

**Role of Tourism in Economic Growth:  
Empirical Evidence from Pakistan Economy**

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## **ABSTRACT**

*This paper examines the role of tourism in the short run economic development in case of Pakistan. Through error correction mode, and also see the Causal relationship between Tourism receipts and economic expansion (GDP). The results points that there is strong relationship among tourism, receipts and economic expansion which means that economic expansion is necessary for tourism development in Pakistan*

**Key words:** Tourism Receipts, Co-integration, ECM, GDP

**JEL Classification:** L83, O10

## INTRODUCTION

Tourism activities are considered to be one of the major sources of economic growth. It can be regarded as a mechanism of generating the employment as well as income in both formal and informal sectors. Tourism supplements the foreign exchange earnings derived from trade in commodities and some times finance the import of capital goods necessary for the growth of manufacturing sectors in the economy. On the other hand rapid economic growth in the developed economies attracts foreign travels (Business travels), which leads to an increase in the foreign reserve of the country.

Over the past several decades, international tourism has been gaining importance in many economies of the world. According to the *World Tourism Organization (2002)*, expenditures by 693 million international tourists traveling in 2001 totaled US \$ 462 billion, roughly US \$ 1.3 billion per day worldwide. In addition, tourists spending have served as an alternative form of exports, contributing to an ameliorated balance of payments through foreign exchange earnings in many countries. The rapid growth of tourism led to a growth of household incomes and government revenues directly and indirectly by means of multiplier effects, improving balance of payments and provoking tourism-promoted government policies. As a result, the development of tourism has generally been considered a positive contribution to economic growth.

However, there arises a question whether tourism growth actually caused the economic increase or, alternatively, did economic expansion strongly contribute to tourism growth instead? According to the studies of *Kulendran and Wilson (2000)* and *Shan and Wilson (2001)*, their empirical analyses of Australia and China respectively observed a strong reciprocal relationship between international trade and international travel. In the case of Korea, economic growth has attracted much business travels, it suggests that economic expansion leads to tourism growth. Many studies have attempted to identify the causal relationship between international trade (especially exports growth) and economic expansion, (*Bahmani-Oskooee & Alse, 1993; Chow, 1987; Jin, 1995; Marin, 1992; Shan & Sun, 1998; Xu, 1996*). They have estimated a strong correlation between international trade and economic development that there is strong bidirectional causality between export growth and economic growth; furthermore tourism growth and economic growth have a reciprocal causal relationship, since export driven economic growth causes tourism receipts to fall. Finally, if there is no causality relation between tourism growth and economic development, then strategies such as enthusiastic tourism- promotion may not be as effective as tourism managers and decision-makers currently believe. Tourism-led growth tends to occur when tourism demonstrates a stimulating influence across the overall economy in the form of spillovers and other externalities (*Marin, 1992*). However, empirical studies of the correlation between tourism and economic growth have been less rigorous in tourism literature.

In the field of tourism, Pakistan offers many allures in the developing world. The historical and cultural heritage of the nation presents a testimony for glory of this ancient land, the country inherits numerous tourist attractions at Swat, Kalam, Malam Jaba, Shangla, Balakot, Ayubia, Murri, Chitral, Gilgit, Naran and Kaghan valleys, and other mountains ranges, historical, and archaeological places in the other parts of the country. There are few places on the earth that possess the majesty and grandeur of the northern region of Pakistan. Northern Pakistan remains a land of contrasts, unique in its legacy of landlocked civilization and blessed as no other destination with an amazing array of some of the most beautiful valleys, lakes, rivers and mountains. The junction of four of the world's most formidable mountain ranges Karakoram, Hindukush, Himalayas, and Pamirs forms a unique point in the northern areas; it has climbers, trekkers, mountaineers, hikers and unheeding rock, the flow of countless glacial streams, which attracts millions of tourists annually. Few areas in the world offer such a unique blend of breath taking natural beauty and a rich diversity of culture, socioeconomic traditions, history and lifestyle as in the Hindukush-Himalayan region of Pakistan. Furthermore Pakistan has a tremendous potential in the fields of eco and safari tourism.

The arrival of foreign tourists is increasing day by day in these areas. Pakistan achieved a record growth in tourist arrivals of number of tourists, 798260 to be specific, from all tourist generating markets, which is 23.3% increase from the previous year (2004). Pakistan's share in the region has increased from 8.6 percent in 2004 to 10.1 percent in 2005. In the world tourist arrivals, Pakistan's share is 0.10 percent compared to southern region share of 10.1 percent in 2005. Tourism in Pakistan has potential, the tourist travels are in the continuous line that about 42 million domestic visitors traveled within the country in 2005. Nearly 90 percent tourist traveled by road, 8.5 percent by rail and only 1.8 percent traveled by air. Tourism industry has played a significant role in the socio-economic development, and has promising future and growth potential in the country.

In this study, we aim to identify whether there is a unidirectional or bidirectional causal relation between tourism and economic growth in the case of Pakistan. For this we use annual data for tourism growth and economic expansions from 1960 to 2005, and will test it by the time series technique, Cointegration, to find out the existence of long run relationship between these variables. Cointegration is a powerful concept, because it allows us to describe the existence of an equilibrium, or stationary relationship among two or more time series, each of which is individually non-stationary.

The evidence of cointegration allows using an error correcting modeling (ECM) of the data to formulate the dynamic of the system. If both variables, that is, tourism growth and economic expansion are cointegrated then there is a long run relationship between them. However, in short run these variables may be in disequilibrium, due to the disturbances. The dynamics of this short run disequilibrium relationship between these two variables can be described by an error correction model (ECM).

The above arguments would justify the inclusion of tourism in a growth model in order to test for their relationship. The remainder of this paper is organized as follows. In section II and III data and methodology is presented respectively. Section IV makes reference to employed methodology and discusses the empirical results and section V provides the main conclusion of the analysis.

## I. DATA

The annual data for the period 1960 to 2005 is being used for empirical analysis. Tourism Receipts (LTOUR) and Gross Domestic Product (LGDP) data in local currency is employed to analyze the dynamic relationship between GDP and tourism receipts. All the variables are expressed in natural logarithms so that they may be considered elasticities of the relevant variables. We examine the contemporaneous correlation and check for the evidence of Granger causality between these two variables. Table 1 presents summery statistic of the data. Annual observations of GDP and tourism receipts are taken from various issues of Economic Survey of Pakistan and Tourism Year Book, Ministry of Tourism, Pakistan, respectively.

***Table 1***

**Descriptive Statistics and Correlation Matrix**

<b>Variables</b>	<b>TOUR</b>	<b>GDP</b>
<b>Mean</b>	2640.907	1.13E+12
<b>Median</b>	2099.932	3.44E+11
<b>Maximum</b>	11118.00	5.58E+12
<b>Minimum</b>	40.11000	1.77E+10
<b>Std. Dev.</b>	2661.990	1.58E+12
<b>Skewness</b>	1.478167	1.526163
<b>Kurtosis</b>	5.262569	4.083279
<b>Jeraq-Bera</b>	26.56333	20.10618
<b>Probability</b>	0.000002	0.000043
<b>Observations</b>	46	46
<b>Correlation Matrix</b>	<b>TOUR</b>	<b>GDP</b>
<b>TOUR</b>	1.000000	0.935902
<b>GDP</b>	0.935902	1.000000

## II. METHODOLOGY

The traditional practice in testing the direction of causation between two variables has been to use the standard Granger framework. The Granger causality test consists of estimating the following equations:

$$\text{LGDP}_t = \beta_0 + \sum_{i=1}^n \beta_{1i} \text{LGDP}_{t-i} + \sum_{i=1}^n \beta_{2i} \text{LTOUR}_{t-i} + U_t \quad (1)$$

and

$$\text{LTOUR}_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \text{LTOUR}_{t-i} + \sum_{i=1}^n \alpha_{2i} \text{LGDP}_{t-i} + V_t \quad (2)$$

Where  $U_t$  and  $V_t$  are uncorrelated and white noise error term series. Causality may be determined by estimating equation 1 and 2 and testing the null hypothesis that  $\sum_{i=1}^n \beta_{2i} = 0$  and  $\sum_{i=1}^n \alpha_{2i} = 0$  against the

alternative hypothesis that  $\sum_{i=1}^n \beta_{2i} \neq 0$  and  $\sum_{i=1}^n \alpha_{2i} \neq 0$  for equation (1) and (2) respectively. If the coefficients of  $\beta_{2i}$  are statistically significant but  $\alpha_{2i}$  are not statistically significant, then LGDP is said to have been caused by LTOUR (uni directional). The reverse causality holds if coefficients of  $\alpha_{2i}$  are statistically significant while  $\beta_{2i}$  are not. But if both  $\alpha_{2i}$  and  $\beta_{2i}$  are statistically significant, then causality runs both ways (Bi directional). Standard Granger Causality test suffers from major shortcoming in the sense that it ignores stationarity and co integrating properties of the series.

When time series data is used for analysis in econometrics, several statistical techniques and steps must be undertaken. First of all unit root test has been applied to each series individually in order to provide information about the data being stationary. Non-stationary data contain unit roots. The existences of unit roots makes hypothesis test results unreliable. To test for the existence of unit roots and to determine the degree of differences in order to obtain the stationary series of LGDP and LTOUR, Augmented Dickey-Fuller Test (ADF) has been applied.

If the time series data of each variable is found to be non-stationary at level, then there may exist a long run relationship between these variables, LGDP and LTOUR. Engle-Granger Cointegration test has been used in order to know the existence of long run relationship between these variables. Cointegration is a powerful concept, because it allows us to describe the existence of an equilibrium, or stationary relationship among two or more time series, each of which is individually non-stationary. That is why the component time series may have moments such as mean, variance and covariance varying with time. Some linear combination of these series, which define the equilibrium relationship, has time invariant linear properties.

A series is said to be integrated if it accumulates some past effects, such a series is non-stationary because its future path depends upon all such past influences, and is not tied to some mean to which it must eventually return. To transform a cointegrated series to achieve stationarity, we must differentiate it at least once. However, a linear combination of series may have a lower order of integration than any one of them has individually. In this case, the variables are said to be co-integrated.

The evidence of cointegration allows using a vector error correcting modeling of the data to formulate the dynamic of the system. If both variables LGDP and LTOUR are cointegrated then there is a long run relationship between them. Of course, in the short run these variables may be in disequilibria, with the disturbances being the equilibrating error. The dynamics of this short run disequilibria relationship between these two variables can be described by an error correction model (ECM).

### III. EMPIRICAL RESULTS

#### 4.1 GRANGER CAUSALITY TEST RESULT

Granger Causality test has been applied from LTOUR to Gross Domestic Product (LGDP) and Gross Domestic Product (LGDP) to tourism receipts (LTOUR) for different lags.

**Table 2**

**Granger Causality Estimation**

Null Hypothesis	Lag 2	Lag 3	Lag 4	Lag 5
LTOUR does not Cause LGDP	2.969311 ( 0.033)	5.43125 ( 0.003)	19.3518 (0.000)	75.6756 (0.000)
LGDP does not Cause LTOUR	3.03806 ( 0.017)	6 .27752 (0.0021)	24.15582 ( 0.000)	56.55526 (0.000)

The result of causality from tourism receipts (LTOUR) to gross domestic product (LGDP) and from GDP to tourism receipts is shown in above table 2. It shows that tour causes GDP. This means that there is strong causality between tourism receipts and GDP, which is true for all lag orders in case of Pakistan. On the other hand GDP causes Tourism receipts, means that in case of Pakistan economic growth in GDP affects the tourism receipts it means that economic expansion is necessary for tourism development in the country. F-test values are significant at all lags, but the optimal lag is 4 at which the AIC and SIC values are small determined by VAR.

Granger causality indicates that there is bi-directional relationship between tourism receipts (Tour) and gross domestic product (GDP).

#### 4.2 UNIT ROOT TEST RESULTS

Prior to determining whether all the series are integrated, this study examines the integrating order of all the variables by applying unit-root test (ADF), i.e. Dickey and Fuller (1981). Unit-root test are classified into series with and without unit roots, according to their null hypothesis, in order to conclude whether each variable is stationarity. All the variables are first tested for stationarity with intercept and trend using the Augmented Dickey- Fuller (ADF). The results in Table 3 and 4 shows that both the variables are integrated at  $I(1)$ .

This test is based upon estimating the following equation.

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$$\Delta \text{LGDP}_t = \alpha_0 + \alpha_1 t + \alpha_2 \text{LGDP}_{t-1} + \sum_{i=1}^n \gamma_i \Delta \text{LGDP}_{t-i} + u_{t1}$$

and

$$\Delta \text{LTOUR}_t = \beta_0 + \beta_1 t + \beta_2 \text{LTOUR}_{t-1} + \sum_{i=1}^n \delta_i \Delta \text{LTOUR}_{t-i} + u_{t2}$$

***Table 3***

**Unit-Root Estimation (ADF Test)**

Variables	Lag 1	Lag 2	Lag 3	Lag 4
LTOUR	0.620298	0.620298	0.620298	0.620298
LGDP	3.533915	3.533915	3.533915	3.533915
$\Delta$ LTOUR	-5.532759***	-5.53275***	-5.532759***	-3.211071**
$\Delta$ LGDP	-4.896104***	-3.184997**	-4.996104***	-3.435785*

Notes: \* Represents significant only at 10%.

\*\* Represents significant at 5%.

\*\*\* Represents significant at 1%.

***Table 4***

**Unit-Root Estimation (Philips Perron Test)**

Variables	Lag 1	Lag 2	Lag 3	Lag 4
LTOUR	0.620298	0.500278	0.630112	0.351266
LGDP	3.533915	3.262121	2.752376	2.439152
$\Delta$ LTOUR	-5.532759***	-5.683125***	-6.264173***	-6.005135***
$\Delta$ LGDP	-4.896104***	-4.521389***	-4.573202***	-5.251349***

Notes: \*\*\* Represents significant at 1%.

Both the test results (ADF and Philips Perron) in the above tables indicate that both the series of Tour and GDP are not stationary in their level form, but are stationary at the first difference. Since both test variables are integrated of the same order I(1), it is possible to apply cointegration tests to determine whether there exists a stable long run relationship between the tourism receipts (LTOUR) and economic development (LGDP) in Pakistan.

### 4.3 RESULTS OF COINTEGRATION TEST

Several Cointegration techniques are available for the time series analysis. These tests include the Stock & Watson (1988) procedure, the Engle Granger (1987) test and Johansen’s (1988) Cointegration test. Their common objective is to determine the most stationary linear combination of the time series variables under consideration. Consequently, Engle-Granger Cointegration technique has been employed for the investigation of stable long run relationships between tourism receipts and gross domestic product. The following equations were estimated and results are summarized bellow.

$$LGDP = \beta_0 + \beta_1 LTOUR + u_1$$

$$\Delta U1_t = \alpha_0 + \alpha_1 t + \alpha_2 U1_{t-1} + \sum_{i=1}^n \gamma^i \Delta U1_{t-i} + w_{t1} \quad (1)$$

and

$$LTOUR = \beta_0 + \beta_1 LGDP + u_2$$

$$\Delta U2_t = \alpha_0 + \alpha_1 t + \alpha_2 U2_{t-1} + \sum_{i=1}^n \gamma^i \Delta U2_{t-i} + w_{t2} \quad (2)$$

**Table 5**

**Engle- Granger Cointegration Test Result**

Equation	Variables	DF Test ( 0 Lag)	ADF Test (1 Lag)	ADF Test (2 Lag)
1	U 1	-2.054902*	-2.064902**	-3.604867**
2	U 2	-2.013104*	-2.641975**	-3.260062**

Note: \* Represents significant at 5% and 10%.

\*\* Represents significant at 1%, 5% and 10%.

The values of Tour statistic of coefficient U1 (-1) and U2 (-1) are greater than the MacKinnon critical values in their level form at zero lags as well as at one lag, indicating that the series is stationary.

Test results of cointegration between two time series are shown in table 6. Based on DF and ADF tests in the residual sequences, the Null Hypothesis of non stationarity were rejected. Stationarity in the residual means that the two series are cointegrated in the long run based on the MacKinnon critical values. Therefore, according to the general belief, long run equilibrium exists between LTOUR and the LGDP series. This

indicates that a linear combination of the two variables is cointegrated in the long run. Consequently, ECM model will be employed to capture the short run dynamics.

#### 4.4 ERROR CORRECTION ESTIMATES:

The evidence of cointegration allows us to use the Error Correction Model to formulate the dynamic of the system. If both variables LTOUR and LGDP are cointegrated then there is a long run relationship between them. Of course, in the short run these variables may be in disequilibrium, with the disturbances being the equilibrating error. The dynamics of this short run disequilibria relationship between these two variables can be described by an error correction model (ECM).

According to Engle and Granger, the Error Correction Model can be specified as follows for any two pairs of test variables.

$$\Delta \text{LGDP}_t = \gamma_1 + p_1 Z_{t-1} + \alpha_1 \Delta \text{LTOUR}_t + U_{1t} \quad (1)$$

$$\Delta \text{LTOUR}_t = \gamma_2 + p_2 Z_{t-1} + \beta_1 \Delta \text{LGDP}_t + U_{2t} \quad (2)$$

The focus of the Vector Error Correction analysis is on the lagged  $Z_t$  terms. These lagged terms are the residuals from the previously estimated Cointegration equations. In the present case the residual from two-lag specification of the cointegration equations were used in the Error Correction estimates. Lagged  $Z_t$  terms provide an explanation of short run deviations from the long run equilibrium for the two test equations. Lagging these terms means that the disturbance of the last period will impact the current time period.

Statistical significance tests are conducted on each of the lagged  $Z_t$  term in equation (1) and (2). In general, finding statistically insignificant coefficients of the  $Z_t$  term implies that the system under investigation is in the short run equilibrium as there are no disturbances present. If the coefficient of the  $Z_t$  term is found to be statistically significant, then the system is in the state of the short run disequilibrium. In such a case the sign of the  $Z_t$  term gives an indication of the causality direction between the two test variables and the status (Stability) of equilibrium, estimation results of equation (1) and (2) are summarized in table below.

**Table 6**

**Error Correction representation for the Equation 1**

**Dependent variable:  $\Delta \text{LGDP}_t$**

<b>Variables</b>	<b>Coefficients</b>	<b>t-values</b>	<b>Prob-values</b>
<b>Constant</b>	1.23146	13.25277	0.000
<b><math>\Delta \text{L} \text{Tour}_t</math></b>	4.4938	2.9479	0.0344
<b><math>Z_t (-1)</math></b>	-2.98	-2.84157	0.035

R-squared = 0.78724      Akaike info criterion = -3.008810  
Adjusted R<sup>2</sup> = 0.65853      Schwarz criterion = -2.888366  
Durbin-Watson stat = 1.819730      F-statistic = 4.79 (0.04)

**Short run Diagnostic Tests**

Serial Correlation LM Test 6.220764 (0.044)  
ARCH Test = 2.1048 (0.349)  
W-Heteroskedasticity Test = 7.253 (0.022)  
Ramsey RESET Test = 0.7427 (0.689)  
Jarque-Bera Test = 0.130(0.9366)

**Table 7**

**Error Correction representation for the Equation 2**

**Dependent variable:  $\Delta$  LTOUR<sub>t</sub>**

<b>Variables</b>	<b>Coefficients</b>	<b>t-values</b>	<b>Prob-values</b>
<b>Constant</b>	84.36818	2.794401	0.0114
<b><math>\Delta</math>LGDP<sub>t</sub></b>	0.125	2.466315	0.0178
<b>Z<sub>t</sub> (-1)</b>	-0.188208	-1.998599	0.0522

R-squared = 0.82037      Akaike info criterion = 15.60962  
Adjusted R<sup>2</sup> = 0.765856      Schwarz criterion = 15.73006  
Durbin-Watson stat = 1.8014      F-statistic = 5.374358 (0.008352)

Short run Diagnostic Tests

Serial Correlation LM Test 3.9415 (0.02975)  
ARCH Test = 3.311304 (0.042)  
W-Heteroskedasticity Test = 14.99672 (0.0103)  
Ramsey RESET Test = 1.97398 (0.15220)  
Jarque-Bera Test = 0.181 (0.956)

The model passes all short run diagnostic tests for no serial correlation, no conditional autoregressive serial correlation but existing heteroskedasticity, and no specification in functional form and normality of error term.

It is clear from the estimates of equation (1) and (2) that both variables, LGDP and Tourism Receipts growth, respond to a deviation from long run equilibrium. Granger causality in a cointegrated system needs to be reinterpreted. In the above-cointegrated system Z<sub>t</sub> granger causes LGDP and LTOUR in both equations, since lagged values of the Z<sub>t</sub> entering equation (1) and (2) are statistically significant. Both of the speed adjustment parameters  $p_1$  and  $p_2$  are negative and significant, indicating that both variables respond to the discrepancy from long run equilibrium and stability of the equilibrium.

When the results of estimation of equation (1) and (2) are analyzed together, it is clear that a bi-directional causality exists between gross domestic product and tourism receipts in the short run.

## V. CONCLUSION

The aim of this study is to examine the causal relationship between tourism earnings and economic expansion (GDP). Tourist expenditure represents an injection of ' new money ' into the economy (*Frechtling 1987, Fletcher 1994a, Archer & Cooper 1995*).

The significant impact of tourism on Pakistan economy justifies the necessity of Public intervention aimed, on the one hand, at promoting and increasing tourism demand and, on the other hand, providing and fostering the development of tourism supply. Further more, the economic expansion in an economy affects the tourism receipts,(tourism growth) which is reflected by the development in infrastructure and tourism resorts.

Using the concepts and methods of the cointegration and Granger causality test, this study explored the short-term dynamic relations as well as long-run equilibrium conditions. Similar to the results by *Balaguer and Cantavella-Jorda (2002)* using the data for Spain, a cointegration between tourism and economic growth exist in Pakistan. Tourism growth influence increases in the economy in the short run, and the combination of results pointed to a two-way causality for economic growth and tourism growth that economic expansion is necessary for tourism development in the.

## REFERENCES

1. Bahmani-Oskooee, M., & Alse, J. (1993). 'Export growth and economic growth: An application of cointegration and error correction modeling. *Journal of Developing Areas* 27, 535–542.
2. Balaguer, J., & Cantavella-Jorda, M. (2002). 'Tourism as a long-run economic growth factor: The Spanish case'. *Applied Economics*, 34, 877–884.
3. Bank of Korea (2002). 'The economic impact study of tourism expenditures in Korea'. Retrieved July 22, 2002, from [http:// www.knto.or.kr/Korean/index.html/](http://www.knto.or.kr/Korean/index.html/).
4. Chow, P. C. Y. (1987). 'Causality between export growth and industrial development: Empirical evidence from the NICs'. *Journal of Development Economics*, 26, 55–63..
5. Engle, R. F., & Granger, C. W. J. (1987). 'Cointegration and error correction: Representation, estimation and testing'. *Econometrica*, 50, 987–1007.
6. Engle, R. F., & Yoo, B. S. (1987). 'Forecasting and testing in cointegration systems'. *Journal of Econometrics*, 35, 143–159.
7. Granger, C. W. J. (1981). 'Some properties of time series data and their use in econometric model specification'. *Journal of Econometrics*, 16, 121–130.
8. Hazari, B. R. & Kaur, C. (1995). 'Tourism and welfare in the presence of pure monopoly in the non-traded goods sector', *International Review of Economics and Finance*, 4, 171-77.
9. Hazari, B. R. and Ng, A. (1993). 'An analysis of tourists' consumption of non-traded goods and services on the welfare of the domestic consumers', *International Review of Economics and Finance*, 2, 3-58.
10. Hazari, B. R. and Sgro, P. M.(1995). 'Tourism and growth in a dynamic model of trade'. *The Journal of International Trade and Economic Development*, 4, 53-56.
11. Kulendran, N., & Wilson, K. (2000). 'Is there a relationship between international trade and international travel?' *Applied Economics*, 32, 1001–1009.
12. McGahey, S. (1995). South Korea. In S. Mather (Ed.), *International tourism reports*, Economist Publications, London, UK (pp. 23–47).
13. Marin, D. (1992). 'Is the export-led hypothesis valid for industrialized countries?', *Review of Economics and Statistics*, 74, 678–688.
14. Phillips, P. C. B., & Perron, P. (1988). 'Testing for a unit root in time series regression', *Biometrika*, 75, 335–346.
15. Shan, J., & Wilson, K. (2001). 'Causality between trade and tourism: Empirical evidence from China.' *Applied Economics Letter*, 8, 279–283.

16. Sinclair, M. T. and Sutcliffe, C. M. S. (1980).` The measurement of seasonality within the tourist industry: an application to tourist arrivals in Spain`, *Applied Economics*, **12**, 429-41.
17. Sinclair, M. T. and Sutcliffe, C. M. S. (1982). ` Keynesian income multipliers with first and second round effects: an application to tourism expenditure`, *Oxford Bulletin of Economics and* 424-38.
18. World Tourism Organization (2002).` News from the World Tourism Organization. Retrieved July 22, 2002 from <http://www.world-tourism>.