



The Relation between Current Account Deficit and Tourism: The Case of Turkey

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ABSTRACT

In this study the effects of service's balance, tourism balance and current account deficit are studied. In the countries with a relatively small share in the current account of the tourism industry, the analysis related to tourism and foreign trade has biased results. For this reason, this study examines how the tourism industry affects the service industry and by this means how it affects the current account balance. The second important issue is that linear time series methods are inadequate because of the nature of the structure of the variables.

Keywords: The Current Account Balance, Service Industry, Tourism Industry, Threshold Autoregressive Vector Error Correction Models

JEL Classifications: C52, F32, L83

1. INTRODUCTION

Today, by means of the trends in the world economy tourism industry which effects the economic growth has become a rapidly developing industry. The changes and developments in community life rise in general welfare and trends in the world economy have made tourism the economic instrument of many countries. Especially, deficiencies in technology in many developing countries have made it attractive for these countries to maintain economic growth by the help of the tourism industry which requires an intensive labor effort.

According to World Tourism Organization's data, an examination of the number of incoming tourists worldwide in 2007 illustrated that Turkey is in the ninth row and tenth for revenue generated. Again according to the 2007 report, the development of the tourism sector will continue to increase faster and it is forecasted to reach to 1050 million tourist and 1550 million tourism revenues in 2010, to 1600 million tourists and tourism revenues in 2020.

When the past of the tourism industry in Turkey is examined; it is seen that the first serious institutionalization was started with the law no. 2450 on "Ministry of Economy and Duties." In 1953, the industry was promoted by enacting the "Tourism Industry Encouragement Law." The rate of increase in the number of

tourists was 1.7 fold worldwide whereas it was 2.5 fold in Turkey between 1950 and 1960 the income generated from tourism was below the worldwide (tursab.org.tr). During 1960-1970 the growth pace increased both in terms of number of tourists and the revenue generated the number of tourists worldwide increased 2.5 fold whereas it was 7.5 fold in Turkey. However, it is obvious that the focus should be on the revenue derived from tourism more than the number of tourists. In this period, tourism revenues increased by 2 fold worldwide whereas revenues in Turkey mounted up to 7.5 fold. In 1980s tourism industry in the world saw great progress both in terms of the number of visitors and the revenue generated from tourism. "Tourism Development Fund" which is established by the Ministry of Tourism" in Turkey and the law on "the allocation of public land for tourism investments" has achieved a significant share. Besides the escalating terrorist attempts in the early 1990s the First Gulf War that was started in August 1990 also caused a great decrease both in the number of tourists and the revenue generated from tourism. Similar drops were observed with the recursive terrorist incidents in 1995 and the Second Gulf War in 2003. Between 1987 and 2007, in terms of number of visitors and the revenue generated from it were affected primarily because of the first Gulf War and secondarily the terrorist incidents. Yet, the negative effects of the Second Gulf War weren't as huge as the others. This situation shows that the effects of the wars are asymmetric. The reason why threshold autoregressive-vector

error correction (TAR-VEC) method is used in this study is the existence of this asymmetry.

Current account balance that is one of the components of balance of payments is the account that the large part of a country's economic transactions is recorded. It appears to be one of the macroeconomic variables which represent an increase in the amount of final goods and services produced in a country in a specific period that affects and affected by the economic growth. Current account balance is one of the most significant factors that affect the sustainability of a country's economy.

Current account balance is the sum of services which are foreign trade, investment income and current transfers balance. If a country's revenues generated from the current accounts exceed the expenses then there is a current accounts surplus and if the revenues are less than the expenses, in that case there is a current account deficit. Today, current account balance is one of the biggest problems of economies. In Turkey it occurs to be a current account deficit in the 95% of the period of the study examined (tuik.gov.tr). In this study the debate of the sustainability of the current account deficit has been left aside and the effect of it on the service and tourism industry has been examined.

Balance of services, which is included in the inflow and outflow of foreign exchange entries, doesn't appear in balance of payments includes foreign trade. Balance on services also includes the items; trade in services, tourism, freight and insurance, construction-engineering, financial services, other trade services and official services.

The development of the increased share of trade in services in the world economy can be linked to the rapid urbanization in the world the development of the public sector to the demand in consumer services and to the ancillary services that are used as an input for other services. Having the necessary service infrastructure has great importance for the countries to maintain productivity and competitive power in all industries (Karluk, 2008).

It is seen that the share of services industry in gross domestic product (GDP) is %60 in developed and developing countries. As Turkish economy is observed the share of services industry has increased remarkably since 1950s. At the end of 2012, the share of the services industry in GDP has become %68.3 (tuik.gov.tr). Parallel to the advances in economy growth and employment, the income and expenses in services industry has a great effect on current account balance.

One of the most important macroeconomic issues is current account deficits of countries. This study focused on tourism sector to find solution to this problem. However, in countries whose tourism sector has relatively low power on current account deficit should take into consideration the impact of service sector for to understand the real effect. There happens to be identification errors in the models as the balance of service industry is included in the model.

The second important issue is to determine the suitable econometric method for data. Threshold models are used in this study because

of the structure of the variables we used. TAR-VEC method has been used to examine the long run equilibrium relationship. The results of our analysis show that estimating long run relation between current account deficit and tourism with nonlinear models is suitable way of modelling for those variables.

2. LITERATURE REVIEW

Especially in developing economies tourism as a dynamic industry has a nature that does not require a large capital investment where high technology does not increase the costs significantly. It is a point of exit in overcoming the national and international problems and bottleneck faced by economies (Kızılgöl and Erbayram, 2008).

There are numerous studies available for different countries that examine the relationship of tourism industry with economic growth. Lanquar (2011) has mentioned in his report that the share of the growth in tourism is the balance of services sector which has increased gradually at 11 Mediterranean countries including Turkey, Egypt, Jordan, Morocco and Tunisia. Khalil et al. (2007) tested by co-integration analysis and error correction model (ECM) for Pakistan. Elias and Proença (2008) in their studies examined the impact of tourism on regional development by generalized method of moment method. Eugenio-Martin et al. (2004), Fayissa (2008) studies are the ones that examine the relationship between tourism and economic growth in Latin American Countries. Cross and Vanegas (2008) for Nicaragua, Brau et al. (2003) and Lee and Chang (2008) had examined this relationship by using the panel data analysis for OECD and non OECD countries. Dritsakis (2004) for Greece and Balaguer and Cantavella-Jorda (2002) for Spain pointed out the long run relationship between tourism and economic growth. Likewise, Oh (2005) study for Korea addresses the same approach. Yol (2009), scrutinized the long run sustainability of current account deficits of three African countries – Egypt, Morocco and Tunisia – between 1972 and 2005, using the bounds testing approach to co integration. He found co-integrating relationships between exports and imports in all cases and concluded that in the long run, current account deficits were unsustainable in Egypt and Morocco, but sustainable in Tunisia's case. Lorde et al. (2013), between 1990Q1 and 2006Q4 examined the sustainability of the contribution of tourism receipts on current account deficits by inter-temporal budget approach, and found out that external shocks and attention on tourism industry have a great impact on the reduction of current account deficit on Barbados' economy. Gökdemir and Durdu (2007) investigated tourism and economic growth in Turkey by using ARIMA model and pointed out the existence of the long run equilibrium relationship. There are studies of Tosun (1999), and Gündüz and Hatemi (2005), Bahar (2006) for Turkey. Ongan (2008) conducted a co-integration analysis for current account balance, export, import and tourism receipts between 1980 and 2005 and found out that there is an unsustainable current account deficit in Turkey and exporting is dependent on import and therefore it is not easy to reduce exporting, and the only way of reducing the current account deficit is to increase the tourism receipts.

The studies conducted on tourism industry in Turkey have been analyzed on demand forecasting and its general macroeconomic impacts have been examined specific to its contribution on

recovering the trade deficit and its impact on growth. Yet it would be wrong to study it without considering rapidly increasing market share of the services industry. Hence, it is thought to be necessary to examine the impact of tourism industry on services industry.

In this study, the impact of balance of tourism receipts to balance of services and also its effect on current account balance has been gradually examined. As the study aims to detect the long run equilibrium relationship, starting from 2003 it has been examined by TAR-VEC analysis. Thus the obtained threshold values will be a guide in acquiring the objectives set by the policymakers. The beginning of the analyzing period is selected as 2003 because of the 2001 crisis affects smoothed on Turkish economy.

3. DATA AND ECONOMETRIC METHODOLOGY

3.1. Data

In this study the impacts of the items of balance of payment – balance of services, current account balance, balance of tourism receipts – on current account deficit and long run equilibrium relationship has been examined.

The items of balance of payment – balance of services, current account balance, balance of tourism receipts- has been also analyzed by using the monthly data between 2003/01 and 2013/09. Data has been acquired from Central Bank of the Republic of Turkey “dynamic and interactive data dissemination system”. As variable names; “SS” for balance of services, “CA” for current account balance, “TD” for balance of tourism receipts are used in models.

The relationship between the variables has been analyzed by TAR-VEC method. All data comprise seasonal effects. At the first stage seasonal effects have been purified and a logarithmic transformation has been applied.

3.2. Econometric Methodology

Hansen and Seo (2002) in their studies developed a method that enabled the testing of cointegration vector and the threshold effect together via ML estimation method which they applied to TAR model.

A Linear cointegration mechanism can be identified as, x_t , $I(1)$ and p dimensional time sequence has a $p \times 1$ dimensional β cointegration vector. $v_t(\beta) = \beta'x_t$, $I(0)$ shows the error correction term. $l+1$ degree linear VECM can be displayed as below;

$$\Delta x_t = A'X_{t-1}(\beta) + u_t \tag{1}$$

In this equation,

$$X_{t-1}(\beta) = \begin{pmatrix} 1 \\ v_{t-1}(\beta) \\ \Delta x_{t-1} \\ \Delta x_{t-2} \\ \vdots \\ \Delta x_{t-l} \end{pmatrix} \tag{2}$$

A , is defined as $k \times p$ dimensional vector and $k=p+2$. $X_{t-1}(\beta)$, is a $k \times 1$ sized vector. u_t , is an error term that has finite $\Sigma = E(u_t u_t')$ covariance matrix and is a Martingale difference sequence. To make it identified, it is necessary to normalize according to β . In case there exists a co integrated vector the applied method is to equalize one component of the vector β to 1. In case it is a two variables system ($p=2$) and In spite of the fact that it's not a problem if $p>2$ then there is a matter of constraint on the co integration vector via x_t element. With the assumption that u_t errors follow the i.i.d. Gaussian process, (β, A, Σ) parameters are predicted via ML method. Let the predictions of these parameters be $(\tilde{\beta}, \tilde{A}, \tilde{\Sigma})$ and the error vectors be $\tilde{u}_t = \Delta x_t - \tilde{A}'X_{t-1}(\tilde{\beta})$, γ as being the threshold parameter of model number (1), if defined as two regimes TAR co integration model,

$$\Delta x_t = A_1'X_{t-1}(\beta)d_{1t}(\beta, \gamma) + A_2'X_{t-1}(\beta)d_{2t}(\beta, \gamma) + u_t \tag{3}$$

In equation (4), $I(\cdot)$ as being the indicator function,

$$\begin{aligned} d_{1t}(\beta, \gamma) &= I(v_{t-1}(\beta) \leq \gamma), \\ d_{2t}(\beta, \gamma) &= I(v_{t-1}(\beta) > \gamma) \end{aligned} \tag{4}$$

According to ECM value, there are two regimes. Matrix of coefficient A_1 and A_2 in hold the dynamics in these two regimes. Model (3) ensures variability of all coefficients between two regimes. The threshold effect exists if only it is $0 < P(v_{t-1} \leq \gamma) < 1$, in other situations it transforms into linear cointegration existing in other cases.

4. ECONOMETRIC RESULTS

Acquired econometric results are examined in two stages. The first includes the traditional unit root tests of the series Caner and Hansen (2001) and the results of the unit root test. While the traditional unit root tests point out that the series are $I(1)$, Caner and Hansen (2001) test result have importance as it provides information on the findings obtained which show that series have a nonlinear structure as well as nonlinear unit root (Table 1).

Numbers in parenthesis point out the time lag length that are chosen based on the akaike information criterion information criterion. As the table is analyzed, it is seen that all the variables are first order stationary (Table 2).

The second step in testing co integration relation is testing the condition of the variables having the same degree of stationary with Caner and Hansen unit root test which examines whether the variables have the TAR unit root or not. Through this test, it is examined whether the variables have the TAR structure or not by using the bootstrap threshold test. As the test results are analyzed, it has been deducted that the variables have the TAR process and also have the unit root either in the entire process or in each regime.

After it is verified that the variables have the TAR structure and have the same degree stationary, at the second stage the co integration relation between the current account balance with the

Table 1: Ca, Ss, Td variables traditional unit root test results

	Test statistics	Critical values (%)		
		1	5	10
-CA- ADF (15)	-3.03	-3.489	-2.887	-2.581
-SS- ADF (3)	-2.92	-3.489	-2.887	-2.581
-TD- ADF (10)	-2.49	-3.489	-2.887	-2.581
-DCA- ADF (6)	-6.80	-3.484	-2.885	-2.579
-DSS- ADF (11)	-5.23	-3.484	-2.885	-2.579
-DTD- ADF (4)	-6.82	-3.484	-2.885	-2.579

Table 2: Caner and Hansen (2001) unit root test results

Variable	Wald statistics	Bootstrap P value	Asymptotic P value
Bootstrap threshold test			
CA (4)	82.86	0.00	0.00
SS (11)	78.32	0.00	0.00
TD (10)	75.75	0.00	0.00
Two sided Wald test (R ₂)			
CA	9.32	0.19	0.19
SS	7.23	0.36	0.36
TD	9.45	0.18	0.18
Two sided Wald test (R ₁)			
CA	9.32	0.16	0.16
SS	7.23	0.32	0.32
TD	9.46	0.16	0.16
Unit root test (t ₁)			
CA	1.96	0.48	0.48
SS	2.35	0.30	0.30
TD	2.49	0.24	0.24
Unit root test (t ₂)			
CA	2.33	0.31	0.31
SS	1.31	0.78	0.78
TD	1.79	0.56	0.56

balance of services and balance of services with the balance of tourism receipts are examined by Hansen and Seo (2002) method.

TAR-VEC models have been set to test the impact of balance of tourism receipts to the services industry whereby to the current account balance and the below results have been acquired.

The first relation that has been examined is the impact of the existing balance in services industry to the current account balance. The long run equilibrium relation is observed to be positive and 0.40 as expected. In this relationship, the threshold value is identified as -0.56. Consequently, it means that if the difference between the balance of services and the current account balance shows a change negatively less than %56, then the first regime is dominant, but if it shows greater difference then the second regime is dominant.

The first regime covers the %29 of the examination period, and therefore named as the extreme regime. The second regime covers the %71 of the observations at the examination period and called the typical regime.

First regime “extreme regime”, $CA_t \leq 0.40SS_t - 0.56$ %29

Second regime “typical regime”, $CA_t > 0.40SS_t - 0.56$ %71

$$\Delta CA_t = \begin{cases} -0.023 - 0.60v_{t-1} - 0.34\Delta CA_{t-1} + 0.03\Delta CA_{t-2} + 0.094\Delta CA_{t-3} + & v_{t-1} \leq -0.56 \\ (0.38) & (0.27) & (0.31) & (0.30) & (0.28) \\ 0.8\Delta SS_{t-1} - 0.02\Delta SS_{t-2} - 0.89\Delta SS_{t-3} + u_{1t}, & & & & \\ (1.12) & (0.95) & (1.00) & & \\ -0.33 - 0.27v_{t-1} - 0.005\Delta CA_{t-1} + 0.12\Delta CA_{t-2} + 0.14\Delta CA_{t-3} + & & & & \\ (0.11) & (0.23) & (0.13) & (0.12) & (0.087) & (0.19) \\ 0.17\Delta SS_{t-1} + 0.01\Delta SS_{t-2} + 0.12\Delta SS_{t-3} + u_{2t}, & & & & \\ & (0.2) & (0.12) & & & \end{cases}$$

$$\Delta SS_t = \begin{cases} -0.27 - 0.20v_{t-1} + 0.17\Delta CA_{t-1} - 0.056\Delta CA_{t-2} - 0.024\Delta CA_{t-3} + & v_{t-1} \leq -0.56 \\ (0.14) & (0.05) & (0.05) & (0.06) & (0.043) \\ 0.26\Delta SS_{t-1} - 0.30\Delta SS_{t-2} + 0.13\Delta SS_{t-3} + u_{1t}, & & & & \\ (0.34) & (0.34) & (0.22) & & \\ 0.08 - 0.087v_{t-1} + 0.013\Delta CA_{t-1} + 0.045\Delta CA_{t-2} + 0.0057\Delta CA_{t-3} - & & & & \\ (0.04) & (0.045) & (0.03) & (0.025) & (0.018) & (0.13) \\ 0.89\Delta SS_{t-1} - 0.41\Delta SS_{t-2} - 0.185\Delta SS_{t-3} + u_{2t}, & & & & \\ & (0.15) & (0.07) & & & \end{cases}$$

As VEC models are examined it is seen that the error correction coefficients are negative and significant. In equations in which the current account balance is a dependent variable, the rate of return on balance is high in the first regime, likewise in equations in which the balance of tourism receipts is a dependent variable the rate of return on balance is high in the second regime.

The second relation is the relation between balance of tourism receipts and the balance of services. Long run equilibrium relationship is obtained as positive 0.47.

The first regime is observed in case the balance of tourism receipts and balance of services show a decrease by -0.25. This situation is prevalent in %14 of the period examined. The second regime is observed in case the difference between two variables is less than -0.25.

First regime “extreme regime”, $SS_t \leq 0.47TD_t - 0.25$ %14

Second regime “typical regime”, $SS_t > 0.47TD_t - 0.25$ %86

$$\Delta SS_t = \begin{cases} -0.44 - 0.80v_{t-1} - 0.71\Delta SS_{t-1} - 0.11\Delta SS_{t-2} + 0.15\Delta TD_{t-1} + & v_{t-1} \leq -0.25 \\ (0.17) & (0.40) & (0.52) & (0.20) & (0.28) & (0.70) \\ 1.39\Delta TD_{t-2} + u_{1t}, & & & & & \\ 0.038 - 0.66v_{t-1} - 0.34\Delta SS_{t-1} - 0.22\Delta SS_{t-2} + 0.54\Delta TD_{t-1} + & & & & & \\ (0.021) & (0.19) & (0.14) & (0.12) & (0.30) & (0.22) \\ 0.41\Delta TD_{t-2} + u_{2t}, & & & & & \\ & & & & & \end{cases}$$

$$\Delta TD_t = \begin{cases} -0.03 - 0.28v_{t-1} + 0.15\Delta TD_{t-1} - 0.05\Delta TD_{t-2} - 0.75\Delta SS_{t-1} - & (0.03) \quad (0.11) \quad (0.12) \quad (0.08) \quad (0.18) \quad (0.26) \\ 0.49\Delta SS_{t-2} + u_{1t}, & v_{t-1} \leq -0.25 \\ 0.006 - 0.30v_{t-1} + 0.18\Delta TD_{t-1} + 0.04\Delta TD_{t-2} - 0.2\Delta SS_{t-1} + & (0.008) \quad (0.10) \quad (0.07) \quad (0.06) \quad (0.13) \quad (0.12) \\ 0.067\Delta SS_{t-2} + u_{2t}, & v_{t-1} > -0.25 \end{cases}$$

In all the equations that are examined in VEC models error correction mechanism is negative and the rate of return on balance of services is faster in both regimes in comparison to the tourism industry.

5. CONCLUSION AND POLICY IMPLICATIONS

In this study, in which the current account balance and balance in tourism industry is examined, the impact has been evaluated in two stages. As there are limited number of studies based on the assumption that tourism industry has an impact on current account balance or examines the existence of the impact. The truth that tourism has little impact on macroeconomics is ignored. At this point, the examination of the real impact needs to be examined through services industry which in holds the tourism industry as well. Another important point is the structure of the data concerning especially the tourism industry and current account balance. Current account balance has a vulnerable structure that is affected dramatically by the entire crisis and comprises sudden changes and conversions within. As for tourism, it has a structure that is affected quite rapidly from the internal and external economic and social factors. The economic situation of the tourist receiving and originating countries and its impact on the welfare of the country and the exchange rate can be considered as internal and external factors. On the other side, terrorism and war can be examples of social factors.

As the sizes of all these factors are different and the asymmetry they have created requires the usage of the threshold models. The conducted analysis involves the examination of the impact of the balance of tourism receipts on balance of services, and balance of services on the current account balance. While the balance of tourism receipts and services are studied, it is seen that long run equilibrium is positive and 0.47. A typical regime is determined as the threshold effect is -0.25 and below. The error correction mechanism is active in all regimes and the impact of a shock that occurs, return to the balance. The effect of the balance of services to the current account balance with a -0.56 threshold effect is again found to be positive.

In VEC models, the difference between balance of services and current account balance where the reaction differs below and over the threshold is below -0.56 , then there exists to be a negative relation towards recovering the current account deficit, on the other hand, when the threshold is over -0.56 then there is a positive relation toward accelerating the current account deficit.

In this analysis, it is also observed that the error correction mechanism is active and there is an existence of a return to the balance. Yet, in

this model in which tourism industry is examined, error correction mechanism functions faster. The reason of this is that, the examined industry is dynamic and its adjustment pace is high.

Finally we would like to point out that for the countries with a relatively small share of the tourism industry should use this type of two step approach. Hence this approach gives more specific information to policy makers for to analyze the impact of tourism industry on current account.

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