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AN EMPIRICAL INVESTIGATION ABOUT RELATIONSHIP BETWEEN INTERNATIONAL TRADE AND TOURIST ARRIVAL: EVIDENCE FROM INDIA

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Abstract
This study aims to examine the causal relationship between tourism arrivals and bilateral trade of India with Germany, Netherland, Switzerland, France, Italy, USA, UK and Canada for the period 1996 January to 2008 December. After examining the order of integration by using the Zivot and Andrews structural unit root test, we have used the Granger Causality test to examine the causal relationship between the study variables. The Granger Causality test results indicate two way causal relationships between the Trade and Tourism in case of USA, Italy and Canada.
Keywords: International trade, International tourism, India, Unit root test, Granger causality test.

1. INTRODUCTION

International trade and tourism have gained much attention among the policy makers as a potential source of economic growth. The relationship between trade and economic growth has attracted much empirical work and elucidated the role of trade in economic growth. Different from the conventional view of tourism as a source of foreign exchange, now policy makers recognize the role of tourism in employment creation, investment, trade facilitation (because of business travel) and as a source of economic growth. The liberalisation measures and the resulted reduction in barriers to the movement of goods, services and people across countries have given a boost to world tourism and trade. India is one of the major beneficiaries of these liberalisation measures as its growth of trade, GDP and tourist arrivals and income from tourists increased considerably since the implementation of liberalisation measures in early nineties.

But the relationships between trade and tourism, or tourism and economic growth of India have not attracted much empirical attention compared to the trade and growth studies (except a recent work of Suresh, Vikas and Mukund (in Press)).This study makes an effort to examine the causal relationships between bilateral tourism and trade variables of India with USA, UK, France, Germany, Italy, Netherland, Canada and Switzerland.

A close inspection of international tourism and trade data for past thirty years in developed and developing countries of the world reveals that these time series most often budge together. Countries that have increased their international trade flows have also increased their international travel flows. The increase in international travel flows has led countries to become more open absolutely or relatively towards increase in international trade flows. Since international tourism is an integral part of international service sector transactions for balance of payments of a country.

The relationship between international tourism and international trade is tautological. The matter of concern is that whether a relationship exists between international trade flow and international travel flow. Does the co-movement of these series, essentially as a trend increase over time, simply reflect a balance of payments identity or does a real causal link exist.

2. TOURISM AND TRADE

The idea that international tourism might influence international trade is straightforward. In great early business travellers, Marco Polo from Italy travelled China. But all tourism travels cannot be connected with business mind always. People from all over the world travel for pleasure, amusement, sight seeing, meeting kith and kin, business deals, adventure, recreation, education, sports etc. All type of travels can be classified under four main heads such as (i) Holiday travels; (ii) Visiting relatives and friends; (iii) Business travel; (iv) Other travels. Since we are aware about the fact that trade is an aggregate of imports and exports, therefore relation between international tourism and trade is of more disaggregate type.

Talking about business travellers, they arrive in a particular country either to purchase some product or to sell some product. In this way successful business travels result into increase into either export sale or import purchase. In future these successful business travels lead to flow of exports or imports regularly. Increased business travels may also result into increase in other type of travel like holiday travels when their friends and relatives accompany them for the matter of recreation, amusement or adventure.

In addition, product arrival from other countries will increase consumer interest and awareness about the product and source country, which may lead to subsequent holiday travel flows in particular. Therefore model works as business travel leads to consequent export sales and import purchases which in turn lead to further business and holiday travel.

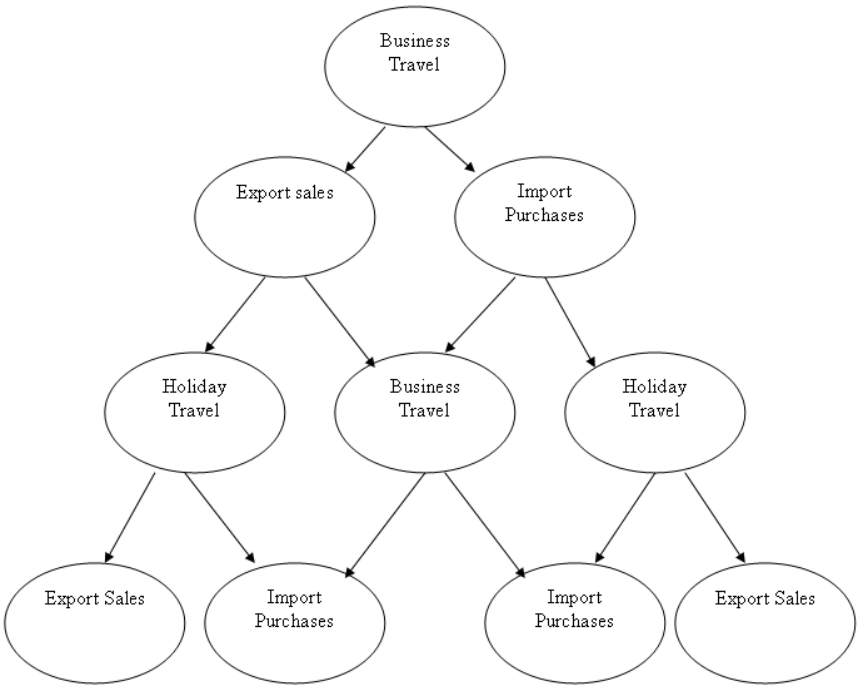

FIGURE 1 – A SIMPLE FLOWS MODEL OF TOURISM AND TRADE

Sometimes, when international travelers visit their friends or relatives may identify some business opportunities that could lead to either export sales or import purchases. Therefore holiday travels generate international trade. The impact of globalization on tourism and trade relationship is quite significant over the period of time. The removal of trade barriers has resulted into boon for both tourism and trade. Moreover, transformations in communication system over the world and enormous expansion of tourism infrastructure have made it much easier to expand both tourism and trade.

3. THE LITERATURE REVIEW

Some studies were consulted for proper understanding of the concepts discussed in this study.

Kulenndran 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 the 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 then business travel leads to international trade. They found evidence for prior beliefs that there can be a relationship between international trade and international travel.

Shan, Jordan and Ken 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, Jacint, and Cantavella-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.

Mahmut Zortuk, (2009) conducted an empirical study in the context of Turkey and found that a unidirectional causality exists between the two variables from tourism development to economic development. Author employed Wald test to test the parameters and were found significant at 1% significance level. Objective of the study was to examine the contribution of speedily developing tourism sector mainly after 1980 to the economic growth. The study used data for first quarter of 1990 and third quarter of 2008. Granger Causality test based on Vector Error Correction Model (VECM) was used to examine the relationship between tourism expansion and economic growth. In the context of Turkey, tourism has emerged as major contributory to economy and helped to earn huge foreign exchange. Tourism also helped people of Turkey to earn money through direct and indirect employment.

Fuad M.M. Kreishan, (2010) proposed positive relationship between tourism and economic development in long run in the context of Jordan. In addition, author found the presence of unidirectional causality from tourism earnings to economic growth. Author used annual data from the period 1970 to 2009. Time series techniques like; Augmented Dickey-Fuller (ADF) for unit root, Johanson and Juselius (JJ) for cointegration and Granger causality test for causal relationships were used in the study. The main purpose of the study was to investigate the causality relationship between the tourism earnings and economic growth. Based on the findings of the study, author suggested that Jordan government should focus on economic policies to encourage international tourism as a prospective source of economic growth.

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

Business Excellence and Management
Volume 2 Issue 3 / September 2012

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.

4. DATA AND VARIABLES

We have used the monthly data bilateral trade value and tourist arrivals data for USA, UK, France, Germany, Italy, Netherland, Canada and Switzerland for the period 1994January to 2008 December. These data is collected from *Business Beacon* data base provided by *Centre for Monitoring Indian Economy (CMIE).* For empirical analysis log form of the variables are used.

5. METHODOLOGY

A problem common with the conventional unit root tests —such as the ADF, DF-GLS and PP tests, is that they do not allow for the possibility of a structural break. Assuming the time of the break as an exogenous phenomenon, Perron showed that the power to reject a unit root decreases when the stationary alternative is true and a structural break is ignored. Zivot and Andrews propose a variation of Perron's original test in which they assume that the exact time of the break-point is unknown. Instead a data dependent algorithm is used to proxy Perron's subjective procedure to determine the break points**.** In this study we have used the Zivot Andrews unit roots tests for checking the order of integration. But for comparison purpose we estimated the ADF and PP tests also.

6. ZIVOT AND ANDREWS MODEL

Following Perron's characterization of the form of structural break, Zivot and Andrews proceed with three models to test for a unit root: (1) model A, which permits a one-time change in the level of the series; (2) model B, which allows for a one-time change in the slope of the trend function, and (3) model C, which combines one-time changes in the level and the slope of the trend function of the series. Hence, to test for a unit root against the alternative of a one-time structural break, Zivot and Andrews use the following regression equations corresponding to the above three models.

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \gamma DU_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + e_t \quad \text{..... (a)}$$

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \theta DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + e_{t,} \quad \text{..... (b)}$$

$$\Delta y_t = c + \alpha y_{t-1} + \beta t + \gamma DU_t + \theta DT_t + \sum_{j=1}^{k} d_j \Delta y_{t-j} + e_{t,} \quad \text{..... (c)}$$

Where DUt is an indicator dummy variable for a mean shift occurring at each possible break-date (TB) while DTt is corresponding trend shift variable. Formally,

$$DU = \begin{cases} 1.....if, t > TB \\ 0.....otherwise \end{cases} and$$

$$DT = \begin{cases} T - TB.....if, t > TB \\ 0.....otherwise \end{cases} and$$

The null hypothesis in all the three models is α=0, which implies that the series {yt} contains a unit root with a drift that excludes any structural break, while the alternative hypothesis α<0 implies that the series is a trend-stationary process with a one-time break occurring at an unknown point in time. The Zivot and Andrews method regards every point as a potential break-date (TB) and runs a regression for every possible break-date sequentially. From amongst all possible break-points (TB), the procedure selects as its choice of break-date (TB) the date which minimizes the one-sided t-statistic for testing αˆ (=α –1) =1.

According to Zivot and Andrews, the presence of the end points cause the asymptotic distribution of the statistics to diverges towards infinity. Therefore, some region must be chosen such that the end points of the sample are not included. Zivot and Andrews suggest the 'trimming region' be specified as (0.15T, 0.85T), which we follow. Perron suggested that most economic time series can be adequately modelled using either model A or model C. As a result, the subsequent literature has primarily applied model A and/or model C. In a recent study, Sen (2003) shows that if one uses model A when in fact the break occurs according to model C then there will be a substantial loss in power. However, if break is characterized according to model A, but model C is used then the loss in power is minor, suggesting that model C is superior to model A. Based on these observations, we choose model C for our analysis of unit roots.

7. GRANGER CAUSALITY TESTS

If variables in the have same order of integration, the Granger-causality test will be based on the following equations:

$$\Delta T_t = \alpha_x + \sum_{i=1}^{k} \beta_{x,i} \Delta T_{t-i} + \sum_{i=1}^{k} \gamma_{x,i} \Delta TA_{t-i} + \varepsilon_{x,t} \text{.....}(\ d\ )$$

$$\Delta TA_t = \alpha_y + \sum_{i=1}^{k} \beta_{y,i} \Delta TA_{t-i} + \sum_{i=1}^{k} \gamma_{x,i} \Delta T_{t-i} + \varepsilon_{y,t} \text{.....}(\ e\ )$$

Where, TA-Tourist arrivals-Trade

The null hypothesis (H_0) for the equations (5) and (7) is $H_0 : \sum_{i}^{k} \gamma_{x,i} = 0$ suggesting that the lagged terms ΔY do not belong to the regression i.e., it do not Granger cause ΔX. Conversely, the null hypothesis (H_0) for the equations (6) and (8) is $H_0 : \sum_{i}^{k} \gamma_{y,i} = 0$, suggesting that the lagged terms ΔX do not belong to regression i.e., it do not Granger cause ΔY. The joint test of these null hypotheses can be tested either by F-test or Wald Chi-square (χ^2) test.

8. RESULTS AND DISCUSSION

Firstly we have estimated the conventional ADF test without considering the structural breaks in the unit root. The results indicates that seven out of the study variables are nonstationary at level form and a first differencing of the log level data makes it stationary. Secondly we have considered the structural break in the unit root testing by using the structural unit root test procedure suggested by Zivot and Andrews (1992).

While considering the structural break in the unit root we are getting different results. In this estimation we can reject the unit root null hypothesis fourteen out of the sixteen study variables. Therefore only two variables; Trade with France, Netherland and Germany are nonstationary while considering the structural breaks in unit root testing.

The results show that out of 16 variables analyzed, only bilateral trade variables of India with France, Netherland are non stationary at level form. All other variables are stationary at level form with one break. But the break date varies from variable to variable. Out of the eight bilateral trade variables five have break in 2001 and two variables have break in 2002 and the rest trade with France has a break in

2003.Amoung the tourist arrival variables studies five variables have experienced structural break in 2001 and rest Switzerland, USA and UK experienced breaks in 2000, 2003 and 2004 respectively.

TABLE 1 – RESULTS OF AUGMENTED DICKEY FULLER (ADF) TEST AND ZIVOT ANDREWS STRUCTURAL UNIT TEST

	Level form	First difference form	Zivot Andrews(ZA)- Test-Level form	
			ZA test statistic	Break date
Canada TA	**-4.80***	**-13.72***	-5.46*	2001 M 08
Canada Trade	**-4.05***	**-17.42***	-6.009*	2003M 02
France TA	**-2.39**	**-14.17***	-4.50*	2001M 10
France Trade	**-3.40*****	**-15.65***	-4.73	2002M12
Germany To	**-2.23**	**-19.77***	-3.93**	2001M10
Germany Trade	**-0.87**	**-17.23***	-4.16	2001M09
Italy TA	**-3.97****	**-14.92***	-4.55*	2001M09
Italy Trade	**-2.29**	**-14.98***	-4.73***	2001M08
Netherland TA	**-3.20*****	**-13.36***	-4.35*	2001M09
Netherland Trade	**-1.91**	**-14.70***	-4.40	2003M07
Switzerland TA	**-2.96**	**-18.71***	-4.51*	2000M03
Switzerland trade	**-6.41***	**-13.62***	-5.50*	2001M08
UK TA	**-2.54**	**-12.29***	-3.60*	2004M01
UK Trade	**-5.72***	**-15.31***	-5.93*	2001M04
USA TA	**-4.85***	**-12.14***	-6.60*	2003M05
USA Trade	**-2.79**	**-17.49***	-4.10*	2000M12

Note:*, **, *** indicates significance at 1%,5% and 10% respectively

TABLE 2 – RESULTS OF GRANGER CAUSALITY TESTS BETWEEN TOURIST ARRIVAL AND TRADE

USA			
H1(direction of causality)	F-Statistics	P value	lag
USA Tourist →USA trade	3.25	**0.04**	**2**
USA trade→USA Tourist	4.60	**0.01**	**2**
UK			
H1	F statistics	P value	lag
UK Tourist→UK trade	1.35	0.25	3
UK trade→UK Tourist	1.31	0.27	3
Canada			
H1	F statistics	P value	lag
Canada Tourist →Canada Trade	2.92	**0.05**	**2**
Canada Trade →Canada Tourist	5.19	**0.01**	**2**
Switzerland			
H1	F statistics	P value	lag
SL Tourist → SL Trade	0.44	**0.64**	**2**
SL Trade → SL Tourism	0.46	**0.46**	**2**
Italy			
H1	Causality	P value	lag
Italy Tourist →Italy Trade	2.91	**0.05**	**2**
Italy Trade →Italy Tourism	4.55	**0.01**	**2**

Since same order of integration is a necessary condition for cointegration analysis, we can't use any cointegration analysis in the present data set. So we have analyzed the Granger causality between the

tourist arrivals and Trade variables with USA, UK, Italy, Switzerland, and Canada to check the short term relation ship between the variables. For other three countries since the trade variables are nonststionary and Tourist arrival data is stationary it is not possible to do Cointegration or Granger causality analysis. Since Granger causality result is sensitive to lags used we have selected the lag based on SIC in Lag selection criteria using VAR model in Eviews. But we have done the analysis with different lags to check the robustness of the estimates.

For USA, we found bidirectional Granger causality between tourist arrivals and trade at lag 2. But in case of UK, where SIC selected lag 3, we could not find any causal relationship between the study variables. For Switzerland also, there is no Granger causal relationship between the study variables. In case of Canada and Italy, we found bidirectional Granger causality between tourist arrivals and trade.

9. CONCLUSIONS

The relationship between tourism and trade is an unexplored area in International economics. In this study we have analyzed the casual relationship between these two variables at disaggregate bilateral level using the bilateral trade and tourist arrival data of India with Canada, USA, UK, France, Switzerland, Netherland, France, Germany and Italy for the period 1994 January to 2008 December. Since the Zivot and Andrews (1992) unit root tests results shows that the tourist arrival and trade data for UK, USA, Canada, Italy and Switzerland are stationary at level form we have carried out the Granger causality analysis to examine the causal link between these variables. We have excluded France, Germany and Netherland from the analysis, since in these cases trade variables are nonstationary at log level form and tourism arrival variable is stationary.

The Granger Causality results indicate the presence of bidirectional casual relationship between trade and Tourist arrivals in case of USA, Canada and Italy, while no significant causality is running between bilateral trade and tourist arrivals in case of Switzerland and UK.

Our results are in tandem with the results of 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 (2003) 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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