that would enable progress in the field of tourism economics beyond the outdated relationship between economic growth and tourism development.

3.1. Tourism-Led Genuine Economic Development Hypothesis (TLDGH).

The first proposed hypothesis is defined as the *Tourism-Led Genuine Economic Development Hypothesis (TLGDH)*, a natural extension of the TLGH that is related to critical development objectives (income distribution, sustainability, or the development of human capital), not only to economic growth as we discussed in the introduction section.

This hypothesis would take the following form:

H_0: Tourism does not promote economic development.
H_1: Not H_0

Recent works such as Fahimi et al. (2018), Pulido-Fernández & Cárdenas-García (2021) or Sharma et al. (2020) have already conducted research in this line of study, using the Human Development Index (HDI) as a measure of development. However, to have a comprehensive view, it is methodologically necessary to establish a distinction between the existing tourism alternatives, and not just focus solely on the raw activity numbers, as all previous studies in this research line have done (see the review of literature done by Alcalá Ordóñez and Segarra, 2023). Since it is widely recognized that the type of tourism developed has a significant impact on the distribution of benefits and its sustainability, without a typological distinction, it is challenging to draw conclusions that consider the characteristics of each

territory. Furthermore, the methodological tools for testing the TLGH remain valid for this first hypothesis.

3.2. Tourism as Optimal Choice Hypothesis (TOCH)

The second proposed hypothesis, which we can define as the *Tourism as Optimal Choice Hypothesis (TOCH)*, aims to determine whether tourism activity is the optimal choice for fostering economic growth in a specific destination. Through this approach, one can explain why many of today's most competitive tourist countries and regions are in peripheral areas. These locations were often disadvantaged or notably underdeveloped, as was the case in the Spanish Mediterranean regions before the 1950s, finding in the tourism activity the most viable alternative for growth (Naylon, 1992). At the same time, this hypothesis is necessary to seek answers to the current divergence being experienced between the European tourist economies and the central and northern regions, as detected by Haller et al. (2020). Addressing this hypothesis would require two possible paths. The first would be a causal analysis exercise with a careful selection of the sample. The destinations to be studied should share characteristics at the time when the comparison of their economic growth trajectories begins, allowing for an examination of their evolution influenced by their economic specialization. Otherwise, we overlook that while tourism may hinder the development of some regions, it may be only means of escaping poverty for others. The analytical methods for this hypothesis could include group comparison methods (Differences-in-Differences), Discontinuity Regression Approach, Instrumental Variables for exogenous variations, Propensity Score Matching, or Synthetic Control Method.

As an alternative to causal analysis, the second exercise proposed is referred to in this article as the 'analysis of the optimal economic composition of destinations.' It consists of two stages: first, detecting the optimal composition of productive sectors of the destination that maximize some representative variable of economic development or the welfare of the local population. Second, comparing this established optimal composition with the actual composition of the destination. The results obtained will address a combination of the following hypotheses

Hypothesis A:
H_0: The weight of alternative sectors to tourism (e.g. agriculture or industry) is equal to the optimum estimated by the model.
H_1: Not H_0

Hypothesis B:
H_0: The weight of the tourism sector is equal to the optimum estimated by the model.
H_1: Not H_0

The combination and interpretation of the hypothesis would be as follows:

Case 1: If hypotheses A and B are not rejected, tourism is an optimal sector for the destination.
Case 2: If only one of the two hypotheses (A or B) is rejected, but not the other, the result is inconclusive.
Case 3: If both hypotheses (A and B) are rejected, there are two possibilities:

- Subcase 3.1: If the estimated optimum yields a higher weight of tourism than that actually observed in the destination, tourism would be the optimum sector for the destination.
- Subcase 3.2: If the estimated optimum yields a lower weight of tourism than that actually observed in the destination, tourism would not be the optimum sector for the destination.

As will be seen in the application example of the next sections, since the significance of a sector in the destination is typically articulated as a percentage of its total economic activity or employment of the

destination, the tests outlined earlier involve a straightforward comparison between the ideal sector weight and the observed weight in the destination, conducted through a basic proportion comparison test.

To determine the optimal weight of the sectors, methodological alternatives such as Stochastic Frontier Models or data envelopment analysis which consider potential restrictions in coefficients and optimization conditions, could be viable in this context jointly with classical regressions and other advanced models based on them.

4. Testing the Tourism-Led Growth Hypothesis (TLGH) and the Tourism-Led Genuine Economic Development Hypothesis (TLGDH). The case of Spain 1980-2021.

This section shows an example application of the TLGH and TLGDH. For this purpose, Spain, a consolidated tourist destination, is used as a case study. To analyze the TLGH, the classic causality analysis is carried out between a variable reflecting economic growth, the logarithm of the real gross domestic product (*LogRealGDP*) and a variable reflecting tourist arrivals at the destination taken in logarithms (*LogArrivals*).

To analyze the TLGDH, causality analysis is carried out between tourist arrivals at the destination (*LogArrivals*) and the Human Development Index (*HDI*) as a variable reflecting economic development. Although there is criticism regarding the approach to the HDI as a valid representation of development (Nguefack-Tsague et al., 2011), the truth is that this variable is the most accepted and used in economic literature.

The analysis spans from 1980 to 2021 due to the absence of data for the HDI indicator in Spain before 1980. Notably, while the United Nations Development Program only provides worldwide data for the period 1990-2021, in the case of Spain the Valencian Institute of Economic Research (IVIE) also offers information for the period 1980-1990. By combining data from both sources, we can conduct an analysis covering a longer time span compared to other countries, providing further justification for using the selected case study. The data for the real GDP is provided by the OECD and the considered series is the logarithm of the Gross Domestic Product (output approach) at constant prices in millions for the OECD base year in Euros 2015. Finally, the data on visitor arrivals are obtained from the National Statistics Institute of Spain. Figure 2 display the evolution of the variables during the considered period.

The methodology employed in this study relies on the Toda and Yamamoto (1995) methodology, which is specifically crafted for examining causal connections within time series. It expands upon the conventional Granger causality test by implementing a standard Wald test on the first p lags of an advanced vector autoregression VAR ($p+d$) model at the data's level. The augmented lags (d) are determined by the level of integration of the analyzed series.

Assuming the null hypothesis of absence of causal relationship, the Wald test statistic follows a chi-square distribution with p degrees of freedom in the asymptotic limit. Significance in the coefficients implies that the model suggests a causal relationship between the two time series.

The analysis of the order of integration (Table 1) shows that the three series are integrated of order one I(1) during the analyzed period. Therefore, as described above, in order to analyze Granger causality, the VAR should be increased by one lag (d is set to 1). Starting with the TLGH hypothesis, all used criteria set an optimal lag order for the VAR between *LogRealGDP* and *LogArrivals* of 2 lags (p is set to 2). The estimated VAR(2), which is not shown so as not to increase the length of the article but can be obtained upon request, satisfies the stability conditions and it does not exhibit issues of residuals autocorrelation.

.

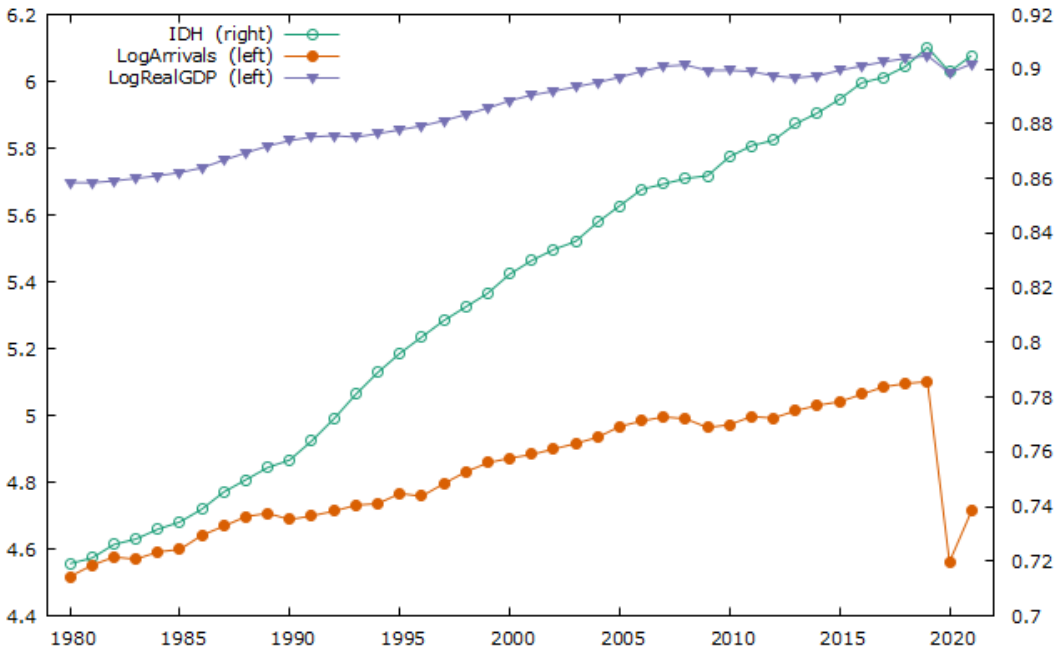

Figure 2. *LogRealGDP, IDH and visitors arrivals to Spain 1980-2021. Authors own elaboration.*

Table 1. *Augmented Dickey-Fuller test statistics for LogArrivals, LogRealGDp and IDH. Spain 1980-2021.*

Variable		**Levels**			**First differences**		
	Lag lenght	t-stat.	p-value	Lag lenght	t-stat.	p-value	Order
LogArrivals	0	-2.121	0.237	0	-7.653	0.000	I(1)
IDH	0	-1.250	0.643	0	-6.218	0.000	I(1)
LogRealGDP	0	-1.742	0.402	0	-5.059	0.000	I(1)

Exogenous: Constant, lag-length automatic based on SIC criterion, maximum lag equal 9

In light of these results, an augmented VAR(3) is estimated and presented in Table 2. Meanwhile, Table 3 displays the results of the causality analysis, establishing that tourism leads to economic growth in one direction. Thus, confirming the Tourism-Led Growth Hypothesis (TLGH) for Spain during the considered period.

Next, we proceed with the more interesting case of the TLGDH. In this case, most of the optimal lag selection criteria in the VAR set the number of lags at one (p is set to 1). The estimated VAR(1) - not shown - satisfies the stability conditions and it does not exhibit issues of residuals autocorrelation. In light of these results, an augmented VAR(2) is estimated and presented in Table 4. As in the previous case, Table 5 displays the results of the causality analysis, indicating no discernible causality between tourism and economic development. Therefore, the TLGDH is not confirmed for Spain during the considered period.

Table 2. *Testing TLGH Augmented VAR. Dependent variables LogRealGDP Log Arrivals.*

Dependent Variables	**LogRealGDP**		**LogArrivals**	
Explanatory variables	*Coef. (s.e.)*	*t-stat*	*Coef. (s.e.)*	*t-stat*
LogRealFDP(-1)	1.793 (0.381)	4.706	2.357 (2.808)	0.839
LogRealGDP(-2)	-1.003 (0.614)	-1.632	-2.915 (4.531)	-0.643
LogArrivals(-1)	-0.131 (0.049)	-2.662	0.328 (0.364)	0.901
LogArrivals(-2)	0.222 (0.146)	1.514	0.451 (1.083)	0.417
Exogenous variables	*Coef. (s.e.)*	*t-stat*	*Coef. (s.e.)*	*t-stat*
C	-0.072 (0.321)	-0.224	-3.562 (2.365)	-1.505
LogRealGDP(-3)	0.289 (0.324)	0.891	2.316 (2.389)	0.969
LogArrivals(-3)	-0.171 (0.159)	-1.076	-1.193 (1.176)	-1.014
R-squared	0.990		0.749	
Adj. R-squared	0.988		0.702	

Table 3. *Granger causality / Block exogeneity Wald tests.*

Dependent variable	*LogRealGDP*			*Causality diagnosis*
Excluded	Chi-Square	df	p-value	
LogArrivals	8.763	2	0.012	Granger causality detected

Dependent variable	*LogArrivals*			*Causality diagnosis*
Excluded	Chi-Square	df	p-value	
LogRealGDP	0.790	2	0.673	No Granger causality detected

Table 4. *Testing TLGDH Augmented VAR. Dependent variables IDH Log Arrivals*

Dependent Variables	**LogRealGDP**		**LogArrivals**	
Explanatory variables	*Coef. (s.e.)*	*t-stat*	*Coef. (s.e.)*	*t-stat*
IDH(-1)	1.125 (0.248)	4.528	-7.828 (7.415)	-1.055
LogArrivals(-1)	-0.008 (0.008)	-0.989	0.872 (0.250)	3.480
Exogenous variables	*Coef. (s.e.)*	*t-stat*	*Coef. (s.e.)*	*t-stat*
C	0.034 (0.057)	0.596	1.863 (1.704)	1.093
IDH(-2)	-0.117 (0.258)	-0.454	9.144 (7.704)	1.186
LogArrivals(-2)	0.000 (0.024)	0.030	-0.471 (0.726)	-0.649
R-squared	0.9977		0.7491	
Adj. R-squared	0.9974		0.7204	

Table 5. *Granger causality / Block exogeneity Wald tests.*

Dependent variable	*LogRealGDP*			*Causality diagnosis*
Excluded	Chi-Square	df	p-value	
LogArrivals	0.979	1	0.322	No Granger causality detected

Dependent variable	*LogArrivals*			*Causality diagnosis*
Excluded	Chi-Square	df	p-value	
IDH	1.114	1	0.291	No Granger causality detected

The conclusion, considering this result, is that while tourism undoubtedly stimulates economic growth of Spain, it remains uncertain whether this translates into enhanced economic development for the destination.

5. Testing the Tourism as Optimal Choice Hypothesis (TOCH). Some methodological proposals and applications.

As mentioned earlier, exploring this hypothesis necessitates a thorough causal analysis involving a meticulous sample selection process. The destinations under study should possess similar characteristics at the start of the comparison of their economic growth trajectories. This ensures an examination of their evolution influenced by economic specialization.

In this section, we will briefly outline two potential alternative methodologies for analysis, recognizing that numerous other approaches may also be viable. These proposed methodologies will be exemplified through their application to regional and local instances of Spanish tourist destinations.

5.1. Causal Impact Analysis.

5.1.1. Methodology description

The first proposed method relies on Bayesian Structural Time Series (Brodersen et al., 2015), applying Bayesian estimation to analyze structural time series. Structural time series are defined by two equations: the observation equation (1) and the state equation (2), as follows:

$$y_t = Z_t^T \alpha_t + \varepsilon_t \ (1)$$
$$\alpha_{t+1} = T_t \alpha_t + R_t \eta_t \ (2)$$

In equation (1), y_t represents a scalar observation, Z_t is an output vector of size d, α_t is the *state vector*, purportedly linked to the evolution of y_t, and ε_t is a scalar error term such that $\varepsilon_t \sim N(0, \sigma_t^2)$. Equation (2) describes how α_t evolves over time, where T_t is a $d\ x\ d$ dimension transition matrix, R_t is a control matrix sized $d\ x\ q$, and η_t is an error term such that $\eta_t \sim N(0, Q_t)$, with q dimensions and a state-diffusion matrix Q_t of size $q\ x\ q$, where $q \leq d$.

Structural Time Series models represent an improvement over traditional univariate ARIMA models (Brodersen et al., 2015), as they are more flexible and allow for predictions to be generated representing an event in the absence of the studied phenomenon. While the ARIMA methodology simply examines how a time series evolves moments before and after the event, without considering an external reference or control, Structural Time Series models offer the ability to construct a "synthetic control," which is a combination of other markets or data series unaffected by the event in question. This provides a more robust reference for evaluating the effects of the studied phenomenon.

Bayesian Structural Time Series Analysis utilizes Bayesian iteration for estimation, which comprises three essential components: series decomposition and introduction of elements into the state such as seasonality or regression variables (using the Kalman filter), adoption of the spike-and-slab method for predictor selection, and use of a Bayesian model to amalgamate results and predictions, clustering and relativizing defined scenarios (Scott & Varian, 2014).

To estimate the proposed model, the R software is employed, with the Impact Casual package (Brodersen et al., 2015). With this tool, the impact of an event is evaluated by calculating the disparity between the prediction derived for the response variable through subsequent semiparametric Bayesian estimation and the observed reality of the series examined during the post-intervention phase.

5.1.2. Sample selection and results

To illustrate the application of the outlined methodology, we will examine the economic development trends in five Spanish provinces located along the Mediterranean coast, known for their prominent tourist industry. Despite all being bathed by the same sea, being equidistant from the nation's capital, and having significant developed tourist infrastructures, they have different economic structures. For example, in the year 2007, the industrial sector's weight (comprising extractive industries, energy, and water) in Malaga, which will serve as our focus province, was 5.75%, a figure that is two to four times lower than those of the provinces that serve as control cases: Murcia (15.38%), Alicante (11.05%), Castellón (27.43%), and Tarragona (19.76%).

The variable under consideration is the evolution of the Human Development Index (HDI), utilizing the entire available sample at the provincial level calculated by the Valencian Institute of Economic Research (IVIE) (for the period between 1980 and 2007). Despite the potentially outdated nature of this data, for the illustrative purposes of this research, it is preferable to use provincial or regional information rather than national data. This is because the effects of structural differences are more constrained when examining provinces from a same country, as they share a common geographic, social and political framework.

Figure 3 shows the evolution of the HDI in the selected provinces. As can be seen, Malaga shows a lower level in this variable compared to the control provinces throughout the entire period. However, if we consider the evolution in index numbers (Figure 4) based on 1980, we can see that the difference shown in Figure 3 is due to the initial disadvantage that Malaga has, since the evolution throughout the rest of the period is similar or even higher than that of the control provinces.

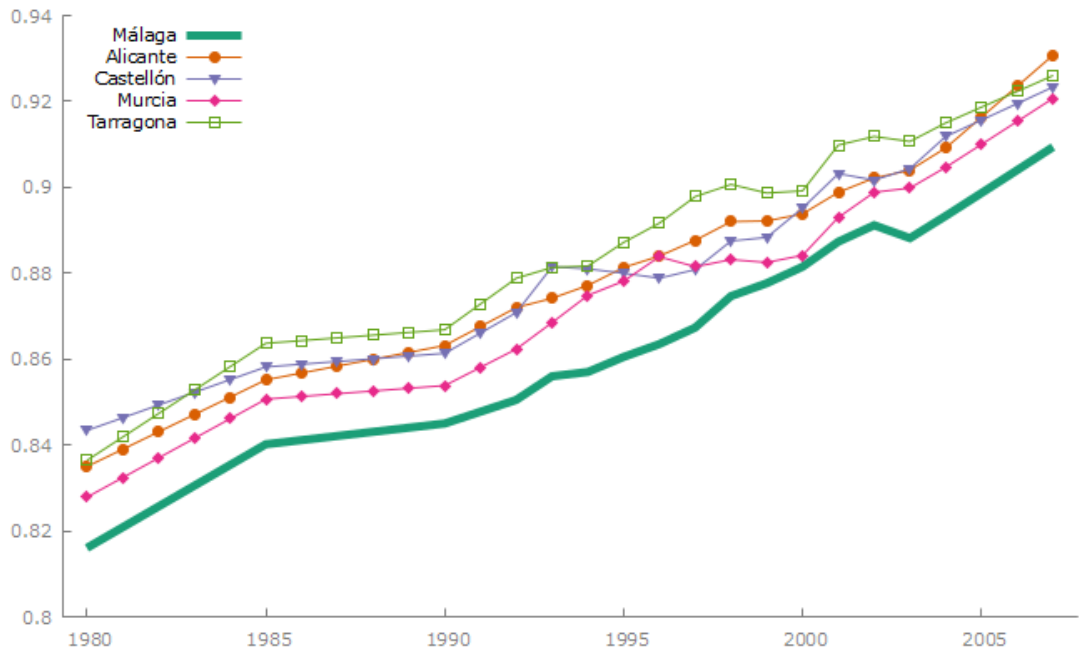

Figure 3. *IDH selected Spanish provinces1980-2007. Authors own elaboration.*

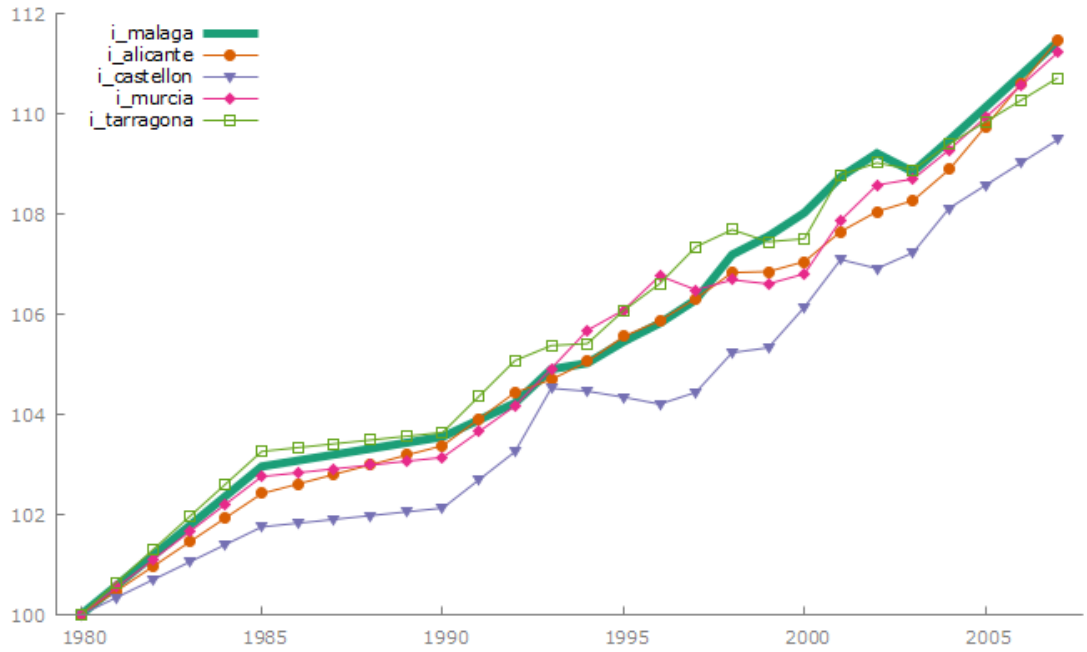

Figure 4. *IDH selected Spanish provinces1980-2007, index numbers (1990=100)*

Figure 5 illustrates the analysis conducted, pinpointing the intervention in 1995, coinciding with the tourism expansion in Spain during the late 1990s. The top chart displays the examined data and the counterfactual prediction during the post-intervention period (1996-2007). In the middle chart, the disparity between the observed data and the model's hypothetical prediction is depicted. Utilizing the point estimate of the prediction, we can describe this effect as the pointwise causal effect. The lower chart illustrates the cumulative impact of the intervention by summing the point impacts from the middle graph throughout the period examined after the intervention (Brodersen et al., 2015).

In the post-intervention period (1996-2007), the HDI variable averaged around 0.89, compared to the expected 0.88 without intervention. The 95% interval for this hypothetical prediction is [0.87, 0.89]. The predicted impact of the intervention on the HDI variable would be 0.0064, with a 95% confidence interval spanning from -0.0030 to 0.016. Expressed in relative terms, the response variable would show an increase of +1%. The 95% interval of this percentage would be [-0%, +2%]. The likelihood of observing this effect by random chance is p = 0.093. Hence, it would not be deemed statistically significant at the 0.05 significance level.

Therefore, with the data at hand, the provinces used as controls and the period analyzed, it does not appear that the low industrial specialization of Malaga has been detrimental to its performance in terms of economic development measured through the HDI. The result point out that the Tourism as Optimal Choice Hypothesis (TOCH) would not be rejected for the case at hand. It would be likely that these conclusions could be reversed for a different variable and a much longer period, considering the tourist birth of the provinces analyzed. Unfortunately, these data are not available for the Spanish case. Anyway, the example serves sufficiently to illustrate the proposed methodology which, as mentioned at the beginning, would not be the only one available in this area.

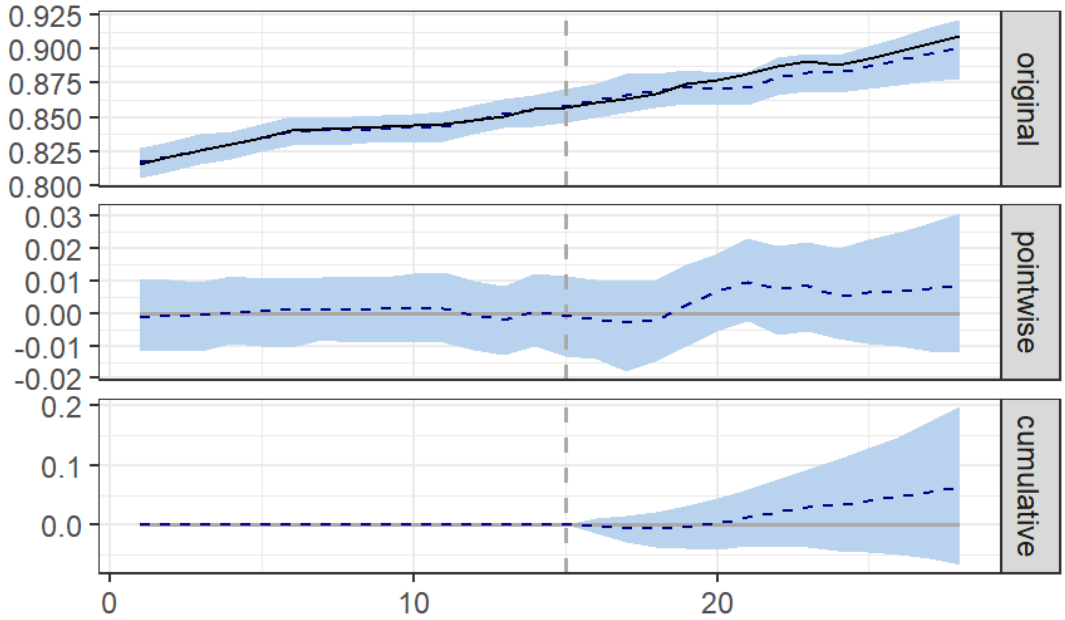

Figure 5. *Causal analysis 1980-2007. Authors own elaboration.*

5.2. Optimal structure economic analysis.

As stated before, an alternative methodology to the causal analysis illustrated in the previous section would be the optimal economic composition of destinations. As an example of application, this methodology is applied to the case of the municipalities of the Region of Valencia, a tourist region of the Spanish Mediterranean coastline. The dependent variable is the gross household disposable income per capita provided by the Spanish Tax Agency (AEAT) for municipalities with more than 1,000 inhabitants (*Income*).

With regard to the explanatory variables, to estimate the *Hypothesis A* these variables are the resident population of the municipality (*Pop*), the percentage of workers in the agricultural sector *(PerAg)* and the percentage of workers in the industrial sector (*PerInd*) in the municipality. The selection of these explanatory variables is due to the interest in determining the optimal weight that both agriculture and industry should reach in the coastal municipalities where the importance of tourism is overwhelming. On the other hand, to estimate the *Hypothesis B*, the explanatory variables are the resident population of the municipality (*Pop*) and the percentage of workers in the services sector *(PerSer)* taken as a proxy for the tourism activity in this exercise.

In order to determine the optimality conditions, all explanatory variables are included not only with their principal term, but also with their quadratic term. The complete data for the 310 municipalities and the nine years (2013-2021) available results in a panel of 2790 observations.

Table 6, which shows the estimations carried out for the model to estimate the *Hypothesis A*, distinguishes for each of the samples analyzed two cases, the pooled OLS estimation which does not take into account the panel structure of the data and the fixed-effects estimation which is the preferred estimation in all cases by the robust test for differing group intercepts and the Hausman tests. The columns (1) and (2) show the estimations for all municipalities with 1000 inhabitants or more in the region in columns. Columns (3) and (4) focus on estimations for coastal municipalities with 1000 inhabitants or more, including the capital cities of Valencia, Alicante and Castellón. There are 58 municipalities in this

case. Lastly, columns (5) and (6) showcase estimations for coastal municipalities with 1000 inhabitants or more, excluding the capital cities of Valencia, Alicante, and Castellón. Excluding these capital cities, which are large and serve as administrative capitals, would be necessary to prevent potential distortion in the analysis.

Table 6: *Estimation of the weight of Agriculture and Industry in tourism destinations. Dependent variable Per cápita Income*

	(1)	(2)	(3)	(4)	(5)	(6)
	Pooled OLS	**Within**	**Pooled OLS**	**Within**	**Pooled OLS**	**Within**
const	18,220***	14,910***	14,740***	1,4820***	13,890***	14,770***
	(668.1)	(665.3)	(896.4)	(2,404)	(1,063)	(2,246)
Pop	0.0080	0.0503**	-0.0023	0.0363	0.0266**	0.0391
	(0.0060)	(0.0247)	(0.0070)	(0.0302)	(0.0126)	(0.0407)
sq_Pop	-3.114e-09	-5.296e-08***	8.197e-09	-3.083e-08	-1.802e-07***	1.375e-08
	(8.495e-09)	(1.598e-08)	(1.084e-08)	(2.232e-08)	(6.283e-08)	(1.733e-07)
W.Agric.	-394.6***	-64.64*	-852.1***	-176.1* (99.35)	-890.5***	-160. 9
	(59.75)	(36.20)	(143.6)		(154.8)	(100.4)
sq_W.Agric.	7.727***	1.525*	29.97***	5.871*	31.85***	5.527*
	(2.033)	(0.8220)	(5.964)	(2.998)	(6.481)	(3.006)
W.Indust.	74.41*	90.85***	993.2***	321.4	1054***	318.5
	(43.50)	(34.96)	(189.3)	(241.1)	(209.1)	(241.5)
sq_W.Indust.	-2.140**	-1.269**	-32.65***	-8.918	-33.41***	-8.576
	(0.9113)	(0.6181)	(6.651)	(6.006)	(7.173)	(5.999)
n	2790	2790	522	522	495	495
Adj. R^2	0.3878	0.6640	0.6029	0.7386	0.6131	0.7324
lnL	-25,630	-22,740	-4,639	-4,147	-4,383	-3,942

Note: Standard errors in parentheses; ***, **, * Significant at the 1, 5 and 10 percent level, respectively; Two-way Fixed-effect estimations; Time dummies coefficients omitted in the table.

Table 7 shows the optimal level of the explanatory variables for each estimation carried out. Optimal values (maximum or minimum) obtained from the comprehensive sample set the optimal population around 475,000 inhabitants. This value is much larger than the observed average value of 15,828 showcasing substantial variations in population size and productive structure between inland (agricultural or industrial) and coastal (tourist) areas, as well as the influence of provincial capitals. The optimal minimum percentage of agriculture activity would be around 21.20%, also above the sample value of 7.64% and the percentage of the industrial sector is set around a maximum of 35.80%, also above the sample value of 17.61%.

Estimates for only the coastal cases show more consistent results. The fixed-effect estimates show that the destinations have room to increase the weight of both agriculture and industry in their productive structure. Specifically, the optimal percentage for agricultural activity would set to a minimum of 14.21%, three times the sample value of 5.59%. This last result would be clearer when provincial capitals are eliminated from the sample. In this final case, the differences between the sample values of agricultural and industrial activity and the optimal values are wider (14.56% optimal minimum versus 5.80% observed as average for the agricultural activity and 18.57% optimal maximum versus 11.63% observed for the case of industry.

Table 7: *Optimal structure of destinations, alternative sectors.*

All municipalities		
	Optimal values OLS	**Sample mean values**
% Agriculture	Min 25,54	7.64
% Industry	Max 17,38	17.61
Population	1,298,988	15,828
	Optimal values Fixed-Effects	**Sample mean values**
% Agriculture	Min 21.20	7.64
% Industry	Max 35.80	17.61
Population	475,036	15,828

Coastal cities including Alicante, Valencia and Castellón capitals		
	Optimal values OLS	**Sample mean values**
% Agriculture	Min 14.21	5.59
% Industry	Max 15.21	11.59
Population	143,584	45,342
	Optimal values Fixed-Effects	**Sample mean values**
% Agriculture	Min 15,00	5.59
% Industry	Max 18,02	11.59
Population	589,431	45,342

Coastal cities excluding Alicante, Valencia and Castellón capitals		
	Optimal values OLS	**Sample mean values**
% Agriculture	Min 13.98	5.80
% Industry	Max 15.77	11.63
Population	3,831	24,236
	Optimal values Fixed-Effects	**Sample mean values**
% Agriculture	Min 14.56	5.80
% Industry	Max18.57	11.63
Population	-1,422,526	24,236

For all cases the test of observed proportions rejects the null hypothesis. Therefore, *Hypothesis A* would be rejected, and the obtained result would suggest that the Tourism as Optimal Choice Hypothesis (TOCH) would be rejected for this case.

With regard to the *Hypothesis B*, the analysis is replicated for the services sector. Table 8 summarizes the results displaying the estimations of the maximum optimum and sample values for the tourism (services) sector in each subsample only for the fixed-effect case, the preferred case. It can be seen that *Hypothesis B* is only rejected for the complete set of the sample (Z value is -8.0076, p-value < .00001) but not for the cases of the subsamples of the coastal destinations.

Table 8: *Optimal structure of destinations, tourism activity.*

All municipalities		
	Optimal values Fixed-Effects	**Sample mean values**
% Services	Max 54.10	64.63
Population	428,992	15,828

Coastal cities including Alicante, Valencia and Castellón capitals		
	Optimal values Fixed-Effects	**Sample mean values**
% Services	Max 75.37	72.75
Population	509,823	45,342

Coastal cities excluding Alicante, Valencia and Castellón capitals		
	Optimal values Fixed-Effects	**Sample mean values**
% Services Industry	Max 77.50	72.43
Population	1,625,623	24,236

Thus, in general, the result obtained, in accordance with what has been expressed in the previous sections, would be inconclusive in the case of the coastal destinations of the Valencian Region. This result could be due to the need for better model specifications, including new control variables or the estimation of a dynamic panel model. However, similar to the previous case, the undertaken exercise is intended only as a straightforward application example.

5. Discussion

This article deals with methodological aspects on the empirical testing of the relationship among tourism growth and economic development. In this sense, the aim of the paper is not so much to obtain conclusive results on the hypotheses presented, but rather to highlight the current state of research practice in this area on one hand, and to propose alternatives from the perspective of hypotheses and their resolution on the other. The ultimate objective is, therefore, to provide a new perspective on this important line of study within tourism economics, questioning both the prevailing practices and the direction our research efforts should take.

However, in this process, we have identified some interesting results that, beyond the limitations, deserve appropriate discussion. Of these, perhaps the most relevant is the fact that the relationship between tourism evolution and Spain's development (measured by the HDI variable) is not statistically significant, unlike when analyzing the case of economic growth.

This result is consistent with what was indicated in Pulido-Fernández & Cárdenas-García (2021). While in their work, as in others like Fahimi et al. (2018), a positive relationship between tourism activity and development is detected, it is identified that the scope is limited or enhanced by different factors. For example, in the work of Ibragimov et al. (2023), this positive effect between tourism and HDI is not detected, due to the extraordinary weight of the oil industry in the country, which renders the economic factor of tourism irrelevant. A negative relationship between HDI and tourism specialization is also found in the case of Poland (Croes, 2021), conditioned in this case by the limiting effect of tourism on the country's economic growth (because of underutilization of human capital). And something similar occurs in Rivera (2017) for the case of Ecuador, without evidence that tourism drives either economic growth or human development (HDI). In this case, the results may be conditioned by the heterogeneity of the economic impact in the different provinces of the country.

In our case, a first logical reason for the differences found—depending on whether it concerns the effect of tourism on economic growth or on development—lies in the distinct nature between both concepts, as we explained in the introduction section. By using the HDI as a variable, composed of three indicators, it suggests that tourism is not having a clear effect on all of them. In a country like Spain, values in terms of education and health, which account for two-thirds of the final IDH result (Anand & Sen, 1994), have not evolved much in recent years, as they are already at very high levels. It would therefore make sense to expect a non-significant relationship between a component that evolves very rapidly, such as tourism, and another that remains somewhat static. This issue is easily testable, and it invites the use of other variables related to development to compare results among them, as demonstrated by the various ones presented in Alcalá Ordóñez and Segarra (2023). However, introducing all these tests in this article would deviate from the objectives proposed by this study.

A second reason that could justify the obtained result would be linked to the quality of the growth fostered by tourism, and the existing wealth distribution mechanisms. Tourism is a labor-intensive activity, but in Spain, different authors such as García-Pozo et al. (2012) or Casado-Diaz and Simón (2016) have pointed out the precarious situation of workers, including low wages and gender gaps. It is evident that the labor precarization in tourism, which has also been observed in other countries like the United Sates (Lacher and Oh, 2012), Brazil (Silva et al., 2017) or United Kingdom / London (Church & Frost, 2004), could have a negative effect on quality of life, education, and healthcare levels, which are part of development indicators. This relationship opens interesting lines of research and policy action, as a country with good distribution mechanisms could achieve that even with reduced tourism specialization, there is a high impact on the human development of its inhabitants.

A third reason that could explain the obtained result would be the presence of leakages in the process of tourism production and distribution. These occur mainly when the main agents promoting tourism activity are external (foreign) to the destination, as is the case in many small islands (Barrowclough, 2007) or in areas with very little development but with high natural value to exploit for tourism (Francisco, 1983; Davidson & Sahli, 2015). In the case of Spain, it may not be as evident, but it is true that a significant part of the tourism offer is promoted by international operators, who also operate within the destinations themselves. If the capital leakage generated by tourism is very high, it is evident that it will eventually affect the effective amount of money that can be distributed among the local society, thereby affecting its development. This issue raises the interest of future studies in the value that companies like Airbnb, Booking, or Uber detract from countries for the generation of their services.

In addition to the ones mentioned, there are many other reasons that could explain the differences between the effects of tourism on economic growth and development, such as environmental and cultural degradation caused by the increase in tourism activity, the existence of underlying social and economic inequality, or even the presence of a significant informal economy, which could be altering the results. Exploring these and other reasons may lead to future lines of research with direct implications for policymakers.

In conclusion, the practical implications of the obtained results are evident and emphasize the need to review, from a methodological standpoint, the practices used to test the empirical relationship between tourism growth and *economic development*, highlighting the necessity of formulating the appropriate hypothesis for the latter case, without confusing the term with *economic growth*. The results also suggest a reassessment of implemented tourism policies in Spain, to determine if they are fostering development, which includes the well-being of residents and the sustainability of the environment, or merely promoting activity growth, which can lead to severe issues for the population in the short and long term.

As reflected in this article, all of this implies new lines of research, revisiting previous studies, refining hypotheses as outlined in this article, and seeking, as much as possible, new variables that capture the relationship between tourism growth in destinations and their true economic development. In this regard, it is worth noting the limitation mentioned earlier regarding the temporal dimension of some existing variables related to economic development. Therefore, the authors suggest that specialized organizations and researchers commit to creating and sharing new long-term data series that reflect economic development. Undoubtedly, this would represent a significant advancement for this type of study.

6. Conclusions

For many years, tourism has been prescribed as a solution to promote the growth and economic development of territories. However, growth and development are not interchangeable terms. Economic development is a much broader concept that goes beyond mere economic growth of destinations and should translate into an improved quality of life for the residents of these destinations.

Despite these widely known differences among researchers, it is common practice in tourism research to test the relationship between tourism growth and economic growth, overlooking the much more complex and interesting relationship between tourism growth and economic development. In this way, the relationship typically tested by researchers is the TLGH, for which there are abundant studies, variables, and a consolidated methodology.

However, this article argues that the logic behind the link between economic growth and tourism-driven expansion is so overwhelming that it renders the TLGH hypothesis devoid of significance. This doesn't diminish the value of innovation in econometric techniques to explore this relationship, which is highly valuable for scientific exploration. However, beyond the methodological objective, the effort made to resolve the TLGH lacks a substantive purpose.

Tourism economics researchers should focus their inquiry on pivotal questions, notably whether tourism represents the most effective avenue for achieving economic growth in comparison to alternative options and, crucially, whether such growth results in tangible development for the residents of destinations. Redirecting research efforts toward these fundamental aspects, leveraging the methodological expertise garnered from attempts to test the Tourism-Led Growth Hypothesis (TLGH) and other causal analysis fields, is imperative for advancing our understanding of the economic dynamics in tourism.

This article has proposed two alternative hypotheses to TLGH and has proposed the methodologies that could be used to test them. Initially, the Tourism-Led Genuine Economic Development Hypothesis (TLGDH), an extension of the TLGH, broadens its scope to encompass crucial development objectives such as income distribution, sustainability, and the advancement of human capital, beyond mere economic growth. Evaluating this hypothesis demands greater attention to selecting variables that accurately reflect the economic development of destinations, as opposed to focusing extensively on the methodology. Granger non-causality analysis remains a valid and applicable methodology in this context.

On the other hand, the Tourism as Optimal Choice Hypothesis (TOCH) seeks to ascertain whether tourism activity represents the optimal choice for promoting economic growth in a given destination. To test this hypothesis, substantial effort is needed in both variable selection and methodology application. Although various methodologies are accessible, encompassing causal analysis, model estimation, and optimization, careful consideration is crucial to appropriately address the hypothesis.

The proposed methodologies have been applied to Spain at both national and regional levels. These applications, not without limitations, are intended only as simple examples of analysis and interpretation of the hypothesis testing. In any case, the article suggests new questions and avenues of research, enriching the literature on the economic impact of tourism.

Beyond the methodological issues mentioned, the article has practical relevance, considering that the true goal of genuine tourism promotion policy should be to achieve the sustainable development of destinations. Therefore, shifting the focus from economic growth to the comprehensive development of destinations is an essential element toward which new tourism research should pivot on the subject. We hope that this article contributes to improving future research in the indicated direction.

Acknowledgements
This study has been carried out in the framework of the following research projects: "Digital Transition and Innovation in the Labor Market and Mature Sectors. Taking Advantage of AI and Platform Economy" (TED2021-129600A-I00) funded by MCIN/AEI/10.13039/501100011033 and by European Union NextGenerationEU/PRTR; "Innovation and sustainability in tourism competitiveness after COVID-19" with reference TUR-RETOS2022-049 funded by MICT/SET and by European Union NextGenerationEU; "RECUALI22-04" scholarship of the University of Alicante, funded by the European Union-Next Generation EU funds.

References

Alcalá-Ordóñez, A., Brida, J. G., & Cárdenas-García, P. J. (2023). Has the tourism-led growth hypothesis been confirmed? Evidence from an updated literature review. *Current Issues in Tourism*. 1–37. https://doi.org/10.1080/13683500.2023.2272730

Alcalá-Ordóñez, A., & Segarra, V. (2023). Tourism and economic development: A literature review to highlight main empirical findings. *Tourism Economics*. 1-28. https://doi.org/10.1177/13548166231219638

Anand, S., & Sen, A. (1994). *Human development index: Methodology and measurement (No. HDOCPA-1994-02)*. Human Development Report Office (HDRO), United Nations Development Programme (UNDP).

Antonakakis, N., Dragouni, M., Eeckels, B., & Filis, G. (2019). The Tourism and Economic Growth Enigma: Examining an Ambiguous Relationship through Multiple Prisms. *Journal of Travel Research, 58*, 3-24. https://doi.org/10.1177/0047287517744671

Arndt H. W. (1987). *Economic development: the history of an idea*. University of Chicago Press.

Barrowclough, D. (2007). Foreign investment in tourism and small island developing states. *Tourism Economics, 13*(4), 615-638. https://doi.org/10.5367/000000007782696122

Balaguer, J., & Cantavella-Jorda, M. (2002). Tourism as a long-run economic growth factor: the Spanish case. *Applied Economics, 34*(7), 877-884. https://doi.org/10.1080/00036840110058923

Benkraiem, R., Lahiani, A., Miloudi, A., & Shahbaz, M. (2021). A new look at the tourism development and economic growth nexus: International evidence. *Tourism Economics, 27*(8), 1707-1735. https://doi.org/10.1177/1354816620938482

Brida, J. G., Lanzilotta, B., Pereyra, J. S., & Pizzolón, F. (2015). A nonlinear approach to the tourism-led growth hypothesis: The case of the MERCOSUR. *Current Issues in Tourism, 18*(7), 647-666. https://doi.org/10.1080/13683500.2013.802765

Brida, J. G., Cortes-Jimenez, I., & Pulina, M. (2016). Has the tourism-led growth hypothesis been validated? A literature review. *Current Issues in Tourism, 19*(5), 394-430. https://doi.org/10.1080/13683500.2013.868414

Brodersen, K., Galluser, F., Koehler, J., Remy, N. & Scott, S. (2015). Inferring causal impact using Bayesian structural time-series models. *The Annals of Applied Statistics, 9* (1), 247-274.

Casado-Díaz, J. M., & Simón, H. (2016). Wage differences in the hospitality sector. *Tourism Management, 52,* 96-109. https://doi.org/10.1016/j.tourman.2015.06.015

Church, A., & Frost, M. (2004). Tourism, the global city and the labour market in London. *Tourism Geographies, 6*(2), 208-228. https://doi.org/10.1080/1461668042000208462

Collins, M. D., & Millar, M. (2021). Tourists' perceptions of destination image, safety, and aggressive street behavior. *International Journal of Hospitality & Tourism Administration, 22*(3), 251-268. https://doi.org/10.1080/15256480.2019.1641452

Cortes-Jimenez, I., & Pulina, M. (2010). Inbound tourism and long-run economic growth. *Current Issues in Tourism, 13*(1), 61-74. https://doi.org/10.1080/13683500802684411

Croes, R., Ridderstaat, J., Bąk, M., & Zientara, P. (2021). Tourism specialization, economic growth, human development and transition economies: The case of Poland. *Tourism Management, 82*, 104181. https://doi.org/10.1016/j.tourman.2020.104181

Crouch, G. I., & Ritchie, J. B. (1999). Tourism, competitiveness, and societal prosperity. *Journal of Business Research, 44*(3), 137-152. https://doi.org/10.1016/S0148-2963(97)00196-3

Davidson, L., & Sahli, M. (2015). Foreign direct investment in tourism, poverty alleviation, and sustainable development: a review of the Gambian hotel sector. *Journal of Sustainable Tourism, 23*(2), 167-187. https://doi.org/10.1080/09669582.2014.957210

Du, D., Lew, A.A., & Ng, P.T. (2016). Tourism and Economic Growth. *Journal of Travel Research,* 55, 454-464. https://doi.org/10.1177/0047287514563167

Dwyer, L., & Kim, C. (2003). Destination competitiveness: determinants and indicators. *Current Issues in Tourism, 6*(5), 369-414. https://doi.org/10.1080/13683500308667962

Dwyer, L. (2023). Tourism development and sustainable well-being: A beyond GDP perspective. *Journal of Sustainable Tourism, 31*(10), 2399-2416. https://doi.org/10.1080/09669582.2020.1825457

Fahimi, A., Saint Akadiri, S., Seraj, M., & Akadiri, A. C. (2018). Testing the role of tourism and human capital development in economic growth. A panel causality study of micro states. *Tourism Management Perspectives, 28*, 62-70. https://doi.org/10.1016/j.tmp.2018.08.004

Francisco, R. A. (1983). The political impact of tourism dependence in Latin America. *Annals of Tourism Research, 10*(3), 363-376. https://doi.org/10.1016/0160-7383(83)90062-2

García-Pozo, A., Campos-Soria, J. A., Sánchez-Ollero, J. L., & Marchante-Lara, M. (2012). The regional wage gap in the Spanish hospitality sector based on a gender perspective. *International Journal of Hospitality Management, 31*(1), 266-275. https://doi.org/10.1016/j.ijhm.2011.06.007

Hacker, R.S. & Hatemi-J, A. (2010). *A bootstrap test for causality with endogenous lag length choice. Theory and application in finance*. CESIS Electronic Working Paper Series, nº 223. https://static.sys.kth.se/itm/wp/cesis/cesiswp223.pdf

Haller, A. P. (2012). Concepts of economic growth and development. Challenges of crisis and of knowledge. *Economy Transdisciplinarity Cognition, 15*(1), 66-71.

Haller, A., Butnaru, G.I., Hârsan, G.T., & Ștefănică, M. (2020). The relationship between tourism and economic growth in the EU-28. Is there a tendency towards convergence? *Economic Research-Ekonomska Istraživanja, 34*, 1121-1145. https://doi.org/10.1080/1331677X.2020.1819852

Hatemi-J, A. (2021). *Dynamic asymmetric causality test with an application*. Papers 2016.07612 arXiv.org. https://doi.org/10.48550/arXiv.2106.07612

Hatemi-J, A., Gupta, R., Kasongo, A., Mboweni, T., & Netshitenzhe, N. (2018). Does tourism cause growth asymmetrically in a panel of G-7 countries? A short note. *Empirica, 45*, 49-57. https://doi.org/10.1007/s10663-016-9345-3

Iglesias Garrido, J. (2018). How do foreign income shocks affect the magnitude of Spanish tourism? *Tourism Economics, 24*(7), 839-871. https://doi.org/10.1177/1354816618783568

Ibragimov, K., Marques, J., Ramón-Rodríguez, A. B., & Perles Ribes, J. F. (2023). Does tourism development improve quality of life in Kazakhstan? *Frontiers of Global Science, 1*(1), pp. 25-35.

Jensen, S., & Svendsen, G. T. (2016). Social trust, safety and the choice of tourist destination. *Business and Management Horizons, 4*(1), 1-9. http://dx.doi.org/10.5296/bmh.v4i1.9232

Lacher, R. G., & Oh, C. O. (2012). Is tourism a low-income industry? Evidence from three coastal regions. *Journal of Travel Research, 51*(4), 464-472. https://doi.org/10.1177/0047287511426342

Lejárraga, I., & Walkenhorst, P. (2013). Economic policy, tourism trade and productive diversification. *International Economics, 135*, 1-12. https://doi.org/10.1016/j.inteco.2013.09.001

Liu, H., & Song, H. (2018). New evidence of dynamic links between tourism and economic growth based on mixed-frequency Granger causality tests. *Journal of Travel Research, 57*, 899 - 907. https://doi.org/10.1177/0047287517723531

Mérida, A., & Golpe, A. A. (2016). Tourism-led growth revisited for Spain: Causality, business cycles and structural breaks. *International Journal of Tourism Research, 18*(1), 39-51. https://doi.org/10.1002/jtr.2031

Millar, M., Collins, M. D., & Jones, D. L. (2017). Exploring the relationship between destination image, aggressive street behavior, and tourist safety. *Journal of Hospitality Marketing & Management, 26*(7), 735-751. https://doi.org/10.1080/19368623.2017.1286279

Nafziger, E. W. (2012) *Economic development* (5th edition). Cambridge University Press. https://doi.org/10.1017/CBO9781139028295

Nguefack-Tsague, G., Klasen, S., & Zucchini, W. (2011). On weighting the components of the human development index: a statistical justification. *Journal of Human Development and Capabilities, 12*(2), 183-202. https://doi.org/10.1080/19452829.2011.571077

Naylon, J. (1992). Murcia, Valencia, and Catalonia: Spain's Mediterranean growth axis. *Mediterranean Studies, 3*, 95-111.

Odeleye, A. T., Akam, D. U., Adeyeri, O. J., & Raza, S. S. A. (2022). Validity of tourism-led growth hypothesis in Asia: new insight from a heterogeneous income group analysis. *International Journal of Tourism Policy, 12*(1), 44-69. https://doi.org/10.1504/IJTP.2022.121865

Pérez-Rodríguez, J. V., Rachinger, H., & Santana-Gallego, M. (2022). Does tourism promote economic growth? A fractionally integrated heterogeneous panel data analysis. *Tourism Economics, 28*(5), 1355-1376. https://doi.org/10.1177/1354816620980665

Perles-Ribes, J. F., Ramón-Rodríguez, A. B., Rubia, A., & Moreno-Izquierdo, L. (2017). Is the tourism-led growth hypothesis valid after the global economic and financial crisis? The case of Spain 1957–2014. *Tourism Management, 61*, 96-109. https://doi.org/10.1016/j.tourman.2017.01.003

Petrakis, P. E. (2020). *Theoretical approaches to economic growth and development. An interdisciplinary perspective*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-50068-9

Po, W., & Huang, B. (2008). Tourism development and economic growth – A nonlinear approach. *Physica A, 387*, 5535–5542. https://doi.org10.1016/j.physa.2008.05.037

Pulido-Fernández, J. I., & Cárdenas-García, P. J. (2021). Analyzing the bidirectional relationship between tourism growth and economic development. *Journal of Travel Research, 60*(3), 583-602. https://doi.org/10.1177/0047287520922316

Proença, S., & Soukiazis, E. (2008). Tourism as an economic growth factor: a case study for Southern European countries. *Tourism Economics, 14*(4), 791-806. https://doi.org/10.5367/000000008786440175

Rivera, M. A. (2017). The synergies between human development, economic growth, and tourism within a developing country: An empirical model for Ecuador. *Journal of Destination Marketing & Management, 6*(3), 221-232. https://doi.org/10.1016/j.jdmm.2016.04.002

Schlüter, R. G. (1993). Tourism and development in Latin America. *Annals of Tourism Research, 20*(2), 364-367. https://doi.org/10.1016/0160-7383(93)90063-9

Scott, S. L., & Varian, H. R. (2014). Predicting the present with Bayesian structural time series. *International. Journal of Mathematical Modelling and Numerical Optimization, 5* (1-2), 4-23. https://doi.org/10.1504/IJMMNO.2014.059942

Sharma, M., Mohapatra, G., & Giri, A. K. (2020). Beyond growth: does tourism promote human development in India? Evidence from time series analysis. *The Journal of Asian Finance, Economics and Business, 7*(12), 693-702. https://doi.org/10.13106/jafeb.2020.vol7.no12.693

Silva, J. R., Freire Guimarães, C. R. F., & Watson, D. (2017). Wage differentials in Brazil: Tourism vs. other service sectors. *Cogent Economics & Finance,* 5(1), 1319606. https://doi.org/10.1080/23322039.2017.1319606

Simundic, B., Kulis, Z., & Seric, N. (2016). Tourism and economic growth: An evidence for Latin American and Caribbean countries. In H. M. Ribarić, & Jurdana, D. S. (Eds.), *23rd Biennial International Congress Tourism & Hospitality Industry 2016* (pp. 457-469). University of Rijeka. https://thi.fthm.hr/congress-proceedings/category/3-2016

Song, H., & Wu, D. C. (2022). A critique of tourism-led economic growth studies. J*ournal of Travel Research, 61*(4), 719-729. https://doi.org/10.1177/00472875211018514

Suri, T., Boozer, M. A., Ranis, G., & Stewart, F. (2011). Paths to success: The relationship between human development and economic growth. *World Development,* 39(4), 506-522. https://doi.org/10.1016/j.worlddev.2010.08.020

Telfer, D. J., & Sharpley, R. (2015). *Tourism and development in the developing world* (2nd edition). Routledge. https://doi.org/10.4324/9781315686196

Toda, H. Y., & Yamamoto, T. (1995). Statistical inference in vector autoregressions with possibly integrated processes. *Journal of Econometrics, 66*(1-2), 225-250. https://doi.org/10.1016/0304-4076(94)01616-8

Vidickienė, D., Vilkė, R., & Gedminaitė-Raudonė, Ž. (2020). Transformative tourism as an innovative tool for rural development. *European Countryside, 12*(3), 277-291. https://doi.org/10.2478/euco-2020-0016

Wu, T. P., Wu, H. C., Liu, S. B., & Hsueh, S. J. (2018). The relationship between international tourism activities and economic growth: Evidence from China's economy, *Tourism Planning & Development, 15*(4), 365-381. https://doi.org/10.1080/21568316.2017.1324809

Zuo, B., & Huang, S. (2018). Revisiting the tourism-led economic growth hypothesis: The case of China. *Journal of Travel Research, 57*(2), 151-163. https://doi.org/10.1177/0047287516686725