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## **ANALYSING THE RELATIONSHIPS AMONG TOURISM, TRADE, AND ECONOMIC GROWTH IN INDIAN PERSPECTIVE**

### **ABSTRACT**

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The relationship between economic growth and international trade have been discussed intensively in the literature in Indian as well as at the international perspective over years, however the relationship between tourism and economic growth or international trade have not attracted much attention in the literature. This study has made an attempt to test the short-run and long-run relationships among tourism, trade and real income growth in India for the period 1996 to 2009 using quarterly data. The cointegration analysis results indicate the existence of a long-run relationship among the study variables. But we could not find any short-run relationship among the study variables in the VECM analysis, despite the significant error correction term.

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*Key Words: cointegration, economic growth, India, tourist arrival, trade*

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## INTRODUCTION

The neo-liberal policy developments and the resulted reduction or removal of barriers to the movements of goods, services and people between countries have created a congenial atmosphere for international trade and international tourism. Baier and Bergstrand (2001) observed that about 67% of the growth in world trade during the post World War II is because of the income growth and about 25 % is due to the reduction in trade barriers. The data from World development indicators shows a manifold increase in international tourist arrivals and the international tourism expenditures especially since the mid nineties. The exports led growth of Asian economies like Singapore; South Korea etc motivated the developing countries to adopt the outward oriented development strategy. Now the promotion of international tourism, attraction of FDI and trade are important parts of the outward oriented development strategy.

Many researchers have explored the link between trade and economic growth, but the relationship between international tourism, international trade and economic growth is an inconclusive research area. Katircioglu (2009) has observed that “a growth in real output leads to a growth in R&D, advertising and promotion facilities and capacities in tourism sector as well; thus, this attracts more international tourists from the other countries. On the other hand, capital investments in sectors increase as a result of growth in trade sectors, mainly in imports. Thus, growth in tourism based investments and tourism capacity stimulates also growth in international tourist arrivals. Business travels also are important part of tourism sector in every country”.

Increase in international tourism can lead to increase in international trade in terms of import demand of foreign goods and services as well as increase in earnings through exports. International tourism brings foreign exchange that can be utilized to import intermediate and capital goods to manufacture goods and services, which can help in economic growth of countries (McKinnon, 1964). This increase can enhance image of domestic goods and services in the international markets, which in turn end up into new business opportunities. In the past times, many researches were conducted empirically to draw relationships between international trade and international tourism. But the results from different studies are not conclusive (Gunduz and Hatemi-J, 2005). Tourism literature has been suffering with scarcity of empirical studies comprising relationship between international tourism and international trade. Oh (2005) found that international tourism

along with export revenue acted as a major source for meeting the current account deficits of many countries in the world.

Keeping in view the importance of issues mentioned above, in the present study we are testing the long run and short run relationship between international trade, international tourist arrivals and economic growth of India, which is experiencing reasonably high growth in GDP, international trade and international tourist arrivals in recent years especially since mid 1990s (See Appendix Figure 1 and 2).

In the literature, most of the studies conducted in tourism context have used the tourism demand function. Several areas remain incomplete in this class of studies and hence ought to have further studies (Shan and Wilson, 2001). For example, the role of international trade as one of the determinants of tourism demand is not well acknowledged in these studies. Therefore, present research examines the relationship of not only international tourism with economic growth but also with international trade in a developing country, India.

The paper proceeds as follows, after the introduction in Section I, a brief over view of current literature is given in Section II, and section III defines the data, variables and methodology of the study. Section IV provides results and discussions and the Section V provides conclusion.

## **LITERATURE REVIEW**

Some studies were consulted for proper understanding of the concepts discussed in this study: Shan and Fiona (1998) have tested the export-led growth hypothesis using quarterly time series data for Australia by constructing a Vector Auto Regression (VAR) model. They had tested the causal relationship between real export growth and real manufacturing growth by applying the Granger no-causality procedure developed by Toda and Yamamoto (1995). The paper stand out with three distinct feature compared to earlier studies on the case of Australia first, it has gone beyond the traditional two variables relationship by building a five variable VAR model in the context of production function to avoid the possible specification bias, second, the methodology used by Toda and Yamamoto is expected to improve the standard F-statistics in the causality process, and finally, the paper follows Riezman, Whiteman, and Summers (1996) to test the hypothesis while controlling for the growth of import to avoid producing a spurious causality result. The study could not find evidence for export led growth hypothesis in Australian context;

instead, it found evidence of one-way Granger causality running from manufacturing growth to export growth.

Kulendran and Kenneth (2000) investigated the relationship between international trade and international travel flows using time series econometric techniques. They used the data for Australia with its four trading partners such as UK, USA, New Zealand, and Japan, and tested three specific hypotheses: international trade leads to international travel; business travel leads to international trade; and international travel other than business travel leads to international trade. They found evidence for prior beliefs that international trade and travel are interrelated variables.

Shan and Wilson (2001) examined the causal relationship between international tourism and international trade in Chinese context using Granger no-causality procedure developed by Toda and Yamamoto. Two-way Granger causality between international travel and international trade was found in this study.

Balaguer and Jorda (2002) examined the role of tourism in the economic growth of Spain for the period 1970 to 1999. They found that persistent growth in international tourism has been impacting the economic growth of Spain. The Study concludes that policies of the government like, promotional activities for enhancement of tourism will result into positive outcomes.

In the literature, the relationship between international trade and international tourism did not get a wide application area. So the question arises that do arrival of international tourists promote international trade or vice-versa. International tourism can make contribution for international trade in terms of increase in the image and value of domestic products in international markets, which can help in developing new opportunities for trading. Also, when international trade leads to a growth in international tourism, this might happen through business travel, which in turn causes holiday travels at later stages as a result of greater trade opportunities. Thus, the linkage between international trade and international tourism is an issue that requires further attention from the researchers.

## **DATA AND VARIABLES**

In the present study, we used quarterly data on real GDP, foreign tourist arrivals and real trade variables for the period 1996 to 2009. The Nominal GDP data, collected from World Bank data base was deflated with GDP deflator to get the Real GDP data. Nominal

exports and imports data, collected from *Business Beacon* data base of Centre for Monitoring Indian Economy (CMIE) has been deflated with unit value index of exports and imports respectively to get real exports and imports. Real imports and exports were added to get the real trade data. Tourist arrivals data was also collected from *Business Beacon* data base of CMIE. All the study variables were adjusted for seasonality before statistical analysis using the log values.

## METHODOLOGY

For checking the stationary properties of the study variables we have used the Augmented Dickey Fuller (hereafter, ADF) test and Phillips and Perron (hereafter, PP) test (Phillips and Perron, 1988). In both the tests the null hypothesis is that, the series is non stationary (possess a unit root) and if the calculated value exceeds the critical value (based on Mackinnon, 1996 for ADF and PP test), the null hypothesis may be rejected implying the stationary characteristics of the data series. The ADF test is a parametric auto regression to ARIMA structure of the errors in the test regression, but the PP test corrects for serial correlation and Heteroscedasticity in the errors. In ADF test Schwarz Information criteria (SIC) have been used to select the appropriate lag length, whereas in PP test we have used the Newey-West procedure using Bartlet kernel method.

Since the Johansen and Juselius (1990) method (hereafter, JJ method) is proved to be more robust than the Engel Granger procedure( based the residual),we prefer the JJ method which uses the Vector Auto Regression (VAR) model to test the number of cointegrating vectors and the estimation is based on Maximum Likelihood (ML) method. Following Johansen (1988) and Johansen and Juselius (1990) VAR representation of column vector  $X_t$  can be written as follows:

$$X_{(t)} = Bz_t + \sum_{i=1}^k \Pi_i X_{(t-i)} + \varepsilon_t \quad (1)$$

Where  $X_t$  is column vector of  $n$  endogenous variables,  $z$  is a  $(n \times 1)$  vector of deterministic variables,  $\varepsilon$  is a  $(n \times 1)$  vector of white noise error terms and  $\Pi_i$  is a  $(n \times n)$  matrix of coefficients. Since, most of the macroeconomic time series variables are nonstationary, VAR of such models are generally estimated in first-difference forms.

JJ test provides two Likelihood Ratio (LR) test statistics for cointegration analysis, the trace ( $\lambda_{\text{trace}}$ ) statistics and the maximum Eigen value ( $\lambda_{\text{max}}$ ) statistics. In trace test, the null hypothesis that the number of cointegrating relations is  $r$  against of  $k$  cointegration

relations, where  $k$  is the number of endogenous variables. The maximum Eigen value test, tests the null hypothesis that there are  $r$  cointegrating vectors against an alternative of  $r+1$  cointegrating vectors. To determine the rank of matrix  $\Pi$ , the test values obtained from the two test statistics are compared with the critical value from Mackinnon-Haug-Michelis (1999). For both tests if the test statistic value is greater than the critical value, the null hypothesis of  $r$  cointegrating vectors is rejected in favour of the corresponding alternative hypothesis

The cointegration analysis result only indicates the long run relationship between the variables. It does not explain the short term dynamics between the variables. Since the variables are integrated at first order and the existence of at least one cointegrating vector among the study variables, we proceeded for analyzing the short term dynamics between the variables in Vector Error Correction Model (VECM) framework. In VECM, the long run causal relationship is explained through the significance of lagged error correction term (using t-test) and the short run casual relationship is explained through first difference of (using Wald-test, if there are more than one first difference of a particularly variable is used otherwise t-test will be used) explanatory variables.

$$\Delta \ln GDP_t = a_0 + a_1(ECT_{t-1}) + \sum_{i=1}^k \varphi_i \Delta \ln(GDP_{t-i}) + \sum_{i=0}^k \beta_i \Delta \ln(T_{t-i}) + \sum_{i=0}^k \lambda_i \Delta \ln(TA_{t-i}) + \varepsilon_t \quad (2)$$

( $GDP_t$  = Real GDP,  $ECT_{t-1}$  = lagged error correction term,  $GDP_{t-1}$  = Real GDP at lag one,  $T_{t-1}$ , lagged Trade variable,  $TA_{t-1}$  = lagged Tourist arrivals and  $\varepsilon_t$  = error term)

Where  $ECT_{t-1}$  is the lagged error correction term and is the residual from the cointegrating regression equation. It should be noted that the error correction term,  $ECT \sim I(0)$ , captures the adjustment toward the long-run equilibrium. The coefficient  $a_1$  represents the proportion of the disequilibrium in exchange rate in one period corrected in the next period. The above equation (2) is estimated with a general specified lag structure for all the variables in the equation (1), a constant term and one-lagged error-correction term.

## RESULTS AND DISCUSSION

The ADF and PP test results, given in Table 1 indicate the non stationary characteristics of the macroeconomic study variables at log level form. But the ADF and PP test results at first difference of the log form indicate that stationarity can be achieved at first difference form implying the first order integration of the study variables. Since all

study variables are integrated at first order, we are proceeding for cointegration analysis, as same order of integration is a precondition for the cointegration analysis.

**Table 1: Stationarity test results**

Variables	At level form		At first difference form	
	ADF statistic	PP statistic	ADF statistic	PP statistic
GDP	-1.33	-1.52	-7.20*	-7.37*
TA	-1.76	-1.80	-7.91*	-7.88*
Trade	2.73	-3.22	-3.37*	-7.68*

\*Significant at 1% level.

By choosing model 4 and lag interval 1 (The lag length and model were chosen on the basic on AIC and SIC) we have carried out JJ cointegration test. Results of cointegration test are reported in the following Table 2.

**Table 2: Johansen and Juselius (1990) cointegration test results**

Unrestricted Cointegration Rank Test (Maximum Eigen value)					
H <sub>0</sub>	H <sub>a</sub>	Eigen value	Max-Eigen Statistic	5%Critical Value	P-value*
None	At most 1	0.87	102.97	25.82	0.0000
At most 1	At most 2	0.19	10.54	19.39	0.5609
At most 2	At most 3	0.07	3.96	12.52	0.7482

Unrestricted Cointegration Rank Test (Trace)					
H <sub>0</sub>	H <sub>a</sub>	Eigen value	Trace Statistic	5% Critical Value	P-value*
None	At most 1	0.86	117.47	42.91	0.0000
At most 1	At most 2	0.19	14.50	25.87	0.6160
At most 2	At most 3	0.07	3.96	12.52	0.7482

\*MacKinnon-Haug-Michelis (1999) p-values

**Table 3: Normalised cointegrating coefficients**

Cointegrating Equation			
GDP	Tourist arrivals	Trade	Constant
1.000000	0.15(0.02)*	0.05(0.01)*	5.123040(0.29)*

Standard errors are given in parenthesis. \* indicates significant at 1% level

In both the tests the null hypothesis of no cointegrating vectors have been rejected against one cointegrating vectors. But we can't reject the null hypothesis of at most one cointegrating vectors in both the cases. So both the test results indicate the existence of at least one cointegrating vectors in the model at 1% significance level. The presence of one cointegrating vector implies that the real GDP, tourist arrivals and trade variables are related in the long run. The normalised cointegrating coefficients are given in Table 3.

The VECM test results provided in Table 4 show that only error correction term (ECT, which shows the speed of adjustment in the system) is significant. The value of ECT is -0.53 which implies that 53% of the disequilibrium in the system is get corrected in one quarter. The coefficients of lagged variables are not significant implying that short run causality relationship does not exist among the study variables.

**Table 4: VECM test results**

	D(GDP)	D(Tourist Arrivals)	D(Trade)
ECT	-0.54*(0.05)	0.15(0.18)	0.88(1.04)
D(GDP(-1))	-0.02(0.07)	-0.0002(0.29)	0.34(1.59)
D(Tourist Arrivals(-1))	-0.05(0.04)	-0.16(0.15)	0.15(0.82)
D(Trade(-1))	-0.01(0.01)	0.01(0.03)	-0.09(0.15)
C	0.0002(0.002)	0.02(0.01)	0.03(0.05)
R-squared	0.70	0.04	0.03
Adj. R-squared	0.67	-0.04	-0.06
Sum sq. residuals	0.01	0.18	5.38
S.E. equation	0.02	0.06	0.34
F-statistic	26.52	0.46	0.32

Standard errors are given in parenthesis. \*indicates significance at 1%level

## CONCLUSIONS

We have analysed the long run and short term relationship between real GDP, international trade (real variable) and international tourist arrivals for India during the period 1996 to 2009 using quarterly data. For examining the long run and short run relationship between the variables, Johansen and Juselius cointegration test and Vector Error correction methodology (VECM) have been employed respectively. The results of cointegration analysis indicate the presence of a long run equilibrium relationship between the study variables. But the VECM result did not provide evidence for short term causal relationship between the variables, despite the significant error correction term. The finding of our study is in tandem with other studies in this area on the long run

relationship between the tourism, trade and growth. (For example, *inter alia* Kreishan, 2010; Kulendran and Wilson, 2000; Zortuk, 2009; but contradicting to Oh, 2003). But on the short run granger causality, our findings are contradicting to other studies in this field. For example Shan and Wilson (2001) in Chinese context, which is also a fast growing economy like India, found a two way Granger causality running between Trade and Travel. Kreishan (2010) observed a unidirectional Granger causality from Tourism to economic growth of Jordan. Oh (2005) found a unidirectional causality from economic growth to tourism indicating an economic expansion driven tourism growth in Korean Economy. Zortuk (2009) also observed a unidirectional Granger causality from tourism to economic growth in Turkey.

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APPENDIX

Figure 1: Number of tourist arrivals in India from 1996-2008

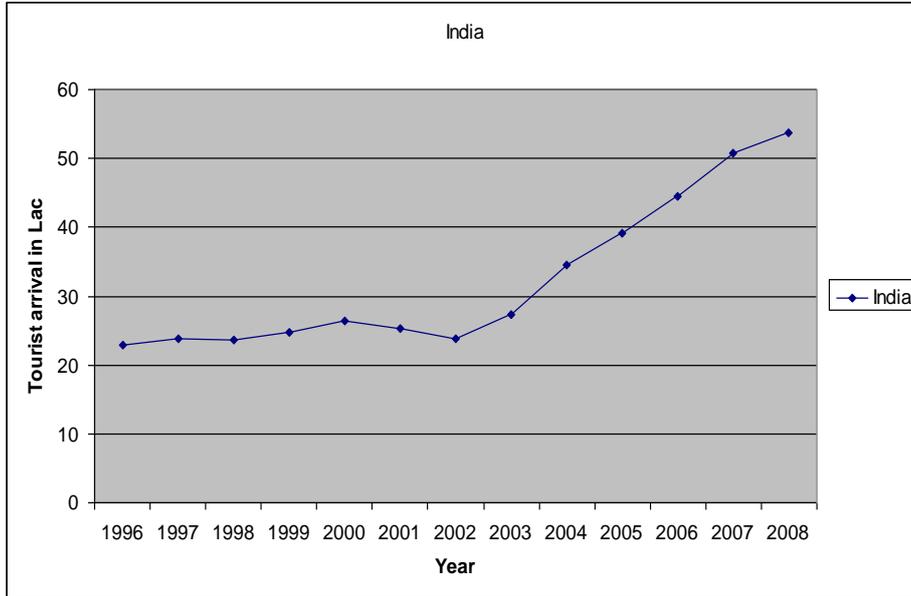


Figure 2: Trade as a percentage of GDP of India during 1996-2009

