CONTRIBUTI DI RICERCA CRENOS

A LITERATURE REVIEW ON THE TOURISM-LED-GROWTH HYPOTHESIS

Juan Gabriel Brida
Manuela Pulina

WORKING PAPERS

2010/17

CUEC

CENTRO RICERCHE ECONOMICHE NORD SUD
(CRENOS)
UNIVERSITÀ DI CAGLIARI
UNIVERSITÀ DI SASSARI

Il CRENoS è un centro di ricerca istituito nel 1993 che fa capo alle Università di Cagliari e Sassari ed è attualmente diretto da Stefano Usai. Il CRENoS si propone di contribuire a migliorare le conoscenze sul divario economico tra aree integrate e di fornire utili indicazioni di intervento. Particolare attenzione è dedicata al ruolo svolto dalle istituzioni, dal progresso tecnologico e dalla diffusione dell'innovazione nel processo di convergenza o divergenza tra aree economiche. Il CRENoS si propone inoltre di studiare la compatibilità fra tali processi e la salvaguardia delle risorse ambientali, sia globali sia locali.
Per svolgere la sua attività di ricerca, il CRENoS collabora con centri di ricerca e università nazionali ed internazionali; è attivo nell'organizzare conferenze ad alto contenuto scientifico, seminari e altre attività di natura formativa; tiene aggiornate una serie di banche dati e ha una sua collana di pubblicazioni.

www.crenos.it
info@crenos.it

CRENoS – CAGLIARI
VIA SAN GIORGIO 12, I-09100 CAGLIARI, ITALIA
TEL. +39-070-6756406; FAX +39-070- 6756402

CRENoS - SASSARI
VIA TORRE TONDA 34, I-07100 SASSARI, ITALIA
TEL. +39-079-2017301; FAX +39-079-2017312

Titolo: A LITERATURE REVIEW ON THE TOURISM-LED-GROWTH HYPOTHESIS

ISBN: 978 88 84 67 609 2

Prima Edizione: Agosto 2010

Via Is Mirrionis, 1
09123 Cagliari
Tel./Fax 070 291201
www.cuec.it

A literature review on the tourism-led-growth hypothesis

Juan Gabriel Brida[*]
Free University of Bolzano
Manuela Pulina[°]
Faculty of Economics, TOMTE – Free University of Bolzano and CRENoS

Abstract

The aim of this paper is to provide a comprehensive literature review on the temporal relationship between tourism and economic growth. Specifically, the role of a such economic activity, as a promoter of short and long run economic growth, is investigated by assessing the so-called Tourism Led Growth Hypothesis (TLGH). To this aim, various methodological approaches have been used, such as VAR, VECM, ARDL, ARCH, GARCH, cross section and panel data. The cointegrating relationship of the economic variables allows one to test the short and long run Granger no-causality. Overall, the empirical findings, emerging from the existing literature, provide evidence that indeed tourism activity drives economic development in all the countries analysed. This outcome further supports the well-established contribution that international tourism has to the economic development.

Keywords: tourism; economic growth; Granger causality; comprehensive review.
Jel classification: C30; E43; L83

Acknowledgements: Our research was supported by the Autonomous Province of Bolzano, project "Tourism, growth, development and sustainability. The case of the South Tyrolean region".

[*] Assistant Professor of Tourism Economics at the School of Economics and Management – Free University of Bolzano. Piazza dell'Università, 39100 Bolzano, Italy. JuanGabriel.Brida@unibz.it

[°] Researcher, Faculty of Economics, TOMTE – Free University of Bolzano. Piazza dell'Università, 39100 Bolzano, Italy Manuela.Pulina@unibz.it and CRENoS, Sassari University, Via Torre Tonda, 34, 07100 Sassari, Italy, E-mail: mpulina@uniss.it

Introduction

In this paper, the relationship between tourism activity and economic growth is explored throughout a comprehensive literature review of the econometric empirical studies. International tourism is regarded as a non-standard type of export, since it implies a source of receipts and consumption *in situ*. Given the difficulties in measuring tourism activity, economic literature tends focusing on primary and manufactured product exports, hence much neglecting this economic sector. Nevertheless, many governments are paying a greater attention to support and promote tourism as a potential source of economic growth. The positive benefits produced by tourism are well-documented in the economics literature (Balaguer and Cantavella-Jordà, 2002; Durbarry, 2004; Nowak et al., 2007; Brida et al., 2008; Katircioglu, 2009a; Kadir and Jusoff, 2010).

The aim of this paper is to provide evidence of the so-called tourism-led-growth hypothesis (TLGH) for a wide range of developed and developing countries. The TLGH was directly derived from the export-led growth hypothesis (ELGH) that postulates that economic growth can be generated not only by increasing the amount of labour and capital within the economy, but also by expanding exports. The "new growth theory", developed by Balassa (1978), suggests that exports have a relevant contribution to economic growth through two main channels: by improving efficiency in the allocation of the factors of production and by expanding their volume. The increase in efficiency is obtained by several sources: expanding external and internal competition, developing positive externalities for other sectors by promoting the diffusion of technical knowledge and skills, facilitating the exploitation of economies of scale and scope in the export sector (Krueger, 1980; Grossman and Helpman, 1991). Exports also enhance economic growth by increasing the level of investment. This linkage is due to several causes such as: the relief of the foreign exchange constraint that leads to the expansion of imports of capital and intermediate goods (McKinnon, 1964); voluntary domestic savings as well as investment opportunities due to government savings, banking system and external capital (Ghirmay et al., 2001).

Analogously to the ELGH, the TLGH analyzes the possible temporal relationship between tourism and economic growth, both in the short and long run. The question is whether tourism activity leads to economic growth or, alternatively, economic expansion drives tourism growth, or indeed a bi-directional relationship exists between the two variables. Empirically, this hypothesis has commonly been tested via the so-called Granger no-causality test (Granger, 1988).

In addition to the papers reviewed in the present study, there are numerous empirical studies that estimate correlations between tourism and economic growth. A large tourism/income elasticity is commonly interpreted as tourism *causing* economic growth, without any further reference to the Granger causality issue. For this reason, this strand of the literature has not been taken into account.

The paper is structured as follows. In the following section, the main causes and effects of tourism development are highlighted. In the third section, the economic model is presented. In the fourth section, an accurate description of the methodologies employed and relevant empirical findings is provided. In the last section, concluding remarks are reported.

Push and pull forces of tourism activity

Schubert et al. (2010) emphasise that the top 10 nations ranked according to the contribution of tourism activity to GDP are all small islands. Brau et al. (2007) show that small economies are fast growing only when they are highly specialised in tourism activity. Examples of this kind are the Bahamas, the Virgin Islands, the Cayman Islands and St Lucia for which the share of tourism of GDP is more than 60% (Vanegas and Croes, 2003). The causes of tourism development may be found in several areas. As Brau et al. (2007) emphasise, one of the main levers of tourism development is the existence of natural resources. Allocentric tourists (Sinclair and Stabler, 1997) are more likely to be attracted by the environment and cultural heritage of a given destination. Services and infrastructures are then activated to satisfy this new tourism inflow. Hence, one of the factors that drives tourism development is given by the management of an organized tourism supply (Getz et al., 1998; Bornhost et al., 2010). Accessibility and transport facilities, such as low-cost carriers also play an important role (e.g. Williams and Baláž, 2008). The outstanding technological evolution experienced in the last decade has greatly improved local knowledge, labour market conditions, increasing business competitiveness and more mobile markets. However, a well coordinated community relationship, management, marketing and advertising policy is still a key strategy to reach a successful performance (Croes, 2006; Bornhost et al., 2010). International tourism demand is also driven by demographic factors such as the growth of the world population especially of old people who have more spare time for leisure. In addition, population and workforce migration can be regarded as a further source of tourism growth (Baum, 2007). Amongst other social causes, families that, on the one hand, experience a decreasing number of components and, on the other hand, are characterized by a higher level of income and a greater flexibility in choosing the timing of their paid

holidays, are more likely to take several "short-breaks" thanks to last-minute offers and the introduction of low-cost flights. Tourism experience, amongst other cultural determinants, may depend on the level of customers´ education (Ritchie, 2003; Funk and Bruun, 2007). Business tourism has remarkably grown in the last two decades and in 2005 was worth over 20 billion pounds in terms of its wider economic impact (Business Tourism Partnership, 2005). Business tourists in fact are more likely to spend more than holiday tourists. Finally, as economic causes, one can mention the rapid expansion of national GDP, even for developing countries, such as China and India, that encourage even further international tourism. The improvement in the process of globalization tends to enhance trade amongst countries, hence facilitating exports (Wahab and Cooper, 2001). In a global economy, there is an increasing international ownership and franchising of many hotel and restaurant chains that have become big players across the word. However, often these international organization have little or no commitments to the host destination, hence undermining potential multiplier effects within the local economy.

International tourism is recognized as having a positive effect on the increase of long-run economic growth through very different channels. First, tourism is a significant foreign exchange earner contributing to capital goods that can be used in the production process (McKinnon, 1964). The objective of many countries is to increase foreign exchange earnings used to pay for imports and maintain the level of international reserves. As a matter of fact, the contribution of tourism to the balance of payment, calculated as a percentage of total exports, is particularly high, for small islands. In 2005, for example, the Bahamas, Macau, Vanuatu and Samoa presented values well above 60% (Nationmaster, 2010). Besides, the most visited destinations (i.e. France, the United States, China and Italy) reached values below 10%, with the only exception of Spain (18.4%; notably, Spain ranks third as inbound destination, UNWTO, 2010). Second, tourism plays an important role in stimulating investments in new infrastructure, human capital and competition. The tourism sector is based on four main production factors: human and physical capital, technology and environmental resources. Human capital is one of the main pillars of tourism and hence this economic activity can be regarded as an opportunity to create new jobs. As WEF (2007) reports, in 2006 alone the Travel & Tourism sector generated 8.2% of total word employment, hence providing 234 million jobs. According to UNWTO (2009), tourism is responsible for 300 million direct and indirect jobs and represents 13% of the world's GDP. Hence, for many developed and developing countries tourism has become an important part of the local economy. Human

capital comprises skills, education and professional training that are all elements that can enhance efficiency and competition (Blake et al., 2006). Physical capital, that comprises a wide range of private and public infrastructure, such as airports, harbours, roads, hotels and restaurants, is another main productivity and commerce driver (Sakai, 2009). Though the expansion of new infrastructure is a crucial requirement to achieve a competitive tourism system, many tourism destinations face the challenge to find the right equilibrium between supply expansion and a sustainable path of growth (Vanegas and Croes, 2003; Capó et al., 2005). Technology is a further important factor for productivity and efficiency growth. This is even more true in a global economy where information and communication technology gives rise to many challenges and yet many opportunities for tourism destinations. Given such a dynamic economic environment, tourism businesses may become more competitive through cooperation (Feng and Morrison, 2007; Lemmetyinen and Go, 2009).

Third, tourism stimulates other economic industries by direct, indirect and induced effects. An increase in tourism expenditure will lead to additional activity in related industries, and the overall variation connected with it will be greater than the initial injection in spending. Nevertheless, such benefits to the economy are rather difficult to measure given the heterogeneous nature of this economic activity. Since the Nineties, a significant improvement in this direction has been done by the implementation of the Tourism Satellite Account that includes a predefined set of definitions that allow countries to understand and evaluate tourism within their overall economy in a homogenous manner (Spurr, 2009). In the literature, several techniques have been adopted to quantify these effects. A more comprehensive method, that also embeds the Input-Output technique, is the computable general equilibrium (CGE) that allows one to investigate the interrelationships between tourism and other sectors in the domestic and foreign economies (Dwyer et al., 2004; Blake et al., 2009).

Fourth, tourism contributes to generate employment and hence to increase income. As stated, tourism is a key source of employment that activates income for residents through multiplier effects. International tourism expenditure finances local businesses. Part of this income is allocated for repaying the production factors (i.e. wages, rents, interest payments) and part becomes profit. This extra income then activates new consumption that produces further economic benefits and income amongst local economic agents. Nevertheless, the contribution of the hospitality sector to the local economy may be not homogenous. Andriotis (2002), for example, shows that if on the one hand, large scale firms may increase public sector revenue,

through a higher level of taxation, on the other hand, they tend to trade less with local suppliers. Hence, the author concludes that to enhance local multiplier effects, tourism activity needs to activate a higher participation of local investors, create more employment opportunities for locals and incentive economic linkages with local retailers and wholesalers.

Fifth, tourism causes positive economies to scale and scope (Andriotis, 2002; Croes, 2006). The former helps businesses to reduce their average cost per unit of production as their size, or scale, increases. The latter helps businesses to decrease their average total cost as a result of increasing the number of different goods produced. As international tourism demand increases, hotel firms tend to expand their size and to provide diversified facilities (Weng and Wang, 2004).

The theoretical and the empirical model

A rigorous study of the relationship between tourism and economic growth needs to be underpinned to solid economic theory foundations. From a theoretical perspective two main approaches may be implemented. First, a demand side model including tourism receipts, real tourism price and real GDP which analyses shocks on tourism demand function (Narayan, 2004; Brida and Risso, 2010). Second, a production function model generally based on the neoclassical growth theory originated by Solow, and expanded by Balassa (1978) and Balaguer and Cantavella-Jordà (2002), that includes the standard production inputs, that is human and physical capital, as well as tourism as a non-standard type of export.

Following the mainstream literature, the generic function under investigation is as follows:

$$Y = f(K, H, T) \quad (1)$$

where Y is the aggregated output, a function of the standard production factors, namely physical capital (K) and human capital (H), and tourism (T). The model hypotheses that markets are perfectly competitive and the remuneration of each production factor is given by its marginal productivity (e.g. Capò et al., 2007a). From an empirical perspective, the application of the Cobb-Douglas function, characterised by constant returns to scale, has the advantage to be a straightforward theoretical framework for empirical applications.

Expressing function (1) in a linear logarithmic specification, the multivariate relationship amongst the variables is given by the following expression:

$$\begin{bmatrix} LY_t \\ LKt \\ LHt \\ LTt \end{bmatrix} = \begin{bmatrix} A_{10} \\ \dots \\ \\ A_{40} \end{bmatrix} + \begin{bmatrix} A_{11}^1 & \dots & A_{14}^1 \\ & \dots & \\ \dots & \dots & \dots \\ A_{41}^1 & \dots & A_{44}^1 \end{bmatrix} \begin{bmatrix} LY_{t-1} \\ \\ \dots \\ LDR_{t-1} \end{bmatrix} + \dots\dots + \begin{bmatrix} A_{11}^k & \dots & A_{14}^k \\ & & \\ \dots & \dots & \dots \\ A_{41}^k & \dots & A_{44}^k \end{bmatrix} \begin{bmatrix} LY_{t-k} \\ \\ \dots \\ LT_{t-k} \end{bmatrix} + \begin{bmatrix} \varepsilon_{1t} \\ \\ \dots \\ \varepsilon_{4t} \end{bmatrix} \quad (2)$$

where $[A^1]$,… and $[A^k]$ are the p×p (or 4*4) matrices of parameters to be estimated; k is the number of lags considered in the vector autoregressive (VAR) model; ε_t is the 1×4 vector of the disturbance terms that are assumed to be uncorrelated with their own lagged values and uncorrelated with all of the right hand side variables.

Given the statistical properties of the economic variables under investigation, it is possible to implement the VAR specification into a vector error correction mechanism (VECM) that allows for taking explicitly into account the short and the long run dynamics (Engle and Granger, 1987):

$$DY_t = \Pi Y_{t-1} + \sum_{i=1}^{p-1} \Gamma_i Y_{t-i} + \mathbf{K} DV_t + \varepsilon_t \qquad (3)$$

where: $Yt = (LYt, \dots, LTt)$ is a vector of all the endogenous variables defined above, expressed in their first difference (D), as the variables are I(1); Π is the long run component of the model, that contains the cointegrating relations β and the loading coefficients α; Γ is the matrix of the short run parameters; DV includes deterministic variables such as a constant, linear trend and further dummy variables; ε_t is the Gaussian vector of the disturbance terms. A VECM model is considered as an a-theoretic simultaneous system that includes all the analysed variables endogenously.

However, it is possible to test for exogeneity by employing the Granger causality test. In the econometric literature, Granger no-causality refers to "strong exogeneity" (Engle et al., 1987). Given a simplified bivariate system, composed by y_t and x_t, no feedback exists between these two economic variables. This hypothesis implies that the information set on y_t does not contain information about x_t. However, if the null hypothesis fails to be accepted, then it may be possible that, for example, y_t drives x_t, alternatively that x_t leads to y_t when the latter is treated as the dependent variable. Additionally, it is also likely that a bi-directional Granger causality exists between the two variables. In this case, each variable contains information about the other (see also Ahmad, 2001).

To test the null hypothesis of Granger no-causality, a set of restrictions on the short run and long run parameters are require on the VECM expression (3). The t-statistics on the coefficient of error correction term indicates the existence of long run Granger causality,

whereas, the significance of a joint Chi²-statistics on the lags of each explanatory variable indicates the presence of a short run Granger causality. If there is a strong Granger causality, then the joint Chi²-statistics on both the short and long run coefficients should lead to a rejection of the null hypothesis.

Literature review

Over the past decades, there has been an increasing number of studies on the impact of tourism activity on GDP and the role that tourism has on economic growth in both developed and developing countries.

As a first case study, the temporal relationship between international trade and tourism was explored by Shan and Wilson (2001) for China. However, the TLGH was first tested by Balaguer and Cantavella-Jordà (2002) for Spain. The current literature review provides a comprehensive account of the methodologies employed and empirical findings derived from such a strand of economic research. To this aim, the UNWTO (2010) region classification is adopted: Africa and the Middle East, the Americans, Asia and Pacific and Europe (Tables 1-4). Table 5 provides a miscellaneous set of destinations.

A review of 38 research papers for the period 2002-2010 is undertaken. A full account of the authors, publishing date, journal, time span, frequency, destinations, econometric methodology, variables employed, main findings (divided into short and long Granger no-causality test) is provided.

From Tables 1-5, the following general features are found. Annual data are the prevalent employed frequency. The great majority of the papers make use of annual data. Only 14 studies use quarterly data and only one a monthly frequency (Lean and Tang, 2009). The most popular destinations analysed are Turkey, Spain and Italy. Among Asian and Pacific destinations Taiwan and South Korea are the most analysed countries.

Methodology

In terms of econometric methodology, the literature review shows an increasing sophistication due to the advance in the available statistical techniques. The great majority of the studies proposes a VECM. An important statistical requirement to run a Granger causality test is that the economic variables under analysis are characterised by a stationary stochastic process. When the unit root test (e.g. augmented Dickey-Fuller (ADF), Phillips-Perron (PP)) suggests the variable is non-stationary, then this needs to be differenced *d* times to achieve stationary. Though, in the short run, I(d) variables may diverge from each other, it is likely that in the long run they are characterised by a common equilibrium and hence are cointegrated (Engle and Granger,

1987). Specifically, a cointegration test is run to test the null-hypothesis of no-cointegration. From the literature review, most of the authors employ the Johansen reduced rank cointegration analysis, that can be regarded as a more robust and efficient procedure within a multivariate framework. Additionally, Oh (2005) uses the Engle and Granger approach in a bivariate framework and Tang et al. (2007) the HEGY procedure for quarterly time-series. Jackman and Lorde (2010) employ the Saikkonen and Stock & Watson dynamic ordinary least squares (DOLS). Once a cointegrating relationship is assessed, the next step of the analysis is to run a VECM, to investigate short and long run dynamics as well as to test the Granger causality.

An additional time-series approach is the autoregressive distributed lags model (ARDL) employed by Narayan (2004) for Fiji, Katircioglu (2009a,b,c) for Cyprus, Malta and Turkey, respectively. Such a methodology was developed by Pesaran et al. (2001) and overcomes the problems of bias and inefficiency caused by the use of relatively small sample set.

A further application of univariate time series is the exponential generalised autoregressive conditional heteroskedastic model in mean (E-GARCH-M) with uncertainty proposed by Chen and Chiou-Wei (2009) for Taiwan and South Korea. A multivariate ARCH where a bootstrap Granger causality is also carried out by Gunduz and Hatemi-J (2005).

Regarding the panel data, several approaches have been used, such as Bruno least squares dummy variables (LSDV), generalised methods of moments (GMM) and heterogeneous panel. To test the null hypothesis of no-cointegration the Pedroni approach is mostly proposed.

Notwithstanding, other causality tests are also available, such as Sims causality (Sims, 1972), the linear feedback measure (Geweke et al., 1983; Geweke, 1984) and the graph theoretical approach (Demiralp et al., 2003), the most adopted one is the Granger test. Two papers employ the Toda and Yamamoto approach that generalises the Granger procedure (Lean and Tang, 2009; Brida et al., 2010). Furthermore, a "Zapata and Rambaldi" approach is proposed by Tang et al. (2007).

How to measure tourism demand?

In the literature, tourism demand has been measured by several economic indicators. The most accepted measure is the number of arrivals widely used in the empirical studies (e.g. Sheldon, 1993; Lim and McAleer, 2000; Shareef and McAleer, 2007; Lin et al., 2010). Some studies make use of tourism expenditure and tourism receipts (e.g. Tremblay, 1989; Sheldon, 1993; Syriopoulos, 1995; Li et al., 2006; Song et al., 2010). A much less used indicator is tourism length of stay (e.g. Alegre and Pou, 2006; Gokovali et al.,

2007; Barros et al., 2010) that is highly correlated with tourism expenditure (Downward and Lumsdon, 2003), though the relationship may be non-linear (Thrane and Farstad, 2010).

From the present literature review, the great majority of the papers make use of either tourism receipts, tourism expenditure or tourism earnings. In a few cases, such variables are defined as a percentage either of exports or GDP. Other variables are tourism arrivals (14), tourism revenues (Tang and Jan, 2009) and tourism exports (Narayan et al., 2010). Despite the heterogeneous definitions all the empirical results are congruent.

Explanatory variables

To test the TLGH, the standard production function framework is employed (e.g. Balassa, 1974; Feder, 1983; Park and Prime, 1997; Ghirmay et al., 2001). Following the ELGH, tourism is included, as a non-standard type of export, together with GDP. In a multivariate framework, physical and human capital are also added as further endogenous variables.

The main hypotheses to be tested in this strand of the literature are the following: does tourism affect economic growth? Are tourism and economic growth temporally related? That is, does tourism activity lead to economic growth or does economic growth lead to tourism activity, or does a bi-directional temporal causality exist? To answer these questions, authors have used either a bivariate or a multivariate framework, where the most recurrent variable is the real GDP. In the bivariate studies, the real exchange rate is often included as a proxy to take into account the degree of openness of a given destination country.

Other authors propose a multivariate analysis where various economic indicators are employed, such as: household expenditure, prices and minimum deposit rate (Jackman and Lorde, 2010); number of people below the poverty line (in the case of Nicaragua, Croes and Vanegas, 2008); imports of industrial goods and machinery (Nowak et al., 2007); inward foreign direct investments (Tang et al., 2007); transport and communication, hotel and restaurants, advertising and promotion expenditure (Louca, 2006); exports and imports (Khan et al., 2005).

As shown by Lütkepohl (1982) the inclusion of additional variables into the system allows for a more accurate estimation and testing.

Granger no-causality: short run

In the short run, the Granger no-causality test is applied in fourteen papers. Specifically, the TLGH is confirmed for the following countries with a unidirectional Granger causality running from tourism growth to economic

growth: South Africa (Akinboade and Braimoh, 2010), Taiwan (Chen and Chiou-Wei, 2009), South Korea (Oh, 2005), Spain (Cortés and Pulina, 2010; Nowak et al., 2007), the European and Latin American countries (Po and Huang, 2008). Besides, a bi-directional Granger causality is also found for South Korea (Chen and Chiou-Wei, 2009), Turkey (Demiroz and Ongan, 2005), Greece (Dritsakis, 2004) and Latin American countries (Lee and Chang, 2008). Finally, a unidirectional temporal relationship running from economic growth to tourism growth is detected for Fiji, Tonga, Solomon Islands and Papua New Guinea (Naryan et al., 2010) and African countries (Lee and Chang, 2008).

As further outcome, within a micro study for USA entrepreneurs, Tang and Jan (2009) find that GDP growth drives air, casino, hotel and restaurant sales revenues. For Cyprus, Louca (2006) assesses an unidirectional Granger causality running from transport expenditure and hotel expenditure to tourism industry income and tourism arrivals, respectively.

Finally, in the case of Barbados, Jackman and Lorde (2010) do not find any confirmation of a temporal relationship between tourism and households expenditure growth.

Granger no-causality: long run

In all the studies a cointegration relationships is found amongst the economic variables under investigation. The only exceptions are for Barbados where a DOLS is carried out (Jackman and Lorde, 2010) and for Turkey (Katircioglu, 2009c), where an ARDL model is run.

The TLGH is validated for all the following countries: Tunisia (Belloumi, 2010), South Africa (Akimboade, 2010), Antigua and Bermuda (Schubert et al., 2010), Chile (Brida and Risso, 2009), Colombia (Brida et al., 2009), Uruguay (Brida et al., 2008a), Mexico (Brida et al., 2008b), Nicaragua (Croes and Vanegas, 2008), Fiji, Tonga, Salomon Islands and Papua Guinea (Narayan et al., 2010), Trentino Alto Adige and South Tyrol, Italy, (Brida et al., 2010; Brida and Risso, 2010), Italy (Cortés and Pulina, 2010), Turkey (Gunduz and Hatemi-J, 2005), Greece (Dritsakis, 2004), Spain (Balaguer and Cantavella-Jordà, 2002), OECD, Asia and Africa (Lee and Chang, 2008).

A bi-directional Granger causality is assessed for the following countries: Malaysia (Lean and Tang, 2009), Taiwan (Kim et al., 2006), Spain (Cortés and Pulina, 2010; Nowak et al., 2007), Malta (Katircioglu, 2009b), Turkey (Demiroz and Ongan, 2005), Latin American countries (Lee and Chang, 2008).

A unidirectional temporal relationship running from economic development to tourism activity is detected for the following countries: Fiji (Narayan, 2004) and Cyprus (Katircioglu, 2009a).

As further long run outcomes, Durbarry (2004) assesses a bi-directional Granger causality between exports and GDP for Mauritius; Khan et al. (2005) and Nowak et al. (2007) find a bi-directional causality between tourism and imports for Singapore and Spain, respectively. Croes and Vanegas (2008) find that tourism development leads to a decrease in poverty in Nicaragua. Tang et al., (2007) assess that inward foreign direct investments drive tourism activity in China, whereas Katircioglu (2009a) finds a unidirectional causality running from trade volume to tourism.

Conclusions

This paper has provided a comprehensive literature review on the contribution of tourism to economic growth. The empirical studies show that there are several forces that both drive and stem from this economic activity.

Specifically, this paper has assessed the validity of the TLGH, directly derived from ELGH. On the one hand, Ahmad (2001) has found that the ELGH is rather weak in most of the countries. On the other hand, the present study, with only very few exceptions, confirms the TLGH in both developing and developed countries. This finding is consistent with the fact that economic agents will benefit by promoting tourism activity as one of the lever mechanisms of economic growth.

As pointed out, there are several mechanisms that enhance tourism development and at the same time tourism activity is expected to be an important drive of economic growth. However, a long run bi-directional Granger causality between tourism and GDP has only been found for Malaysia, Malta, Taiwan, Turkey, Spain and, via a panel data analysis, Latin American countries. This outcome can be regarded as a very important example for those countries that want to achieve growth through the stimulus of tourism. If on the one hand, tourism is driven by many exogenous factors such as economic cycle and tourists´ preferences, on the other hand national government can play a key role in enhancing opening to foreign investments and international tourism.

Besides, a unidirectional Granger causality running from economic development to tourism has been found in the case of Cyprus (Katircioglu, 2009a), where an ARDL specification is employed. This finding suggests the need to employ alternative econometric tools that help assessing further the TLG hypothesis.

Notwithstanding the positive benefits deriving from tourism activity, further questions also arise. Can tourism-led growth always be thought as sustainable? Recently, a new strand of literature has in fact emphasized the negative externalities that tourism activity can produce on social equilibrium

and natural resources undermining the long run sustainability (e.g. Capò et al., 2007b). Much more research is yet required on these issues.

References

Ahmad, J. (2001), Causality between exports and economic growth: What do the econometric studies tell us?, *Pacific Economic Review,* 6(1), pp. 147-167.

Akinboade, O. & Braimoh, L.A. (2010), International tourism and economic development in South Africa: A Granger causality test, *International Journal of Tourism Research,* 12, pp. 149-163.

Alegre, J. & Pou, L. (2006), The length of stay in the demand for tourism, *Tourism Management,* 27(6), pp. 1343-1355.

Andriotis, K. (2002), Scale of hospitality firms and local economic development – evidence from Crete, *Tourism Management,* 23(4), pp. 333-341.

Balaguer, J. & Cantavella-Jordà, M. (2002), Tourism as a long-run economic growth factor: the Spanish case, *Applied Economics,* 34, pp. 877-884.

Balassa, B. (1978), Exports and economic growth: Further evidence, *Journal of Development Economics,* 5, pp. 181-189.

Barros, C.P., Butler, R. & Correia, A. (2010), The length of stay of golf tourism: A survival analysis, *Tourism Management,* 31(1), pp. 13-21.

Baum, T. (2007), Human resources in tourism: Still waiting for change, *Tourism Management*, 28, pp. 1383-1399.

Belloumi, M. (2010), The relationship between tourism receipts, real effective exchange rate and economic growth in Tunisia, *International Journal of Tourism Research*, DOI: 10.1002/jtr.774.

Blake, A., Sinclair, T.M. & Campos Soria J.A. (2006), Tourism productivity. Evidence from the United Kingdom, *Annals of Tourism Research,* 33(4), pp. 1099-1120.

Bornhorst, T., Ritchie, B.J.R. & Sheehan, L. (2010), Determinants of tourism success for DMOs & destinations: An empirical examination of stakeholders perspectives, *Tourism Management,* 3, pp. 572–589.

Brau, R., Lanza, A. & Pigliaru, F. (2007), How fast are small tourism countries growing? Evidence from the data for 1980-2003, *Tourism Economics,* 13(4), pp. 603-613.

Brida, J.G., & Monterubbianesi D.P. (2010), Causality between economic growth and tourism expansion: empirical evidence form some Colombian regions, *Journal of Tourism Challenges and Trends,* III(1), pp. 153-164.

Brida, J.G., Barquet, A. & Risso, W.A. (2010), Causality between economic growth and tourism expansion: empirical evidence from Trentino-Alto Adige, *Tourismos: An International Multidisciplinary Journal of Tourism,* forthcoming.

Brida, J.G. & Risso W.A. (2010), Tourism as a determinant of long-run economic growth, *Journal of Policy Research in Tourism, Leisure and Events* 2(1), pp. 14-28.

Brida, J.G., & Risso, W.A. (2009), Tourism as a factor of long-run economic growth: An empirical analysis for Chile, *European Journal of Tourism Research,* 2(2), pp. 178-185.

Brida, J.G., Pereyra, S.J., Risso, W.A., Such Devesa M.J. & Zapata Aguirrre S. (2009), The tourism-led growth hypothesis: empirical evidence from Colombia, *Tourismos: An International Multidisciplinary Journal of Tourism,* 4(2) Autumn, pp. 13-27.

Brida, J.G., Lanzilotta, B. & Risso, W.A. (2008a), Turismo y crecimiento economico: El caso de Uruguay, *Pasos, Revista de Turismo y Patrimonio Cultural,* 6(3), pp. 481-492.

Brida, J.G., Sanchez Carrrera, E.J. & Risso, W.A. (2008b), Tourism's Impact on Long-Run Mexican Economic Growth, *Economics Bulletin,* 3(21), pp. 1-8.

Business Tourism Partnership, B*usiness Tourism Leads The Way*, www.businesstourismpartnership.com(2005).

Capó, J., Riera Font, A., & Rosselló Nadal, J. (2007a), Tourism and long-term growth. A Spanish perspective, *Annals of Tourism Research,* 34 (3), pp. 709-726.

Capó, J., Riera Font, A. & Rosselló Nadal, J. (2007b), Dutch disease in tourism economics: Evidence from the Balearics and the Canary Islands, *Journal of Sustainable Tourism,* 15(6), pp. 615-627.

Chen, C-F, & Song, Z.C-W. (2009), Tourism expansion, tourism uncertainty and economic growth: New evidence from Taiwan and Korea, *Tourism Management,* 30, pp. 812–818.

Cortés-Jiménez, I. & Pulina, M. (2010), Inbound tourism and long run economic growth, *Current Issues in Tourism,* 13(1), pp. 61-74.

Croes, R. (2006), A paradigm shift to a new strategy for small island economies: Embracing demand side economics for value enhancement and long term economic stability, *Tourism Management*, 27, pp. 453-465.

Croes, R. & Vanegas Sr, M. (2008), Cointegration and causality between tourism and poverty reduction, *Journal of Travel Research,* 47, August, pp. 94-103.

Demiralp, S. & Hoover, D.K. (2003), Searching for the causal structure of a vector autoregression, *Oxford Bulletin of Economics and Statistics,* 65, pp. 745-767.

Demiroz, D.M. & Ongan, S. (2005), The contribution of tourism to the long-run Turkish economic growth, *Ekonomický Časopis,* 9, pp. 880-894.

Downward, P. and Lumsdon, L. (2003), Beyond the demand for day-visits: An analysis of visitor spending, *Tourism Economics,* 9(1), pp. 67–76.

Dritsakis, N. (2004), Tourism as a long-run economic growth factor: an empirical investigation for Greece using causality analysis*, Tourism Economics,* 10(3), pp. 305-316.

Durbarry, R. (2004), Tourism and economic growth: The case of Mauritius*, Tourism Economics,* 10(4), pp. 389-401.

Dwyer, L., Forsyth, P. & Spurr, R. (2004), Evaluating tourism's economic effects: New and old approaches, *Annals of Tourism Research,* 25, pp. 307-317.

Engle, R.F., Hendry, D.F. & Richard, J.F.F. (1983), Exogeneity, *Econometrica,* 51, pp. 277-304.

Engle, R.F. & Granger, C.W.J. (1987), Cointegration and error correction: representation, estimation and testing, *Econometrica,* 55, pp. 251-276.

Feder, G. (1983) On exports and economic growth, *Journal of Development Economics,* 12, pp. 59-73.

Feng, R. & Morrison, A.M. (2007), Quality and value network. Marketing travel clubs, *Annals of Tourism Research*, 34(3), pp. 588-609.

Funk, D. & Bruun, T.J. (2007), The role of socio-psychological and culture-education motives in marketing international sport tourism: A cross-cultural perspective, *Tourism Management,* 28, pp. 806-819.

Getz, D., Anderson, D. & Sheehan, L. (1998), Roles, issues, and strategies for convention and visitors' bureaux in destination planning and product development: a survey of Canadian bureaux, *Tourism Management,* 19(4), pp. 331–340.

Geweke, J., Meese, R. & Dent, W. (1983), Comparing alternative tests of causality in temporal systems, *Journal of Econometrics* 21, pp. 161-194.

Geweke, J. (1984) Inference and causality in economic time series models, in Zvi Griliches and D.Michael Intriligator, *Handbook of Econometrics*, Vol.2., (Amsterdam: North-Holland).

Gokovali, U., Bahar, O. & Kozak, M. (2007), Determinants of length of stay: A practical application of survival analysis, *Tourism Management,* 28(3), pp. 736-746.

Granger, C.W.J. (1988), Causality, cointegration and control, *Journal of Economic Dynamics and Control,* 12, pp. 551–559.

Grossman, Di G.M. & Helpman, E (1991), *Innovation and Growth in the Global Economy*, (Cambridge: MIT Press).

Gunduz, L. & Hatemi-J, A. (2005), Is the tourism-led growth hypothesis valid for Turkey?, *Applied Economics Letters,* 12, pp. 499-504.

Jackman, M. & Lorde, T. (2010), On the relationship between tourist flows and household expenditure in Barbados: A dynamic OLS approach, *Economics Bulletin,* 30, pp. 1-9.

Kadir, N. & Jusoff, K. (2010), The cointegration and causality tests for tourism and trade in Malaysia, *International Research Journal of Finance and Economics,* 2(1), pp. 138-143.

Kaplan M. & Çelik, T. (2008), The impact of tourism on economic performance: the case of Turkey, *The International Journal of Applied Economics and Finance,* 2(1), pp. 13-18.

Katircioglu, S.T. (2009a), Tourism, trade and growth: the case of Cyprus, *Applied Economics,* 41, pp. 2741-2750.

Katircioglu, S.T. (2009b), Testing the tourism-led growth hypothesis: The case of Malta, *Acta Oeconomica,* 59(3), pp. 331-343.

Katircioglu, S.T., (2009c), Revising the tourism-led-growth hypothesis for Turkey using the bounds test and Johansen approach for cointegration, *Tourism Management,* 30, pp. 17-20.

Khan, H., Rex, T.S. & Chua, L. (2005), Tourism and trade: cointegration and Granger causality tests, *Journal of Travel Research,* 44, pp. 171-176.

Kim, H.J., Chen, M-H. & Jang, SC.S. (2006), Tourism expansion and economic development: the case of Taiwan, *Tourism Management*, 27, pp. 925-933.

Krueger, A.O. (1980),Trade policy as an input to development, *American Economic Review*, 70, pp. 188-292.

Lean, H.H. & Tang, C.F. (2009), Is the tourism-led growth hypothesis stable for Malaysia? A note, *International Journal of Tourism Research,* 12(4), pp. 375-378.

Lee, C-C. & Chien, M-S (2008), Structural breaks, tourism development, and growth: Evidence from Taiwan, *Mathematics and Computers in Simulation,* 77, pp. 358-368.

Lee, C.-C & Chang, C-P. (2008), Tourism development and economic growth: A closer look to panels, *Tourism Management,* 29, pp. 180-192.

Lemmetyinen, A. &. Go, F.M. (2009), The key capabilities required for managing tourism business networks, *Tourism Management,* 30, pp. 31-40.

Li, G., Wong, K.F.K., Song, H. & Witt, F.S. (2006), Time varying parameter and fixed parameter liner AIDS: An application to tourism demand forecasting, *International Journal of Forecasting,* 22, pp. 57-71.

Lim, C. & McAleer, M. (2000), A seasonal analysis of Asian tourist arrivals to Australia, *Applied Economics,* 32(4), pp. 499-509.

Lin, H-L., Liu, L-M, Tseng, Y-H. & Su, Y-W. (2010), Taiwan international tourism: A time series analysis with calendar effects and joint outlier adjustments, *International Journal of Tourism Research,* doi: 10.1002/jtr.779.

Louca, C. (2006), Income and expenditure in the tourism industry: time series evidence from Cyprus, *Tourism Economics,* 12(4), pp. 603-617.

Lütkepohl, H. (1982), Non-causality due to omitted variables, *Journal of Econometrics,* 19, pp. 267–378.

McKinnon, D.R.I. (1964), Foreign exchange constraint in economic development and efficient aid allocation, *Economic Journal*, 74, pp. 388-409.

Nationmaster, 2010. www.nationmaster.com,

Nayaran, P.K., Nayaran, S., Prasad, A. & Prasad, B.C. (2010)Tourism, and economic growth: a panel data analysis for Pacific Island countries, *Tourism Economics,* 16(1):169-183.

Narayan, P.K. (2004), Fiji's tourism demand: the ARDL approach to cointegration, *Tourism Economics,* 10(2), pp. 193-206.

Nowak, J-J., Sahli, M. & Cortés-Jiménez, I. (2007), Tourism, capital good imports and economic growth: theory and evidence for Spain, *Tourism Economics,* 13(4), pp. 515-536.

Oh, C-O (2005), The contribution of tourism development to economic growth in the Korean economy, *Tourism Management,* 26, pp. 39-44.

Park, J.H. & Prime, P.B. (1997), Export performance and growth in China: A cross-provincial analysis, *Applied Economics,* 29, pp. 1353-1363.

Pesaran, H.M., Shin, Y. & Smith, R.J. (2001), Bounds testing approaches to the analysis of level relationships, *Journal of Applied Econometrics*, 16, pp. 289-326.

Po, W-C. & Huang, B.-N. (2008), Tourism development and economic growth – a nonlinear approach, *Phisica A* 387, pp. 5535-5542.

Ritchie DiB.W., Carr, N. & Cooper, C.P. (2003), *Managing Educational Tourism*, (Clevedon: Cromwell Press).

Sakai, M. (2009), Public sector investment in tourism infrastructure, in Larry Dwyer and Peter Forsyth, *International Handbook on the Economics of Tourism*, eds., (Cheltenham, UK: Edward Elgar).

Schubert, F.S., Brida, J.G. & Risso, W.A. (2010) The impacts of international Tourism demand on economic growth of small economies dependent of tourism, *Tourism Management*, doi:10.1016/j.tourman.2010.03.007.

Shan, J. & Ken, W. (2001), Causality between trade and tourism: empirical evidence from China, *Applied Economics Letters,* 8, pp. 279-283.

Shareef, R. & McAleer, M. (2007), Modelling the uncertainty in monthly international tourist arrivals to the Maldives, *Tourism Management,* 28(1), pp. 23-45.

Sheldon, J.P. (1993), Forecasting tourism: Expenditures versus arrivals, *Journal of Travel Research,* 32(1), pp. 13-20.

Sims, C. (1972) Money, income and causality, *American Economic Review,* 62, pp. 540-552.

Sinclair, T.M. & Stabler, M. (1997), *The Economics of Tourism*, (London: Routledge).

Song, H., Li, G., Witt, S.F. & Fei, B. (2010), Tourism demand modelling and forecasting: how should demand be measured?, *Tourism Economics*, 16(1), pp. 63-81.

Spurr, R. (2009), Tourism Satellite Accounts, in *International Handbook on the Economics of Tourism*. Larry Dwyer and Peter Forsyth, eds. (Cheltenham, UK: Edward Elgar).

Syriopoulos, T.C. (1995), A dynamic model of demand for Mediterranean tourism, *International Review of Applied Economics,* 9(3), pp. 318-336.

Tang, S., Selvanathan, E.A. & Selvanathan, S. (2007), The relationship between foreign direct investment and tourism: empirical evidence from China, *Tourism Economics,* 13(1), pp. 25-39.

Tang, H.C-H & Jang, S.SooCheong (2009), The tourism-economy causality in the United Stastes: A sub-industry level examination, *Tourism Management,* 30, pp. 553-558.

Thrane, C. & Farstad, E. (2010) Domestic tourism expenditures: The non-linear effects of length of stay and travel party size, *Tourism Management*, doi:10.1016/j.tourman.2009.11.002.

Tremblay, P. (1989), Pooling international tourism in Western Europe, *Annals of Tourism Research*, 16(4), pp. 477-491.

UNWTO, (2009), UNWTO World Tourism Barometer, Vol. 71. www.unwto.org.

UNWTO, (2010), UNWTO World Tourism Barometer, Interim Update, April. www.unwto.org.

Vanegas Sr, M. & Croes, R.R. (2003), Growth, development and tourism in small economy: evidence from Aruba, *International Journal of Tourism Research*, 5, pp. 315-330.

Wahab, S. & C.P. Cooper, (2001), *Tourism in the age of globalisation*, (London: Routledge).

Weng, C-C. & Wang, K-K. (2004), Scale and scope economies of international tourist hotels in Taiwan, *Tourism Management,* 25, pp. 761-769.

Williams, A.M. & Baláž, V. (2008), Low-Cost Carriers, Economies of Flows and Regional Externalities, *Regional Studies,* 43(5), pp. 677-691.

Zortuk, M. (2009), Economic impact of tourism on Turkey's economy: evidence from cointegration tests, *International Research Journal of Finance and Economics,* 25, pp. 231-239.

Table 1 African and the Middle East destinations

Authors (date)	Journal	Frequency (time span)	Destination	Methodology	Variables	Granger Causality	
						Short run	*Long run*
Belloumi (2010)	International Journal of Tourism Research	Annual (1970-2007)	Tunisia	VECM (Johansen)– Granger causality	Tourism receipts – GDP – real effective exchange rate		*T→Y*
Akinboade, Braimoh (2010)	International Journal of Tourism Research	Annual (1980-2005)	South Africa	VECM (Johansen)– Granger causality	Tourism receipts – GDP – real effective exchange rate - exports	*T→Y*	*T→Y*
Durbarry (2004)	Tourism Economics	Annual (1952-1999)	Mauritius	VECM (Johansen) – Granger causality (VAR)	Tourism receipts – GDP – physical and human capital – exports (EX)	*EX→Y*	*EX↔Y*

Table 2 The American destinations

Authors (date)	Journal	Frequency (time span)	Destination	Methodology	Variables	Granger	
						Short run	*Long run*
Brida, Monterubbianesi (2010)	Journal of Tourism Challenges and Trends	Annual (1990-2005)	Colombia (Antioquia, Bolivar, Bogotà, Magdalena, San Andreas and Providencia of Colombia)	VECM (Johansen) – Granger causality	Tourism expenditure - GDP - exchange rate		T→Y
Jackman, Lorde (2010)	Economics Bulletin	Annual (1970-2007)	Barbados	VECM (DOLS - Saikkonen) – Granger causality	tourism arrivals – GDP – households expenditure – relative price	No Granger causality	No cointegration
Schubert, Brida, Risso (2010)	Tourism Management	Annual (1970-2008)	Antigua and Barbuda	VECM (Johansen) – Granger causality	Tourism expenditure – GDP USA - exchange rate		T→Y
Brida, Risso (2009)	European Journal of Tourism Research	Annual (1988-2008)	Chile	VECM (Johansen) – Granger causality (Toda Yamamoto)	Tourism expenditure - GDP - exchange rate		T→Y
Brida, Pereyra, Risso, Devesa, Aguirre (2009)	Tourismos	Quarterly (1987-2007)	Colombia	VECM (Johansen) – Granger causality	Tourism expenditure GDP - exchange rate		T→Y
Tang, Jan (2009)	Tourism Management	Quarterly (1981-2005)	USA	Micro study - Granger causality (Johansen)	Sales revenues (air, casino, hotel, restaurant) - GDP	Y→air Y→casino Y→ hotel Y→rest	
Brida, Lanzilotta, Risso (2008a)	Pasos	Quarterly (1987-2006)	Uruguay	VECM (Johansen) – Granger causality	Tourism expenditure by Argentineans - GDP - exchange rate		T→Y
Brida, Carrera,	Economics Bulletin	Quarterly (1980-	Mexico	VECM (Johansen) – Granger causality	Tourism expenditure by		T→Y

Risso (2008b)		2007)			Argentineans - GDP - exchange rate		
Croes, Vanegas (2008)	Journal of Travel Research	Annual (1980 - 2004)	Nicaragua	Cointegration (Johansen) – Granger causality (VAR)	Tourism receipts - GDP - number people below the poverty line		T→Y T→P

Table 3 Asian and Pacific destinations

Authors (date)	Journal	Frequency (time span)	Destination	Methodology	Variables	Granger Causality	
						Short run	*Long run*
Kadir, Jusoff (2010)	International Journal of Economics and Finance	Quarterly (1995–2006)	Malaysia	Johansen – Granger causality	Tourists receipts, exports (EX), imports (IM), trade (TR)		*EX→T* *IM→T* *TR→T*
Narayan, Narayan, Prasad, Prasad (2010)	Tourism Economics	Annual (1988–2004)	Fiji, Tonga, Solomon Islands, Papua New Guinea	Cointegration (Pedroni) - Panel Granger causality	Tourists exports, GDP	*T←Y*	*T→Y*
Lean, Tang (2009)	International Journal of Tourism Research	Monthly (1989–2009)	Malaysia	Granger causality (Toda Yamamoto – Dolado Lütkepohl)	Tourists arrivals, industrial production		*T↔Y*
Chen and Chiou-Wei (2009)	Tourism Management	Quarterly (1975-2007)	Taiwan and Korea	E-GARCH-M with uncertainty	Tourism earnings, GDP, exchange rate	Taiwan: *T→Y* South Korea: *T↔Y*	
Lee, Chien (2008)	Mathematics and Computers in Simulation	Yearly (1959-2003)	Taiwan	Johansen – Granger causality (Structural break - Gregory-Hansen)	Tourist receipts, tourism arrivals, GDP, exchange rate		*T↔Y*
Tang, Selvanathan Selvanathan (2007)	Tourism Economics	Quarterly (1985-2001)	China	HEGY – Granger causality (Zapata and Rambardi)	Tourist arrivals, inward foreign direct investments (FDI)		*FDI→ T*
Kim, Chen, Jang (2006)	Tourism Management	Quarterly (1971-2003) Annual (1956-2002)	Taiwan	Johansen – Granger causality (VAR)	Tourist arrivals, GDP		Quarterly: *T↔Y* Annual: *T↔Y*
Khan, Toh, Chua (2005)	Journal of Travel Research	Quarterly (1978-2000)	Singapore	Engle & Granger – Granger causality	Tourist arrivals (T) , exports (EX), imports (IM)		*T↔IM*
Oh	Tourism	Quarterly	Korea	Engle &	Tourism receipts, GDP	*T→Y*	

(2005)	Managemnent	(1975-2001)		Granger – Granger causality			
Narayan (2004)	Tourism Economics	Annual (1970-2000)	Fiji	ARDL – VECM	Tourist arrivals, disposable income, relative hotel substitute prices, transport cost		*Y→T*

Table 4 European destinations

Authors (date)	**Journal**	**Frequency (time span)**	**Destinations**	**Methodology**	**Variables**	**Granger Causality**	
						Short run	***Long run***
Brida, Barquet, Risso (2010)	Tourismos	Annual (1980-2006)	Trentino Alto Adige (Italy)	VECM (Johansen)– Granger causality (Toda Yamamoto)	German tourism expenses, GDP, relative prices		*T→Y*
Cortes, Pulina (2010)	Current Issues in Tourism	Annual (1954-2000)	Italy and Spain	VECM (Johansen)– Granger causality	Tourism earnings, GDP, physical and human capital	Spain: *T→Y*	Italy: *T→Y* Spain: *T↔Y*
Brida, Risso (2010)	Journal of Policy Research in Tourism, Leisure and Events	Annual (1980-2006)	South Tyrol (Italy)	VECM (Johansen)– Granger causality	German tourism arrivals, GDP, relative prices		*T→Y*
Zortuk (2009)	International Research Journal of Finance and Economics	Quartely (1990-2008)	Turkey	VECM (Johansen)– Granger causality	Tourists arrivals, GDP, exchange rate		*T→Y*
Katircioglu (2009a)	Applied Economics	Annual (1960-2005)	Cyprus	ARDL – Granger causality (VECM)	Tourists arrivals, GDP, trade volume (TR)		*T←Y* *T←TR*
Katircioglu (2009b)	Acta Oeconomica	Annual (1960-2006)	Malta	ARDL – Granger causality (VECM)	Tourists arrivals, GDP, exchange rate		*T↔Y*
Katircioglu (2009c)	Tourism Management	Annual (1960-2006)	Turkey	ARDL – Johansen cointegration	Tourists arrivals, GDP, exchange rate		*No cointegration* *No TLGH support*
Kaplan, Çelik (2008)	International Journal of Applied	Annual (1963-2006)	Turkey	VECM (Johansen)– Granger causality	Tourists receipts, GDP, exchange rate		*T→Y*

	Economics and Finance						
Nowak, Sahli, Cortes (2007)	Tourism Economics	Annual (1960-2003)	Spain	VECM (Johansen)– Granger causality	Tourism receipts, GDP, imports of industrial goods and machinery (IMP)	*T→Y*	*T↔Y* *T↔IMP*
Louca (2006)	Tourism Economics	Annual (1960-2001)	Cyprus	VECM (Johansen)– Granger causality (pair-wise)	Tourists arrivals (TAR), tourism industry income (TY), expenditure: transport and communications (TC), hotel and restaurants (HR), advertising and promotion (AP).	*TC→TY (TAR)* *HR→TY (TAR)*	
Gunduz, Hatemi-J (2005)	Applied Economics Letters	Annual (1963-2002)	Turkey	Multivariate ARCH - leveraged bootstrap Granger causality	Tourism arrivals, GDP, exchange rate		*T→Y*
Demiröz, Ongan, (2005)	CEOL Journal of Economics	Quarterly (1980-2004)	Turkey	VECM (Johansen)– Granger causality	Tourism receipts, GDP	*T↔Y*	*T↔Y*
Dritsakis (2004)	Tourism Economics	Quarterly (1960-2000)	Greece	VECM (Johansen)– Granger causality	Tourism earnings – GDP - exchange rate	T↔Y	*T→Y*
Balaguer, Cantavella-Jordà (2002)	Applied Economics	Quarterly (1975-1997)	Spain	VECM (Johansen)– Granger causality	Tourism earnings, -GDP - exchange rate		*T→Y*

Table 5 Miscellaneous destinations

Authors (date)	Journal	Frequency (time span)	Destinations	Methodology	Variables	Granger	
						Short run	*Long run*
Po, Huang (2008)	Physica A	Annual averages (1995-2005)	88 countries	Cross section	Tourism receipts - inflation - capital stock, GDP - exchange rate	European: T→Y Latin American: T→Y	
Lee, Chang (2008)	Tourism Management	Annual averages (1990-2002)	OEDC (14 European; 60.9% sample), Asia (5), Latin American (11), Sub-Sahara Africa (16)	Cointegration (Pedroni) - Heterogeneous panel – Panel Granger causality	Tourism receipts - tourism arrivals - GDP - exchange rate	OECD: T→Y Latin American: T↔Y Africa: Y→T	OECD: T→Y Latin American: T↔Y Asia: T→Y Africa: T→Y

Ultimi Contributi di Ricerca CRENoS

I Paper sono disponibili in: http://www.crenos.it

10/16 *Juan Gabriel Brida, Manuela Pulina, Eugenia Riaño, Sandra Zapata Aguirre* "Cruise visitors' intention to return as land tourists and recommend a visited destination. A structural equation model"

10/15 *Bianca Biagi, Claudio Detotto,* "Crime as tourism externality"

10/14 *Axel Gautier, Dimitri Paolini,* "Universal service financing in competitive postal markets: one size does not fit all"

10/13 *Claudio Detotto, Marco Vannini,* "Counting the cost of crime in Italy"

10/12 *Fabrizio Adriani, Luca G. Deidda,* "Competition and the signaling role of prices"

10/11 *Adriana Di Liberto* "High skills, high growth: is tourism an exception?"

10/10 *Vittorio Pelligra, Andrea Isoni, Roberta Fadda, Iosetto Doneddu,* "Social Preferences and Perceived Intentions. An experiment with Normally Developing and Autistic Spectrum Disorders Subjects"

10/09 *Luigi Guiso, Luigi Pistaferri, Fabiano Schivardi,* "Credit within the firm"

10/08 *Luca Deidda, Bassam Fattouh,* "Relationship Finance, Market Finance and Endogenous Business Cycles"

10/07 *Alba Campus, Mariano Porcu,* "Reconsidering the well-being: the Happy Planet Index and the issue of missing data"

10/06 *Valentina Carta, Mariano Porcu,* "Measures of wealth and well-being. A comparison between GDP and ISEW"

10/05 *David Forrest, Miguel Jara, Dimitri Paolini, Juan de Dios Tena,* "Institutional Complexity and Managerial Efficiency: A Theoretical Model and an Empirical Application"

10/04 *Manuela Deidda,* "Financial Development and Selection into Entrepreneurship: Evidence from Italy and US"

10/03 *Giorgia Casalone, Daniela Sonedda,* "Evaluating the Distributional Effects of the Italian Fiscal Policies using Quantile Regressions"

10/02 *Claudio Detotto, Edoardo Otranto,* "A Time Varying Parameter Approach to Analyze the Macroeconomic Consequences of Crime"

10/01 *Manuela Deidda,* "Precautionary saving, financial risk and portfolio choice"

09/18 *Manuela Deidda,* "Precautionary savings under liquidity constraints: evidence from Italy"

09/17 *Edoardo Otranto*, "Improving the Forecasting of Dynamic Conditional Correlation: a Volatility Dependent Approach"

09/16 *Emanuela Marrocu, Raffaele Paci, Marco Pontis,* "Intangible capital and firms productivity"

09/15 *Helena Marques, Gabriel Pino, Juan de Dios Tena,* "Regional inflation dynamics using space-time models"

09/14 *Jaime Alvarez, David Forrest, Ismael Sanz, Juan de Dios Tena,* "Impact of Importing Foreign Talent on Performance Levels of Local Co-Workers"

09/13 *Fabio Cerina, Francesco Mureddu,* "Is Agglomeration really good for Growth? Global Efficiency and Interregional Equity"

Finito di stampare nel mese di Settembre 2010
Presso **studiografico&stampadigitale Copy Right**
Via Torre Tonda 8 – Tel. 079.200395 – Fax 079.4360444
07100 Sassari

www.crenos.it

ISBN 978-88-84-67-609-2