Tourism and Exports as a means of Growth

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Abstract: This study expands existing research by considering
both exports and tourism as potential influencing factors for
economic growth. While trade of goods has been proven as a
means of growth for countries, inbound tourism as non-
traditional exports, has been scarcely examined in the literature.
Using data for Italy and Spain over the period 1954-2000 and
1964-2000 respectively, both exports of goods and tourism
exports are included in the same model. Standard cointegration
and Granger causality techniques are applied. The main results
reveal the significance of both exports and tourism towards long-
term growth with some peculiarities for each country.

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Key words: Tourism, ELG Hypothesis, TLG Hypothesis,
Trade, Growth.

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JEL codes: L83, C32, O49.

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1. INTRODUCTION

In recent years there has been an upsurge of interest in the role of tourism for growth. Developing countries focus on economic policies to promote international tourism as a potential source of economic growth. However, our understanding of the relationship between traditional exports, tourism and economic growth is still ongoing.

The debate on whether or not countries should promote their tourism sector to achieve long-run economic growth is a novel issue. Until recently, much of the literature focussed on primary and manufactured product exports, with authors generally asserting that each category has different effects on growth. However, increasing attention is being paid to the exports of a quite different type of product, which is neither primary nor manufactured, but belongs to the so far neglected category of services. In this respect, international tourism might be considered as an export in a non-traditional way since it implies a source of receipts and consumption *in situ*.

The last century and the new millennium have witnessed the prominent increase of tourism. In 1950, the number of international tourism receipts was 2 billion US dollar while in 2006 it was 735 billion. International tourist arrivals have risen from 25 million in 1950 to 924 million in 2008 (UNWTO 2009). According to the same source, tourism is responsible for 300 million direct and indirect jobs and represents 13% of the world's Gross Domestic Product (GDP). The preceding figures would increase markedly if domestic tourism too was taken into account . Tourism has important multiplier effects in other economic sectors, for instance, it may help to alleviate deficits in the balance of payments, to increase exchange reserves and to generate tax earnings.

There is an increasing and widely accepted belief that tourism can play a fundamental role for developing countries to achieve economic growth and development. This fact is strongly supported by international organizations such as UNWTO and World Travel and Tourism Council (WTTC). For instance, the United Nations conference on Trade and Development held in 2004 declared that for many developing countries, particularly least developed countries and small islands, tourism constitutes one of a few viable development options and it is often the principal source of foreign exchange earnings. Subsequently, national governments of

emerging countries apply policies in favour of tourism expansion under the argument that tourism does not only draw upon the resources of the national economy and could be a promoting tool to economic growth, but it also stimulates the growth of other economic sectors via multiplier and spill-over effects.

It seems reasonable to reckon that the defence of the tourism role within the national economy stems from the observation of successful experiences; that is, countries that became economically developed and experienced an expansion of international tourism. Interestingly, while the ranking of top tourism destinations worldwide provided by the UNWTO shows that the first positions are occupied essentially by developed countries, the ranking of the top emerging tourism destinations (which have a growth rate of international tourist arrivals above the world average and an increase of at least 100,000 arrivals per year) contains mostly developing countries. This picture suggests that emerging countries are probably trying to imitate other known experiences. As Sinclair (1998) pointed out, it is important to take into account previous successful models of tourism and economic growth, as the Spanish one, though the model should not be copied exactly, but suited to the economic characteristics of every country.

The field of research focused on the relationship between tourism and economic growth is still in development. Nowadays, there are two generally accepted methodologies that can be applied to estimate the impact of tourism on GDP: the Tourism Satellite Account (TSA) and the Computable General Equilibrium (CGE) models. Encouraged by the UNWTO and the WTTC, many countries use a TSA to quantify the contribution of tourism and travelling to different sectors of the economy. As Blake et al. (2006) underline, TSAs provide an ideal basis for CGE models that can examine the analytical and policy-related questions that the more descriptive TSA are not designed to answer. The first tool, TSA, is commonly employed by international organizations such as WTTC and national governments, whilst the second tool, the CGE model, has received much attention in specialised tourism literature. However, scarce attention has been paid to the long-run relationship between tourism expansion and economic growth to date, and particularly to the econometric testing of these assumptions.

Considering the great contribution of the tourism industry to the world economy, the research in this field may be of significant importance. In particular, the investigation of the relationship between tourism and economic growth in the long term, demonstrating theoretical assumptions and encompassing all types of tourism – domestic and inbound tourism – at a national and

regional level of analysis, can provide crucial information for policy formulations and strategic planning by the government, as well as tourism businesses. The dynamic nature of tourism as well as its potential role as a tool to achieve economic development calls for updated research to improve our understanding of its practical implications.

To this respect, in the tourism literature, there are two main streams of thought stemming from the so-called Export-Led Growth (ELG) hypothesis. On the one side, Nowak et al. (2007) argue that economic growth can be achieved via increases in the volume of inputs. This economic relationship is known as Tourism Capital Imports to Growth (TKIG). The TKIG hypothesis has been empirically supported for the case of Spain (Nowak et al. 2007), confirming that economic development and industrialisation in Spain were achieved since the early Sixties through imports of capital goods mainly financed by tourism receipts (Sinclair and Bote Gómez 1996). On the other side, the Tourism-Led Growth (TLG) hypothesis postulates that the economic growth of countries can be generated by expanding international tourism as a non-traditional export. A comprehensive review on the TLG hypothesis is provided by Cortés-Jiménez and Pulina (2009).

Interestingly, despite the fact that the TLG hypothesis is directly derived from the ELG hypothesis, the existing literature on this topic is still scarce. To the best of the authors' knowledge, only Cortés-Jiménez and Pulina (2006) claim the narrow relationship between the TLG and ELG hypotheses and empirically test them separately for the case study of Spain and Italy, respectively. Nonetheless, Durbarry (2004) for the case of Mauritius attempts to assess the impact of different types of exports including international tourism on economic growth.

This paper extends the existing literature by building on a production function derived theoretically from Feder (1982) and applied in the economics literature by Ukpolo (1994) and Ghatak et al. (1997) amongst others . The main objective of this study is to consider the role of exports disaggregated into traditional exports and tourism as a potential extra factor. Spain and Italy are employed as case studies: these two Mediterranean countries are often used in tourism handbooks to exemplify successful tourism expansion attached to the achievement of economic growth and development (Sinclair and Stabler 1997; Cooper et al. 2005; Tribe 2006). Hence, they can be regarded as successful examples for developing countries. The methodology presented in this paper follows the standard integration and cointegration analysis. A further

Granger non-causality test is applied within a Vector Error Correction Mechanism (VECM) framework.

The reminder of the paper is organised in the following manner. Section 2 presents a literature review on the ELG and TLG hypotheses. Section 3 revises the situation of tourism, mainly for Spain, during the last decades. Section 4 describes the economic model and reports the main empirical findings. Concluding remarks are provided in the last section.

2. LITERATURE REVIEW

An extensive body of literature has been devoted to the potential link between exports and economic growth. It has been theoretically argued that exports contribute positively to the output growth by relieving the foreign exchange constraint (McKinnon 1964) or by enhancing efficiency through increased competition (Krueger 1980), among others. The number of published empirical studies testing such a positive relationship between exports and growth are numerous (i.e. ELG hypothesis). It is remarkable that their findings are rather mixed, as Giles and Williams' (2000) survey shows.

The interest has moved up to date. In fact, there is still a proliferation of articles checking the ELG hypothesis, either for developed or developing countries. To mention some recent contributions: Richards (2001) for Panama; Panas and Vamvouskas (2004) for Greece; Balaguer and Cantavella-Jordá (2001, 2004) for Spain; Abual-Foul (2004) for Jordan; Al-Mamun and Nath (2005) for Bangladesh; Awokuse (2005) for Japan; Boriss and Herzer (2006) for Chile; Tang (2006) for China, amongst others.

A new point of interest comes from the link between inbound tourism and economic growth, directly derived from the ELG hypothesis and currently known as the TLG hypothesis. In contrast to the extensive literature on exports and growth, empirical studies focused on TLG hypothesis are still scarce, as stressed by Cortés-Jiménez and Pulina (2009). The TLG hypothesis appeared for the first time with Balaguer and Cantavella-Jordá's (2002) contribution focusing on Spain within a bivariate framework. International tourism implies a source of export earnings but, unlike commodity exports, the consumption is *in situ*: the consumer, rather than the product, has to move, so the development enabled by the tourism

sector has implications for other sectors in the economy, as computable general equilibrium models (CGE) and input-output analysis demonstrate (see Blake et al. 2006). As an export activity, international tourism is a source of long-run growth through several channels. Firstly, small open economies benefit from tourism specialisation, enhancing faster growth with respect to other types of economies (Lanza and Pigliaru 1994). This implies a higher level of income generated by the existence of comparative advantage. Secondly, an increase of tourism receipts will relieve foreign exchange constraints. These extra resources can be employed to increase imports of capital goods that might further boost domestic investment and consumption (Nowak et al. 2007). The increase in competition at an international level, given by the unique supply of certain characteristics of a destination (e.g. natural amenities, art and history, climatic conditions) will enhance economic growth via better management, higher levels of accumulation and efficiency of tourism resources as well as higher levels of investment and human capital accumulation in tourism activities. In fact, multiplier effects are likely to be produced both in export and non-export sectors.

Durbarry (2004), inspired by the ELG literature, uses a production function where economic growth is explained by physical capital, human capital and exports, compatible with the 'new' growth theory. Durbarry includes disaggregated exports in the model, with international tourism as one form of export. While testing for Granger causality between total exports and economic growth, this analysis was not performed for tourism and growth due to lack of a sufficient number of observations. Surprisingly, no effort has been made to incorporate this approach in order to validate the tourism-led growth hypothesis.

Analysing exports in terms of growth literature, some authors have gone a step further investigating the issue of export composition. These studies investigate which types of exports contribute to long-run economic growth, rather than aggregate exports only. Fosu (1990) and Herzer et al. (2006) consider only primary goods and manufactured goods exports. A higher disaggregation level is performed by Greenaway et al. (1999), Durbarry (2004), Balaguer and Cantavella-Jordá (2004). Specifically, Greenaway et al. (1999) divide exports into fuels, food, metals, other primary goods, machinery, textiles and other manufactured goods; Durbarry separates exports into sugar, manufactured exports and tourism; Balaguer and Cantavella-Jordá (2004) consider food and agriculture goods, primary goods and manufactured goods. Finally, Crespo-Cuaresma and Wörz (2005) classify 33 export sectors in accordance with three technological intensity levels. Hence, it is worth remarking that the study of Durbarry (2004)

was clearly innovative when considering tourism as a type of export. And so far, it has been the only case study.

Regarding the particular cases of Spain and Italy, a few studies on the ELG and TLG hypothesis have been undertaken. In the case of Spain, Balaguer and Cantavella-Jordá (2001) investigate the ELG hypothesis for Spain. This first paper does not support the export-led economic growth model for Spain for the time span 1901-1999. It performs a bivariate analysis with domestic income and real exports as the economic variables. The authors replicate the same analysis for two sub-periods and they find that for the sub-period 1901-1958 the ELG hypothesis is not valid, whereas for the sub-period 1959-99 the ELG hypothesis is supported. In the second paper, Balaguer and Cantavella-Jordá (2004) carry out a trivariate analysis with real domestic output, real aggregate exports, and a variable of export composition in relative terms, confirming the ELG hypothesis.

Furthermore, Balaguer and Cantavella-Jordá (2004) explore the exports composition link within the Spanish economy. They include food and agricultural goods, primary goods and manufactured goods. As they did in their first paper, they perform the analysis for two different periods, 1910-1960 and 1961-2000. They conclude that evolution of exports and general development move independently during the first period, while some feedback effects between economic growth and primary export activities such as food and consumption goods came in the second period. The authors also examine whether international tourism receipts (1975-1997) Granger cause GDP, including an exchange rate as an extra determinant. They find a unidirectional causality from tourism to economic growth, publishing a paper on the TLG hypothesis that has become a starting point for a novel field within tourism economics. Later on, the paper by Cortés-Jiménez and Pulina (2009) has studied the TLG hypothesis for Spain over the period 1964-2000 through a multivariate approach. Their results support the fact that the determinants of the Spanish long-run economic growth rely also on the expansion of inbound tourism in addition to the classical economic production factors, namely physical and human capital.

In the case of Italy, the paper by Federici and Marconi (2002) investigates the link between exports and economic growth for Italy. In that work, the ELG hypothesis for the Italian economy (1960-98) is tested through a Vector Autoregression (VAR) model with four macroeconomic variables: an index of the GDP of the rest of the world; the Italian real

exchange rate; Italian real exports; and the Italian real GDP, providing empirical support for the hypothesis. Cortés-Jiménez and Pulina (2006) analyse the ELG hypothesis for Italy over the period 1954-2000 using a multivariate model. The findings of this paper also support the positive role of exports for Italian economic growth.

Increasing availability of data and new econometric techniques helps the proliferation of empirical studies in this field. In general terms, the empirical investigations perform a temporal causality analysis in order to test the ELG hypothesis. The export-led economic growth is confirmed if it is found that exports unidirectionally cause economic growth in the long term. If the direction of the causality is the opposite, the economic-driven exports growth hypothesis is confirmed. Finally, bidirectional Granger causality between both economic variables would imply that one reinforces the other. Besides, though many studies did find some evidence in favour of causality running from tourism to economic growth, empirical results seem rather mixed and non conclusive, as is the case for traditional exports. In addition, most of the literature on the ELG hypothesis attributes exports' effects on economic growth to several factors. One of the key determinants is that exports promote threshold effects due to economies of scale, increased capacity utilisation, productivity gains, and greater product variety. It is also argued that exports of goods and services provide the opportunity to compete in international markets that lead to technology transfer and improvement in managerial skills. In this sense, the TLG literature translates these arguments into the relationship between inbound tourism expansion and economic growth.

In all, there is evidence of the positive role of exports and inbound tourism on long-run growth for Spain and Italy. Notwithstanding, it should be noticed that none of these previously mentioned analyses have considered exports and inbound tourism jointly.

3. SPAIN: FACTS AND FIGURES

According to the most recent UNWTO data, Spain occupies the second position in the world's top tourism destinations ranking. Such an exceptional outcome has been achieved after a deep transformation at an economic and political level since the Sixties. Not surprisingly, Spain is often referred as an archetypal example of an economy that takes advantage in an optimal way

of the expansion of tourism towards the rest of the economy. Spain is also a well-known case-study within the field of tourism economics due to its economic development process since the Sixties, helped by the huge expansion in inbound tourism. In fact, the Spanish economy has faced important challenge,s until it became a developed country and one of the most successful tourism destinations worldwide.

Tourism receipts had an exponential growth up to the middle Eighties. At the beginning of the Sixties (see Table 1), Spain was an emerging tourism destination attracting mainly European visitors. Many important factors helped Spain to emerge as an attractive and successful destination, amongst others: the advantageous geographical location and weather conditions; the provision of tourism attractions mainly located on the Spanish coast; the attraction towards a still undiscovered destination; the new favourable political and better economic conditions; a devaluated national currency, the peseta. In fact, Spanish receipts from inbound tourism increased more than five million pesetas in one year (1960-1961) and in 1963-64 a growth of about fifteen million pesetas occurred. Taking into account percentage variations by decade, growth figures appear quite remarkable (Table 1). In the Sixties, tourism receipts reached an increase of 416%, while the Seventies and Eighties experienced rates of growth above 250%. Even in the Nineties growth figures were high and Spain could be regarded as an already consolidated tourism destination.

Table 1. Tourism receipts growth by decade

Period	Growth
1960-1969	415.7%
1970-1979	269.9%
1980-1989	283.3%
1990-1999	160.5%
2000-2006*	25.5%

Note: (*) The last period covers only seven years.

In fact, Bote Gómez (1993), Sinclair and Bote Gómez (1996) and Sinclair (1998) highlighted how the huge inflows of foreign currency receipts from tourism were clearly the distinguishing feature of the Spanish model. Indeed, such a special characteristic is due not merely to the unstoppable tourism expansion but to the admirable way of taking advantage of it towards financing capital good imports, thus helping the industrialisation process. To that respect, there

is wide consensus about the positive role of the tourist activity in balancing the Spanish commercial deficit. Besides, it allowed the financing of machinery and technology imports, which were needed to foster the Spanish economy (see Padilla 1988; Bote Gómez 1993; Bote Gómez and Sinclair 1996). As it has been previously remarked, the change in the external policy contributed to the Spanish 'economic miracle' in the 1960s. And, it allowed the country to experience growth rates as high as those of other European countries engaged in a large trade liberalization and integration process. Eventually this was empirically proven by Nowak et al. (2007).

Further to that, foreign tourism in Spain kept growing during the following decades up to present. Several factors contributed to this continuous achievement. To mention some of them, Spain joining the European Union[1] in the mid-eighties, the favourable exchange rate of the currency during the Nineties, or the incoming low-cost airlines across Spain.

Table 2 provides the percentage share of tourism receipts on the Spanish trade balance deficit from the Sixties to the Nineties. The figures are considerably high. Hence, once more, the comparative advantage of the Spanish economic development due to the simultaneous great expansion of inbound tourism is confirmed.

Table 2. Percentage share of tourism receipts in Spanish trade balance deficit

Subperiods	International Tourism Receipts
1965-1969	62.1
1970-1974	86.4
1975-1979	75.2
1980-1984	86.1
1985-1989	131.2
1990-1994	96.2
1995-1999	152.8

Source: Balaguer and Cantavella-Jordá (2002); original source: Boletín Estadístico del Banco de España (BEBD)

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[1] The European Union adopted this name in 1992. Before that it was known as the European Economic Community.

4. THE ECONOMIC MODEL

This paper builds upon the standard Cobb-Douglas production function within the neoclassical framework,

$$Y_t = K_t^{\alpha} \cdot H_t^{\beta} \cdot A_t \qquad (1)$$

where the quantity of output (Y) is a function of physical capital (K), human capital (H), and production technology (A). Such a production function is expanded according to the new growth theory associated with the endogenous neoclassical model of growth pioneered by Barro and Sala-i-Martin (1995). There are several channels for promoting economic growth such as encouraging domestic saving and investment, foreign investment, education, R&D and free trade. To this respect, international trade affects economic growth and can indeed be regarded as a type of technology in that it converts non-specialised production into specialised production (Mankiw 2004). Hence, according to the new growth theory, export expansion improves economy-wide efficiency in the allocation of inputs and leads to total factor productivity growth. From a demand-side point of view, an inward-oriented policy is not sustainable since domestic demand is limited and domestic resources may remain idle; hence, domestic economic growth cannot be enhanced. In an outward-oriented country with free trade, exports are the engine of growth through the expansion of external demand, as a component of the aggregate demand function (Agosin 1999; Boriss and Herzer 2006). On the supply-side, exports can positively contribute to economic growth through different means, such as facilitating the exploitation of economies of scale (Helpman and Krugmam 1985), or promoting the diffusion of technical knowledge (Grossman and Helpman 1991). Therefore, the Cobb-Douglas production function can be expanded by adding exports as an extra variable:

$$Y_t = K_t^{\alpha} \cdot H_t^{\beta} \cdot X_t^{\gamma} \cdot A_t \qquad (2)$$

Building on Durbarry's (2004) contribution, exports (X) are further decomposed into two separate components, namely XG (exports of goods) and TX (tourism exports). Therefore the economic function adopted in this paper is:

$$Y_t = K_t^{\alpha} \cdot H_t^{\beta} \cdot XG_t^{\gamma} \cdot TX_t^{\delta} \qquad (3)$$

where Y is real output, K is physical capital and H is human capital, XG and TX are defined above. We express such a function in a linear logarithmic form given by equation (4):

$$Y_t = \mu + \alpha K_t + \beta H_t + \gamma XG_t + \delta TX_t + v_t \quad (4),$$

where t denotes a time series analysis and v is a disturbance term with zero mean and constant variance.

4.1 Empirical investigation

4.1.1. Data and variables

Annual data cover the time span 1964-2000 for Spain and 1954-2000 for Italy. They have been obtained from different sources. Y is the economic growth measured by per capita real GDP, K is the physical capital measured by investments as a quota of GDP, H is the human capital measured by the quota of active population with secondary level of education for the Spanish case and by the quota of population with secondary level of education for the Italian case. Education is indeed investment in human capital, and can be regarded as a key production factor, such as investment in physical capital, likely to produce positive externalities thanks to a more efficient way of allocating resources due to the combination of new ideas and knowledge (Mankiw 2004). XG are the total traditional exports. TX is measured by international tourism receipts per capita, following for example the empirical study of Durbarry (2004) and Dritsakis (2004). Data are obtained from Penn World Table 6, *Instituto Valenciano de Investigaciones Económicas*, *Instituto Nacional de Estadística* and *Istituto Nazionale di Statistica*. All variables are transformed into natural logarithms in accordance to economic theory.

4.1.2. Econometric method

As previously stated, the main purpose of the present investigation is to assess the Granger causality relationship amongst economic growth and inbound tourism and exports for both the Spanish and the Italian cases taking explicitly into consideration the existence of the TLG and the ELG mechanisms through a theoretical specification derived from Feder (1982) and modified following Ukpolo (1994), Ghatak et al. (1997) and Durbarry (2004), where physical and human capital are also considered.

Prior to going into the details of the econometric analysis, some preliminary issues related to the causality methods are discussed. First of all, the export-led growth hypothesis has been assessed through a set of causality techniques across time, going from the simple correlation to the Toda and Yamamoto technique. After the standard Granger (1969) technique, it was found that the use of non-stationary data in causality tests can yield spurious causality results (Park and Phillips 1989; Stock and Watson 1989). Nowadays causality studies start by examining the integration properties of the variables. Then the cointegration analysis is carried out, following the Johansen (1988) procedure or Engle and Granger (1987) two-stage method. Finally the Granger causality is checked by formulating a VEC model to capture both long-run and short-run sources of causality between the variables. As Engle and Granger (1987) showed, long-run output relationships are revealed through data in levels, while short-run behaviours are captured by relationships in first differences. An alternative method is that of Hsiao (1981), who presupposes the use of unit root and cointegration tests but applying the standard Granger test rather than the VEC model, in cases when no cointegration is found. Hsiao combines the standard Granger test with the Akaike´s Final Prediction Error criterion to determine the optimal lag length in the Granger causality test.

Additionally, there are some causality methods, which do not require testing for stationarity and cointegration. Such methods are the autoregressive distributed lag (ARDL) approach due to Toda and Yamamoto (1995), Dolado and Lütkepohl (1996) and Pesaran and Shin (1999) which involve a modified Wald test in an augmented vector autoregressive model. Besides, the selection of the causality test method should not affect the results, as long as the time series properties of variables are accounted for appropriately. However, asymptotically equivalent methods do not necessarily demonstrate similar properties in small samples, which is the actual sample size in most investigations. Zapata and Rimaldi (1997) have demonstrated that the modified Wald tests employed by Toda-Yamamoto and Dolado-Lütkepohl procedures have lower power than the Johansen-based VEC approach in bivariate and trivariate models with sample size of 50 or less.

Bearing in mind all these issues, the present investigation formulates a VEC model for each country to check for short-run and long-run Granger causality amongst the variables. The model has been formulated based upon the integration and cointegration status of the variables of interest. Specifically, *Y, K, H, XG* and *TX* are I(1) both for Spain and Italy – that is,

integrated of first order or non-stationary in levels (relevant tables will be provided upon request) after applying the standard ADF and PP tests; and by applying the Johansen cointegration approach, the maximum likelihood test and the trace statistics have detected the existence of one cointegrating relationship in both case-studies (Table 1, in Appendix).

5. RESULTS

This section presents the results for the case of Spain and Italy respectively. A final discussion based on the main empirical findings and previous studies is provided.

5.1. The case of Spain

In order to check the export composition importance for economic growth, first a Granger causality analysis is run through a five-variable Vector Error Correction model, and specified as follows:

$$\Delta Y_t = \gamma_{01} + \sum_{i=1}^{p} \gamma_{11i}\Delta Y_{t-i} + \sum_{i=1}^{p} \gamma_{21i}\Delta TX_{t-i} + \sum_{i=1}^{p} \gamma_{31i}\Delta XG_{t-i} + \sum_{i=1}^{p} \gamma_{41i}\Delta K_{t-i} + \sum_{i=1}^{p} \gamma_{51i}\Delta H_{t-i}$$
$$+ \theta_1 ECT_{t-1} + \mu_{1t} \tag{5}$$

$$\Delta LT_t = \gamma_{02} + \sum_{i=1}^{p} \gamma_{12i}\Delta Y_{t-i} + \sum_{i=1}^{p} \gamma_{22i}\Delta TX_{t-i} + \sum_{i=1}^{p} \gamma_{32i}\Delta XG_{t-i} + \sum_{i=1}^{p} \gamma_{42i}\Delta K_{t-i} + \sum_{i=1}^{p} \gamma_{52i}\Delta H_{t-i}$$
$$+ \theta_2 ECT_{t-1} + \mu_{2t} \tag{6}$$

$$\Delta X_t = \gamma_{03} + \sum_{i=1}^{p} \gamma_{13i}\Delta Y_{t-i} + \sum_{i=1}^{p} \gamma_{23i}\Delta TX_{t-i} + \sum_{i=1}^{p} \gamma_{33i}\Delta XG_{t-i} + \sum_{i=1}^{p} \gamma_{43i}\Delta K_{t-i} + \sum_{i=1}^{p} \gamma_{53i}\Delta H_{t-i}$$
$$+ \theta_3 ECT_{t-1} + \mu_{3t} \tag{7}$$

$$\Delta K_t = \gamma_{04} + \sum_{i=1}^{p} \gamma_{14i}\Delta Y_{t-i} + \sum_{i=1}^{p} \gamma_{24i}\Delta TX_{t-i} + \sum_{i=1}^{p} \gamma_{34i}\Delta XG_{t-i} + \sum_{i=1}^{p} \gamma_{44i}\Delta K_{t-i} + \sum_{i=1}^{p} \gamma_{54i}\Delta H_{t-i}$$
$$+ \theta_4 ECT_{t-1} + \mu_{4t} \tag{8}$$

$$\Delta LH_t = \gamma_{05} + \sum_{i=1}^{p} \gamma_{15i}\Delta Y_{t-i} + \sum_{i=1}^{p} \gamma_{25i}\Delta TX_{t-i} + \sum_{i=1}^{p} \gamma_{35i}\Delta XG_{t-i} + \sum_{i=1}^{p} \gamma_{45i}\Delta K_{t-i} + \sum_{i=1}^{p} \gamma_{55i}\Delta H_{t-i}$$
$$+ \theta_5 ECT_{t-1} + \mu_{5t} \tag{9}$$

where i is the number of lagged terms; t denotes time; Δ is the lag operator; μ_s are the disturbances in each equation; γ_s are the constant terms and the parameters of the lagged values

of the relevant variables in each equation. All aforementioned parameters represent the short-run effects of the independent variables on the dependent one. The joint *F*-test on each lagged term provides the short-run Granger causality as the alternative hypothesis. θ_s are the parameters of the first lag Error Correction Term (*ECT*) in each equation, which can be interpreted as the speed of adjustment towards the long run equilibrium. The *t*-test on each parameter provides the existence of a long-run Granger causality as an alternative hypothesis (Sims et al. 1990).

The short and long temporal Granger relationships are provided in Table 3. It can be observed that both inbound tourism and exports Granger cause economic growth, meaning that both components foster the Spanish economic growth. Hence, both the Tourism-Led Growth hypothesis and the Export-Led Growth mechanism are empirically supported for Spain.

These outcomes are congruent with the results achieved by Cortés-Jiménez and Pulina (2006, 2009) when the two economic hypotheses are tested separately. Hence, according to this integrative study, the ELG and the TLG mechanisms are confirmed for Spain with a bidirectional channel. In addition, in the short run there is a unidirectional Granger causality relationship from economic growth to tourism.

Table 3 Multivariate Granger causality results for Spain

	F-test					t-test
	ΔY	**ΔTX**	**ΔXG**	**ΔK**	**ΔH**	**ECT**
ΔY	-	0.40	0.11	0.33	1.05	2.41**
ΔTX	4.62**	-	0.80	1.01	0.04	2.02**
ΔXG	0.26	0.83	-	0.00	0.21	5.13**
ΔK	0.00	0.35	0.36	-	0.10	1.98*
ΔH	3.24*	0.05	7.43**	2.99	-	4.36**

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels of significance, respectively.

5.2. The case of Italy

A multivariate Granger causality is also tested for Italy through a VEC model as specified in equations (5)–(9). Results are presented in Table 4.

Table 4 Multivariate Granger causality results for Italy

	F-test					t-test
	ΔY	**ΔTX**	**ΔXG**	**ΔK**	**ΔH**	**ECT**
ΔY	-	0.08	11.52***	1.14	1.56	-5.96***
ΔTX	1.76	-	0.02	0.08	0.00	-2.00**
ΔXG	2.85*	0.04	-	0.63	1.17	-4.47***
ΔK	3.57*	1.29	9.23***	-	1.90	-4.80***
ΔH	0.04	0.17	0.00	0.11	-	-0.44

Note: ***, ** and * indicate significance at the 1%, 5% and 10% levels of significance, respectively.

It can be inferred that both inbound tourism and exports Granger cause economic growth in the long term for Italy. This analysis tallies with the previous findings provided by Cortes-Jiménez and Pulina (2006, 2009), which treated tourism and exports as separate components. Moreover, it is found that such temporal relationship is bidirectional since economic growth Granger causes both inbound tourism and exports in the long run. As a further finding, the Granger causality relationship between traditional exports and economic growth is also bidirectional in the short term. With respect to inbound tourism, no short-run causal relationships are identified.

Furthermore, it is observed that physical and human capital Granger cause economic growth in the long term. Nevertheless, such a temporal causality runs in the reverse direction only for investment and economic growth. Besides, exports and inbound tourism appear to Granger cause investment in the long term. Finally, in the short run, it is found that both economic growth and traditional exports Granger cause one another and also output and exports Granger cause physical capital.

5.3. Discussion

The results are supportive of the growth-driven tourism mechanism, thereby implying that output growth led to tourism expansion in Spain. The significance of the error correction term in equation 6 shows that output growth Granger causes tourism expansion in the long term. Therefore, we can suggest the existence of a reciprocal influence between international tourism expansion and economic growth in the Spanish economy under the period 1964-2000. In other words, the expansion of tourism helps to boost the economy and at the same time the growth of the economy eases the development of tourism. It is well-known that the beginning of the

expansion of the tourism sector in a country implies that the explosion of international arrivals can happen without an expansion of the supply. This in turn requires an injection of investment in infrastructures such as hotels, roads, transport, airports, etc. Thus, the validity of the bidirectional causal relationship becomes quite understandable. In fact, the growth of investments enables the establishment of a tourism infrastructure supply that fosters the expansion of tourism demand.

Furthermore, the Export-Led Growth hypothesis, is also supported, as Table 3 demonstrates. It is found that the coefficient of the first lag of the error correction term for equation 5 is statistically significant, which means that exports expansion Granger causes economic growth in the long term. Moreover, it turns out that the reverse relationship is also valid. The significance of the coefficient of the error correction term in equation 7 reveals that growth-driven exports mechanism is also valid for the Spanish case in the long term. Therefore, there is a reciprocal influence between exports expansion and output growth over the period under analysis.

This double reinforcement is not an isolated process, indeed this process can also occur with the influence of physical and human capital accumulation. As already underlined, one important contribution of the present study is the fact of considering potential relevant variables in the analysis, according to economic theory. The results reveal that both investment in physical and human capital growth influence exports in the long term. This finding is satisfactory and also consistent with the economic theory and the results are also consistent with the literature on trade and human capital, which supports the view that exports growth can promote the accumulation of human capital – particularly in developing countries (c.f. Pissarides 1997; Chuang 2000). Moreover, the inclusion of such productive factors in the analysis allows one to identify further causality channels apart from the primary hypothesis (ELG mechanism). In this sense, a bidirectional causal relationship is found between investment and economic growth, human capital and economic growth, exports and investment, exports and human capital and even between investment and human capital. Hence, all the variables form an economic system and are mutually reinforcing in the long-run. There is evidence that economic development has helped the continuous growth of tourism through bidirectional causality.

In addition, it is also found that in this process of growth, since the Sixties onwards, human capital Granger causes growth in physical capital and this, in turn, results in economic growth.

This is a supportive outcome of the growth literature and it is a natural finding for an economy that has passed from a developing to a developed stage. Indeed, several studies support the finding that human capital accumulation promotes economic growth (Barro 1991; Barro and Lee 1993; Benhabib and Spiegel 1994).

Additional findings can be drawn from Table 3. In the long run, it is found that not only export and inbound tourism expansion lead to output growth, but also investment and human capital. As a matter of fact, bidirectional causality relationships exist between all variables. Therefore, it can be stated that Spain has an economic system that boosted economic growth in the long term by means of a range of economic factors, which are physical and human capital, exports and international tourism. Regarding the short-run temporal relationships, it can be observed that output growth and traditional exports Granger cause human capital in this specific integrative framework.

These findings might be relevant for emerging destinations in developing countries. Nowadays, there is a wide belief that tourism can be a useful tool towards economic growth, and the Spanish experience is often quoted as a good example to imitate. Nevertheless, it is not advisable to try to copy a model exactly. As Sinclair underlines, it should be adapted. The development of the tourism sector in developing countries starts from attracting international tourism, since the own-income level does not permit the population to develop domestic tourism. Several flanks have to be embraced: first of all, the expansion of tourism will need an injection of investment for fixed capital formation to allow for the provision of the necessary supply. If there is a relevant increase of the demand, then it is necessary to adjust the tourism supply accordingly. Additionally, human capital is essential. Derived from this analysis there is evidence that workers' qualification represents a crucial aspect for economic growth.

These findings, as well as enriching the previous evidence provided by Balaguer and Cantavella-Jordá (2002) for a shorter period, and Cortés-Jiménez and Pulina (2009) without including exports, are of great relevance for the Spanish economy.

As far as Italy is concerned, a long run bi-directional temporal causality is assessed for international tourism and economic growth. Hence, the ELG hypothesis is also confirmed. Additionally, it is found that only physical capital is influenced by economic growth, traditional exports and tourism in the long term, as supported by the significance of the coefficient of the error correction term of equation 8. When examining the ELG hypothesis for

Italy, it is found that exports Granger cause economic growth in the long-term as the statistically significant coefficient of the ECT suggests (equation 5). The findings also suggest the importance of physical and human capital accumulation in the process. Furthermore, it is also found that traditional exports Granger cause economic growth in the short-run, as the significance of the F-test for the coefficient of *ΔXG* shows. Consequently, there is a strong influence from exports to economic growth, since it exists in both short and long terms. Moreover, this analysis yields additional findings. It is observed that the economic growth-driven exports mechanism is also valid. This fact is supported by the significance of the error correction term in equation 7. This latter result also shows the importance of physical and human accumulation towards exports expansion in the long-run.

The results for Italy are consistent with its economic history. Jenkins (2006) explains that by 1950 Italy had become the world's third most popular tourist destination after the United States and Canada. Between 1951 and 1965, tourism growth in Italy averaged 11.5% per annum, and tourism's share of exports rose from single figures to 19.3% (Formica and Uysal 1996). However, during and shortly after this period the international tourism scene changed dramatically as population growth and demographic changes (e.g. the baby boom), technological innovations (e.g. jet aircraft) and socio-economic developments (e.g. reduction in working hours) encouraged international travelling and competition, and as tour operators began to invest heavily in the comparatively cheap coastal areas of the Mediterranean (e.g. Greece, Spain, Turkey)[2]. Jenkins (2006) also underlines the fact that additional negative factors limited Italy's ability to attract tourists from the 1970s to the 1990s, such as Italy's lack of quality accommodation and transport services, negative publicity stemming from natural disasters and pollution, crowding and congestion in major tourist centres, or petty crime, amongst others. Later on, the 1992 recession and the continued stagnation of the Italian economy created inflation in tourism. However the devaluation of the lira in September 1992, and the unstable political situations in the former Yugoslavia, the Middle East, Egypt, Turkey and Spain had positive impacts on international travel to Italy and promising projections were made for the period 1994-2000.[3]

Overall, fruitful results have been obtained for the two economies under study: on the one hand, the crucial role of tourism expansion on the long-run economic growth has been

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[2] These areas competed successfully with Italy mainly on the basis of price and sustained marketing and promotion programmes (Formica and Uysal 1996).
[3] See Jenkins (2006) for a deep discussion of the shortcomings of the Italian government towards tourism along decades.

validated (i.e. the TLG hypothesis) and on the other hand, the importance of physical and human capital has been confirmed with respect to economic growth and tourism expansion.

6. CONCLUSIONS

The main objective of this study has been to provide empirical evidence in favour of the Exports-led and Tourism-led Growth mechanism by overcoming some shortcomings detected in the existing literature. To this aim, two developed countries, namely Spain and Italy, have been chosen to test the above economic hypotheses.

Building upon the production function derived from Feder (1982) and the empirical work by Durbarry (2004), the relationship amongst traditional exports, tourism expansion and economic growth is tested considering other relevant factors, *i.e.* physical and human capital. The methodology comprises a pre-modelling analysis of the integration and cointegration properties of the series. Hence, as a first attempt the TLG and the ELG economic hypotheses are assessed through a five-variate Granger causality test based on a vector error correction model, which allows the short and long run temporal relationships to be jointly analysed.

Firstly, the ELG and TLG hypotheses are confirmed for Spain. Indeed a bidirectional relationship exists between economic growth, exports and international tourism expansion, reinforcing each other. Unlike Balaguer and Cantavella-Jordá (2002), who found a unidirectional causal relationship from tourism to economic growth, the findings in this paper confirm those achieved by Cortés-Jiménez and Pulina (2006, 2009), where the aforementioned economic hypotheses are tested separately. Secondly, the ELG and TLG mechanism are also confirmed for Italy within a bidirectional temporal relationship.

Hence, the empirical evidence suggests that in the long-run the ELG and TLG hypothesis are confirmed for both countries under study. Therefore, in two of the world's top tourism destinations, traditional exports and inbound tourism can be regarded as important channels to enhance economic growth, thus empirically supporting the economic theory. Besides, the multivariate Granger causality gives more insight into the relationships amongst all the other variables included in the model. As expected, physical capital and human capital are also key factors in the long-run growth for both Spain and Italy. Therefore, tourism is a complementary

sector to take into account in the strategic and promotional policies adopted by governments and policy makers.

In this sense, these empirical findings have important implications for policy decisions. Long run bidirectional Granger causality implies that traditional exports and tourism growth, and economic growth have a reciprocal temporal relationship. Thus development strategies in each area are required in order to encourage free trade, international visitors and industrial growth. It is under this perspective that private entrepreneurs and the government should increase the level of resources allocated to exports and tourism.

These first contributions are very important since Tourism-Led Growth Hypothesis is a novel issue within tourism economics and further empirical investigations have been provided in order to support such a hypothesis. However, possible methodological weaknesses when investigating this topic in the future might be warned. Indeed, one of the conclusions of this paper is the need for a more rigorous analysis in terms of variables, methodology, econometric techniques and even in terms of findings reports. The most recent papers in the literature already overcome previous shortcomings. Among the suggestions concerning the overall methodology, we can list, firstly, to perform studies that include more than two variables, and in order to avoid omitted variable problems, the inclusion of additional variables theoretically supported should be clearly considered; secondly, whenever possible, in order to clearly explain and justify the methodology and the econometric techniques chosen, more than one causality method should be used, in order to provide further support to the causal links found.

It can be concluded that this has been an exhaustive analysis for two economies, which have permitted fruitful results and comparisons. Attention is mostly paid to the role of inbound tourism. As it has been already discussed, appealing results have been found for both economies with their own peculiarities, which are indeed related to their economic history and evolution. The most outstanding implication is that international tourism expansion, as well as physical and human capital, plays a relevant role for the economic growth of these two countries. Bearing in mind that nowadays emerging countries and international organisations argue in favour of the expansion of their tourist sector due to its potential economic benefits towards the overall economy, this study provides empirical evidence of such positive effect. In fact, we have analysed two economies that have moved from developing to developed countries with an important contribution of international tourism. However, it should be

pointed out that the aforementioned results do not imply any recommendations on the specialisation of tourism based on these two experiences. Indeed, it implies that the governments should be aware of the potential positive role of tourism and thus how to gain a comparative advantage from such an economic activity. But at the same time it is clear that it is not the only crucial factor since dynamicity, education and also diversification of the economy are required in order to achieve sustained economic development.

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Table 1. Tests for cointegration using the Johansen procedure, Spain

Spain					
Hypothesis	r=0	r≤1	r≤2	r≤3	r≤4
I max test*	37.97**	24.98	19.87	13.63	11.25
Trace test	107.71**	69.73**	44.75**	24.88	11.25
Italy					
Hypothesis	r=0	r≤1	r≤2	r≤3	r≤4
I max test*	35.57**	26.74	20.25	10.37	6.54
Trace test	98.48**	63.91**	37.17*	16.92	6.54

Note: (i) Numbers in parenthesis are t-test; (ii) *, ** and *** denote significance at the 10%, 5% and 1 % level, respectively; (iii) Osterwald-Lenum (1996) critical values.

Table 2. Economic features of Spain and Italy, 1960-2000

	1960	1970	1980	1990	2000
SPAIN					
Real GDP per capita	1,107	2,729	6,446	12,525	19,037
GDP growth (annual %)	11.8 $^{(*)}$	4.2	2.2	3.8	4.2
Labor force	11.7	12.7	13.9	15.7	17.8
Investment Share of Real GDP	22.6	30.2	25.8	27.4	25.5
Exports of goods and services (% of GDP)	8.4	12.6	14.8	16.3	30.1
International Tourism Receipts	107	707	3,003	11,390	33,750
ITALY					
Real GDP per capita	1,620	3,417	8,413	16,817	22,876
GDP growth (annual %)	8.21 $^{(*)}$	6.10	3.48	1.97	3.03
Labor force	20.8	21.1	22.6	24.4	25.5
Investment Share of Real GDP	37.2	32.2	28.9	23.6	21.7
Exports of goods and services (% of GDP)	12.7	16.1	21.6	19.7	28.3
International Tourism Receipts	207	529	3,633	12,216	29,919

Source: WDI (2005)