The Tourism-led Growth Hypothesis: Empirical Evidence from Colombia

Brida, Juan Gabriel and Pereyra, Juan S. and Risso, Wiston Adrián and Devesa, María Jesús Such and Aguirre, Sandra Zapata

Free University of Bozen-Bolzano, El Colegio de México, Free University of Bozen-Bolzano, Universidad de Alcalá, Colegio Mayor de Antioquia

5 December 2008

THE TOURISM-LED GROWTH HYPOTHESIS: EMPIERICAL EVIDENCE FROM COLOMBIA

Juan Gabriel Brida
Free University of Bolzano

Juan S. Pereyra
El Colegio de México

Wiston Adrián Risso
Free University of Bolzano

María Jesús Such Devesa
Universidad de Alcalá

Sandra Zapata Aguirre
Colegio Mayor de Antioquia

The purpose of this study is to investigate the contribution of tourism to economic growth in Colombia. First, we perform an ex-post analysis and quantify the contribution of the tourism to economic growth from the early 90's until 2006 by disaggregating growth of real GDP per capita into economic growth generated by tourism and by other industries. Second, we analyze if international tourism is a strategic factor for long-run economic growth for Colombia. This believes that tourism can cause long-run economic growth it is known in the literature as the tourism-led growth hypothesis. The hypothesis is tested empirically by using the cointegration test by Johansen and the Granger Causality test. We find empirical evidence for one cointegrated vector among real GDP per capita, Colombian tourism expenditures and real exchange rates, where the latter two variables are weakly exogenous to the model. The Granger causality test suggests that causality in this model goes from tourism expenditures to real GDP per capita.

Keywords: *tourism impacts; economic growth; GDP, cointegration test, causality test*

INTRODUCTION

In this paper, we study the relationship between tourism and economic growth in Colombia from two perspectives. First, we quantify the contribution of the tourism sector to economic growth from the early

1990's until 2006. This is an ex-post analysis in the sense that it measures what actually happened in recent years. Second, the above analysis is complemented with a study of the effect that the tourism sector has on the long-run growth of the Colombian economy. International tourism is recognized to have a positive effect on the increase of long-run economic growth through different channels. First, tourism is a significant foreign exchange earner contributing to capital goods that can be used in the production process. Second, tourism has an important role in stimulating investments in new infrastructure and competition. Third, tourism stimulates other economic industries by direct, indirect and induced effects. Fourth, tourism contributes to generate employment and to increase income. Fifth, tourism cause positive economies to scale. Finally, tourism is an important factor of diffusion of technical knowledge, stimulation of research and development and accumulation of human capital. This belief that tourism can promote or cause long-run economic growth it is known in the literature as the tourism-led growth hypothesis (TLGH) (see (Shan and Wilson, 2001) and references therein). The second purpose of this study is to investigate the TLGH for Colombia and to compare the results with similar papers. With regard to that aim, we use the cointegration techniques developed by (Johansen, 1988) and autoregressive models. These techniques allow us to determine the existence of a long-run equilibrium relationship among the variables that are under consideration while concomitantly modeling the long- and short-run dynamics. Finally, we examine causality in the Granger sense and draw a conclusion about the direction of causality between tourism expenditures and the long-run growth of the studied economy.

In the recent paper (Ivanov and Webster, 2007) the authors present a method for measuring the contribution of tourism to economic growth. This method uses the growth of real gross domestic product (GDP) per capita as a measure of economic growth and disaggregates it into economic growth generated by tourism and economic growth generated by other industries. In particular, this method gives an "ex post estimate (what has really happened)" (p.383) of tourism's contribution to GDP and is therefore a "supplementary forecasts verification tool to Computable General Equilibrium models (CGE)" (p.383). CGE models simulate what will happen in the economy following external shocks, but they do not state what has already happened. It is significant that this methodology only allows us to measure the direct effects of tourism activities on the overall GDP of the economy, which limits the potential results. In this paper, the previous methodology is applied to the Colombian case. This country was considered because of its tourism sector has undergone

substantial growth in recent years, transforming it into one of the main destinations in South America. Furthermore, the application of this methodology allows us to compare our results for Colombia with data presented by (Brida et al., 2008a) for Argentina, Brazil, Uruguay and Mexico and (Brida et al., 2008b) for Spain, France, Italy, the United Kingdom and the United States. Therefore, a geographical perspective allows us to analyze Colombia as a tourist destination with respect to countries in its region and countries with a greater presence in the world tourism sector.

The second methodology is used to investigate a causal relationship between GDP per capita, tourism expenditures in Colombia, and real rates of exchange. This method allows us to analyze whether some of these variables are caused by the others and to draw conclusions about the potential for economic development in Colombia. Specifically, we consider which variables may be related to tourism as an economic sector and whether tourism contributes to growth. These hypotheses are tested using Johansen's cointegration test and Granger's causality test. These techniques are based on (Engle and Granger, 1987), (Granger, 1988), (Johansen, 1988 and 1995) and (Johansen and Juselius, 1990).

The rest of the paper is organized as follows. In the next section, we present some information about tourism's economic evolution and progress and the main economic policy changes in Colombia's tourism sector. In section 3, we discuss the methodology and the empirical results. Finally, in the last section, we present conclusions and future lines of research.

TOURISM IN COLOMBIA

Since the creation of the Official Tourism Service in 1931, Colombia has been investing in the tourism sector because, like many other nations, the country has recognized the potential impact of this industry on economic growth. Despite the positive impacts of tourism, Colombia also knows that the adverse effects of negative perceptions have prevented the nation from gaining a highly competitive position in international tourism markets. For an outstanding performance, the mainly issues that the country has to improve include insufficient infrastructure of public services, transport and technologies; lack of training, education and awareness, problems of public order, disunity of the business sector, scarce promotion, discontinuity of tourist plans; ignorance of or failure to implement policies for tourism, poor quality service programs and scarce financing programs.

Colombia has a rich diversity of natural and cultural attractions, including coasts on the Pacific and Atlantic Oceans, over a thousand rivers, the highest coastal mountain in the world, 53 natural areas in National Parks System covering 9% of all national territory, hundreds of sites deemed properties of cultural interest, and many other attractions. The tourist offer of the country can be classified into seven categories: sun and beach; history and culture; agro tourism; ecotourism; sports and adventure; fairs and festivals; and capital cities (this includes purchases, health, congresses, conventions and incentives).

The regional tourism policy published in 2005 (MCIT, 2005) was established to strengthen the competitiveness of its tourist products. The country recognizes that its comparative advantages are no longer enough to attract the growing global demand.

National stakeholders are concentrating their efforts in the following issues:

1. Strengthening the institutions necessary for the development of tourism.
2. Improving security conditions for travelers.
3. Launching an aggressive and continued promotion and marketing campaign.
4. Preparing tourist offerings.
5. Training human resources and increasing tourism awareness.
6. Building a system of tourist information for formulating government policies and generally improving the use of information technology and communication.

A BRIEF REVIEW OF THE ECONOMIC DEVELOPMENT OF TOURISM

According to the Ministry of Commerce, Industry and Tourism (MCIT, 2003), the economic performance of Colombia has been efficient and characterized by regular macroeconomic variables, record payments of outstanding debt and seventy years of positive economic growth.

According to the statistics provided by the Ministry of Commerce, Industry and Tourism (MCIT), during the 1990's, the tourism sector generated export incomes similar to traditional exports, earning 20-30% of total foreign currency generated by all exports, an amount equivalent to 3% of GDP.

Between 1999 and 2004, tourism activity contributed an average of 2.3% of the country's GDP. In 2006, 1,978,593 foreign travelers arrived in the country, representing a growth of 48.10% from 2005, when

1,335,946 tourists arrived. Tourism thus generated an income of US$ 1,455 million, which was US$ 337 million more than in 2005, when tourism generated US$ 1,118 million (Figures for the third quarter of 2006 are from the Balance of Payments, Bank of the Republic).

It is unquestionable that the tourism industry has gradually become more important to the country's economy, and the efforts of the Deputy Minister of Tourism, private enterprises sector and communities. These efforts, however, have not been satisfactory to place Colombia in the lists of high-demand tourist destinations or making tourism one of the main sectors of national economic activity.

THE ECONOMIC POLICY OF TOURISM

The following is a short review of recent tourism development policy in the country.
- 1996: Law 300, General Law of Tourism
- 2000: Formulation of regional conventions of tourism competitiveness to coordinate the actions of the nation and territorial entities to overcome obstacles to a more competitive tourism industry.
- 2002: Creation of "Carvanas Turísticas" (Safe routes), a program to promote domestic tourism by inviting Colombians to travel frequently on the roads of the country. This program was part of the Democratic Security Policy of the National Government.
- 2006: Creation of the Vice-Ministry of Tourism (attached to the Ministry of Commerce, Industry and Tourism), giving the tourism industry greater involvement in decisions that affect it directly.
  2006: Reform Law 300 of Tourism. More resources are earmarked for the sector.
- Incentives to foreign investment, providing significant tax benefits.
- Issuance of regional technical standards that seek to establish quality levels in hotels, travel agencies, guides, restaurants, ecotourism activities, and so on.

In November 2007, the XVII General Assembly of the World Tourism Organization, or WTO, was carried out in the city of Cartagena de Indias. During the event, the country received two important appointments: the chairmanship of the WTO for the Americas and the

vice chairmanship of the Budget and Finance Committee of that organization.

As the president of the National Hotel Association-COTELCO-stated in his editorial (Cabal, 2007) "these nominations will give Colombia the capacity to make decisions within the WTO, to be closer to other tourist destinations, to expand international cooperation and ensure resources for tourism projects in the nation". Organizing events like these helps to change the image of Colombia as a tourist destination. As explained by the Minister of Commerce, Industry and Tourism, Luis Guillermo Silver, "the campaign will continue in all countries where we have been working, and will be increased in Europe and Asia, to promote the consideration of Colombia as a tourist destination" (MCIT, 2007). "In countries that are traditionally destinations for tourists, tourism demand has reached its maturity and many tourist destinations are overcrowded. In response to the new demand for areas that are sensitive to the tourism quality and tourist safety new destinations that offer attractions similar to the traditional destinations are emerging. The key to this issue lies in the international competition for tourist income. People who travel for business or recreation are more demanding, while experienced travelers and older travelers are the ones who rise to the demand characterized by the assiduity. It follows from this that destinations compete not only in terms of prices, but they are also forced to highlight the quality of their product and thereby provide consumers with the most attractive quality/price ratio" (WTO, 1997 from: MCIT, 2000).

METHODOLOGY AND DATA

The aim of this section is to describe the methodologies we apply and the empirical evidence from Colombia. First, we explain the method we used to estimate the contribution of the tourism sector to the economic growth of Colombia. Then, we present the results of that estimate. Next, in order to determine the importance of the tourism sector in the long-run growth of the Colombian economy, we use cointegration techniques to look for a long-run relationship among the relevant variables given that the time series contains non-stationarity. In addition, we apply a test of exogeneity in order to generate inferences, and we perform a Granger causality test to determine the direction of causality among the variables.

With regard to the data, the four-month temporary series of real GDP and the real annual series for population were both obtained from Colombia's Central Bank (official website: www.banrep.gov.co) for the years from 1994 to the third quarter of 2007. Yearly real expenditures in

hotels, cafe, and restaurants, and yearly final consumption data were obtained from the Statistical Department of Colombia (www.dane.gov.co). Finally, a time series for the real exchange rates between the Colombian Peso and the currencies of 18 countries was obtained from the International Monetary Fund (IMF).

CONTRIBUTION OF TOURISM TO ECONOMIC GROWTH

Traditionally, a large proportion of tourist expenditures go into clearly defined tourism sectors such as transport, hotels and recreation, but tourists also spend money in other sectors that are not normally associated with tourism. Given that the economic contribution of tourism is spread across a variety of different sectors, it is consequently very difficult to pinpoint how tourism can contribute to an economy. This is the first caveat of our exercise; using data from systems of national accounts, we will consider as "tourism" only what might be classified as tourism-related sectors (i.e., hotels and restaurants).

The first analysis involves measuring the proportion of overall GDP that stems from activities traditionally associated with the tourism sector, namely hotels and restaurants (see Table 1).

Table 1

1990	1991	1992	1993	1994	1995	1996	1997	1998
2,59%	2,62%	2,61%	2,52%	2,47%	2,48%	2,30%	2,10%	2,11%
1999	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	
2,07%	2,08%	2,10%	2,11%	2,18%	2,20%	2,19%	2,21%	

As can be seen in this table, the weight of tourism in Colombia's GDP evolves in two distinct periods. In the period before 1999, the size of the tourism sector declines by half a percentage point of GDP. Then, starting in 2000, there is a sustained increase of the weight of tourism, but it does not reach the initial levels.

When comparing the figures in the table above with those presented in (Brida et al., 2008b) for European countries with high profiles in world tourism and for the United States, it appears that the weight of tourism activities in Colombia is less than in all the countries examined in that article.

On the other hand, when we consider the cases of Argentina, Brazil, Mexico and Uruguay submitted in (Brida et al., 2008a), we can observe

that income from tourism in Colombia makes up a greater proportion of GDP than in Brazil or Uruguay, about the same proportion of GDP as in Argentina, and a smaller proportion of GDP than in Mexico. Second, to study the contribution of tourism to economic growth, the proportion of GDP produced by tourism is computed as in (Ivanov and Webster, 2007).

As is well known, the growth rate of real GDP per capita (g_r) in constant prices is a measure of economic growth:

$$g_r = \left(\frac{\dfrac{\sum_t Y^t_{r(p_0)}}{N_r} - \dfrac{\sum_t Y^t_{r-1(p_0)}}{N_{r-1}}}{\dfrac{Y_{r-1(p_0)}}{N_{r-1}}} \right)$$

where $\sum_t Y^t_{r(p_0)}$ is the total GDP of the economy in the period r at prices p_0 (constant prices) and N_r is the population in period r. Then, disaggregating the GDP of tourism from the GDP of the rest of the economy we obtain:

$$g_r = \left(\frac{\dfrac{Y^T_{r(p_0)}}{N_r} - \dfrac{Y^T_{r-1(p_0)}}{N_{r-1}}}{\dfrac{Y_{r-1(p_0)}}{N_{r-1}}} + \frac{\dfrac{\sum_{t \ne T} Y^t_{r(p_0)}}{N_r} - \dfrac{\sum_{t \ne T} Y^t_{r-1(p_0)}}{N_{r-1}}}{\dfrac{Y_{r-1(p_0)}}{N_{r-1}}} \right)$$

and the first component in this expression:

$$g^T_r = \left(\frac{\dfrac{Y^T_{r(p_0)}}{N_r} - \dfrac{Y^T_{r-1(p_0)}}{N_{r-1}}}{\dfrac{Y_{r-1(p_0)}}{N_{r-1}}} \right)$$

represents the direct contribution of the tourism industry to economic growth in the period r.

The results are presented in Table 2, which indicates for each year the real variation of per capita GDP in the tourism sector (measured by the

sector of hotels and restaurants) and the contribution of tourism to the variation of total GDP.

Table 2

	1991	1992	1993	1994	1995	1996	1997	1998
Total GDP (1)	0,29%	2,31%	3,73%	3,28%	3,44%	0,48%	1,91%	-0,85%
Tourism GDP (2)	1,50%	1,96%	0,14%	1,17%	3,75%	-6,89%	-6,67%	-0,73%
Tourism Contr. (3)	0,04%	0,05%	0,00%	0,03%	0,09%	-0,17%	-0,15%	-0,02%
	1999	2000	2001	2002	2003	2004	2005	2006
Total GDP (1)	-5,52%	1,55%	0,17%	0,65%	2,57%	3,58%	3,45%	5,56%
Tourism GDP (2)	-6,93%	1,76%	1,34%	0,74%	6,37%	4,46%	2,93%	6,46%
Tourism Contr. (3)	-0,15%	0,04%	0,03%	0,02%	0,13%	0,10%	0,06%	0,14%

(1) Real rate of growth of GDP per capita; (2) Real rate of growth of GDP of hotels and restaurants per capita; (3) Contribution of tourism to GDP´s growth

Given the construction of the methodology, the data must be interpreted as follows. In 2006, the Colombian economy grew in per capita terms at a rate of 5.56%, where 0.14% of that percentage can be directly linked to growth in tourism activities. All of the above figures should be read in the same way, where the percentage of tourism's contribution refers to its contribution to growth rate of the economy. The analysis of the figures presented in Table 2 shows that since 2002, the contribution of tourism has been growing. Note that for 2003, GDP grew by 2.57%, where 0.13% of that comes from growth in the tourism sector. Comparing Table 1 with Table 2, we see that even though the tourism sector makes a similar contribution to GDP in the first and last years of analysis, the overall situations are completely different. Until 2002, the contribution is very low and sometimes negative even as the economy on the whole grows (note the years 1996 and 1997). After 2002, the contribution of tourism to economic growth increases. Therefore, it can be inferred from the figures presented in Table 2 that the tourism sector has recently become more dynamic and has contributed more to the economic growth and expansion. When comparing our results with those found in (Brida et al., 2008a) for Argentina, Brazil, Mexico and Uruguay, we see that in Colombia, tourism's contribution to total GDP is larger than in the three countries in Latin America and is about the same as in Mexico. For example, if we consider the figures from these economies in 2006,

Argentina and Uruguay grew by 8% and 12%, which tourism contributing 0.15% and 0.18% respectively. In Colombia, tourism contributed 0.14%, but was associated with a significantly lower economic growth rate of 5.5%, implying a higher relative contribution of tourism to growth. Finally, in the same year, tourism contributed 0.10% to Mexico's overall economic growth rate of 4.4%, a similar relative contribution to that of Colombia. Moreover, a comparison with the countries studied in (Brida et al., 2008b) suggests that tourism's contribution to economic growth in Colombia is less than in Spain, Italy, the United Kingdom and the United States. Although in some years it is similar to that of France.

TOURISM EXPENDITURE AND ECONOMIC GROWTH IN THE LONG RUN

In the present section, we estimate the relationship among economic growth, tourism expenditures (TE) and real exchange rates (RER). The objective is to measure the impacts of TE and RER on economic growth. We start our analysis by applying standard stationary tests (such as the augmented Dickey-Fuller (ADF) and the Kwaitowski, Phillips, Schmidt and Shin (KPSS)) to the time series. The reason is simple: economic time series generally present trends. As a result, classical econometrics and the ordinary least squares (OLS) method should not be applied because of the so-called "spurious regressions" problem. Even if these regressions result in a high R^2 and statistically significant parameters, the residuals violate the classical assumptions and the resulting relationships among the variables are not reliable. Phillips (1986) asserts that when we have this problem we should use the cointegration technique.

Tables 3 and 4 show the results of a unit root test for the logarithm of the variables in levels and in differences.

Table 3. Unit Root Test Results: Levels

Variable	GDP/L		TE		RER	
Unit Root Test	ADF	KPSS	ADF	KPSS	ADF	KPSS
Trend Constant	0,06	0,22*	0,27	0,25*	-1,15	0,13
Constant	0,74	0,39	1,39	0,53*	-1,32	0,33
Without Trend, Const.	1,79		1,54		-0,52	

* Null Hypothesis Rejection at 5%

Table 4. Unit Root Test Results: Differences

Variable	*Δ(GDP/L)*		*Δ(TE)*		*Δ(RER)*	
Unit Root Test	**ADF**	**KPSS**	**ADF**	**KPSS**	**ADF**	**KPSS**
Trend Constant	-6,83*	0,18*	-7,65*	0,12	-6,79*	0,14
Constant	-6,53*	0,40	-6,93*	0,56*	-6,80*	0,17
Without Trend, Const.	-6,27*		-6,72*		-6,84*	

* Null Hypothesis Rejection at 5%

According to the tests, the time series are integrated processes of the first order. Classical econometrics should therefore not be applied, and we have to study the existence of cointegration relationships. We applied the methodology suggested by (Johansen, 1988) and (Johansen and Juselius, 1990); this method tests and estimates all the possible cointegrating relationships. Another method proposed by (Engle and Granger, 1987) is more restrictive, assuming "a priori" the existence of just one relationship among the variables. The model is represented in a first-difference error correction form as in equation (1):

$$\Delta Y_t = \mu + \Pi Y_{t-1} + \sum_{i=1}^{i=k-1} \Gamma_i \Delta Y_{t-i} + \varepsilon_t \qquad (1)$$

where Y is a vector containing the variables real per capita GDP, TE, and RER, and μ is a vector of constant terms. Matrix Π conveys information about the long-run relationships between the Y variables, and the rank of Π is the number of linearly independent and stationary linear combinations of the variables studied.

According to (Banerjee et al., 1993), searching for a cointegration relationship means searching for a statistical equilibrium between variables that tend to grow over time. In our case, these variables are economic growth, TE and RER. The discrepancy of this equilibrium can be modeled by a Vector Error Correction (VEC) model, which shows how the variables come back to the equilibrium after a shock.

Since we have relatively few data points, we have to be careful when studying and analyzing the results. The cointegrating test suggests the existence of a long-run relationship among the variables. On the other hand, the test of weak exogeneity indicates that we can consider real tourism expenditures and RER as weakly exogenous variables at the 5% significance level. In fact, the *t*-statistics for the two variables is 7.522, which has a p-value of 0.02. The paper (McCallum, 1984) presents a clear

example of the importance of studying exogeneity. This example permits us to only model the relevant variable (real GDP per capita; i.e. GDP/L); it is not necessary to model the exogenous variables (RER and TE, in the present case). Therefore, our estimated relation is shown in equation (2), the t-statistic is given in parentheses.

$$GDP/L_t = -0.57 + 0.51\ TE_t - 0.04\ RER_t$$
$$(2)$$
$$(-6.475) \qquad (0.555)$$

Note that TE positively impacts economic growth with an elasticity of 0.51, meaning that a 100% increase in real TE produces a 51% increase in real per capita GDP. On the other hand, the RER has an almost insignificant impact, with an elasticity of -0.04.

As a next step, we test for causality among the variables. Table 5 shows the results of long-run Granger causality tests between the variables. Note that the null hypothesis that changes in tourism expenditures do not cause changes in real per capita GDP is rejected, but the hypothesis that changes in real GDP do not cause changes in tourism expenditures is not rejected. Therefore, the test suggests that causality relationship is unidirectional, from tourism expenditures to real per capita GDP.

Table 5. Pair wise Granger Causality Tests

Null Hypothesis	F-value	Probability
TE does not Granger Cause GDP/L	3.27752	0.01996*
GDP/L does not Granger Cause TE	0.93288	0.45419
RER does not Granger Cause GDP/L	2.01809	0.10932
GDP/L does not Granger Cause RER	2.06147	0.10307
RER does not Granger Cause TE	1.23079	0.31239
TE does not Granger Cause RER	1.12882	0.35595

* Indicates rejection of null hypothesis at 5%

We also study how real per capita GDP responds over time to shocks to real tourism expenditures and real exchange rates. Note in Figure 1 that after a positive shock to real tourism expenditures, real per capita GDP has a continuous positive response. A positive shock to the real exchange

rate, however, has a positive effect on real per capita GDP for the first two quarters, followed by a highly negative effect.

CONCLUSIONS

In this article, we have studied the relationship between tourism and economic growth in Colombia from two perspectives. We thereby aimed to contribute to the understanding of the impact of tourism on the Colombian economy. First, we have quantified the contribution of the tourism industry to economic growth over the past two decades, and then we have studied the importance of tourism to long-term growth.

We have shown that during the period under review, the weight of tourism in Colombia's GDP falls into two distinct periods. In the 1990's, the proportion of GDP given by the tourism sector declined by half a percentage point. Then, after the year 2000, tourism experienced a sustained increase, although it did not reach 1990 levels. Future research should integrate data from the Tourism Satellite Accounts for Colombia (not yet available) to more accurately measure the tourism sector.

We also analyzed the effects of tourism expenditures on economic growth in Colombia using quarterly data. Because the variables included in the model are not stationary and present a unified root, Johansen techniques were applied to investigate correlation relationships between these variables, which include indicators of economic growth in Colombia, international tourism revenues and external competitiveness. The empirical evidence obtained suggests the existence of a cointegration relationship between real per capita GDP, tourism expenditures in Colombia, and real exchange rates, where the latter two variables are weakly exogenous to the model. Moreover, the Granger causality test suggested that causality goes in a positive direction from tourism expenditures to real per capita GDP, confirming the hypothesis that gains obtained by tourism positively impact long-term economic growth in Colombia.

The significant impact of tourism on the Colombian economy suggests the need for public policies that support development initiatives for the many potential tourist attractions in the country and that strengthen domestic and international tourist demand. Colombia has the opportunity to learn from the experiences of the rest of the world, both positive and negative, to correct errors made by other destinations (some irreversible) and to promote initiatives to minimize the impact of tourism development on the environmental and socio-cultural resources of the country.

REFERENCES

Banerjee, A., Dolado, J., Galbraith, J. & Hendry, D. (1993). *Co-integration, Error-Correction, and the Econometric Analysis of the Non-Stationary Data.* Oxford, University Press.

Brida, J.G., Pereyra, J.S. & Such, M.J. (2008a). Evaluating the Contribution of Tourism on Economic Growth. *Anatolia: an International Journal of Tourism and Hospitality Research*, Vol. 19, No.2 (Winter), pp.351-357.

Brida, J.G., Pereyra, J.S., Such, M.J. & Zapata, S. (2008b). La contribución del turismo al crecimiento económico: el caso de España, Francia, Italia, U.K. y Estados Unidos. *Cuadernos de Turismo*, No.22, pp.35-46**.**

Cabal, J.A. (2007). Publisher of *Living and Travel Magazine*, No.22, pp.4.

Engle, R. & Granger, C. (1987). Co-integration and Error Correction: Representation, Estimation and Testing. *Econometrica*, Vol. 55, pp.251-276.

Granger, C. (1988). Some recent developments in a concept of causality. *Journal of Econometrics*, Vol. 39, pp.199-211.

Ivanov, S. & Webster, C. (2007). Measuring the impacts of tourism on economic growth. *Tourism Economics*, Vol. 13, No.3, pp.379-388.

Johansen, S. (1995). *Likelihood-based inference in co-integrated vector autoregressive models.* Oxford, University Press.

Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*, Vol. 12, pp.231-254.

Johansen, S. & Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Cointegration-with applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics*, Vol. 52, pp.169-210.

McCallum, B. (1984). On Low-Frequency Estimates of Long-Run Relationships in Macroeconomics. *Journal of Monetary Economics*, Vol. 14, pp.3-14.

MCIT. (2007). Press Release. http://www.mincomercio.gov.co/eContent/

MCIT. (2005). Política Sectorial de Turismo. Http://www.mincomercio.gov.co/eContent/Documentos/turismo/2006

MCIT. (2003). Tourism Sector Plan 2003-2006. Http://www.mincomercio.gov.co/eContent/NewsDetail.asp

MCIT. (2003). Tourism in Colombia: A Sector Opportunities. Http://www.mincomercio.gov.co/econtent/Documentos/turismo/2003

MCIT. (2000). Travel Security: Challenge of Colombia competitive. Strategic Plan.Http://www.mincomercio.gov.co/eContent/documentos/turismo/2003

Phillips, P. (1986). Understanding Spurious Regressions in Econometrics. *Journal of Econometrics*, Vol. 33, pp.311-340.

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

REFEREED ANONYMOUSLY

Juan Gabriel Brida (JuanGabriel.Brida@unibz.it) is an Assistant Professor at the School of Economics and Management - Free University of Bolzano, Italy.

Juan S. Pereyra (jpereyra@colmex.mx) is student at the Master Program in Economics - El Colegio de México, México.

Wiston Adrián Risso (Wiston.Risso@unibz.it) is a Research Assistant at the School of Economics and Management - Free University of Bolzano, Italy.

María Jesús Such Devesa (mjesus.such@uah.es) is an Assistant Professor at the Faculty of Economics and Management-University of Alcala, Spain.

Sandra Zapata Aguirre (sazagui17@gmail.com) is a Research Assistant at the School of Tourism, Colegio Mayor de Antioquia, Colombia.

ACKNOWLEDGEMENTS