

Determinants Of Turkey Current Account Deficit: An Econometric Analysis

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Abstract

The main causes of the current account deficit in Turkey; the foreign trade deficit, the high ratio of intermediate goods imports, high oil prices and Turkey's energy import dependence, lack of domestic savings, foreign direct investment and low tourism revenues.

In this study, the causes of the current account deficit and current account deficit financing structure were examined. In addition, the determinants of Turkey current account deficit were analyzed via VAR methods using the data of 2002-2011 monthly current account deficit, net export, interest on external debt, transfer payments and costs of tourism.

As a result of the study, According to variance discrimination results obtained from VAR model composed under this roof, current account deficit is determined by its own shocks in the short term. In addition, current account deficit prediction error variance is determined by tourism expenditures and foreign debt interest rate as well as its own variables. Current account deficit is affected by export, foreign debt interest rate, transfer payments and shock given to tourism expenditures.

Keywords: Current Account Deficit, Determinants, VAR, Turkey

1. INTRODUCTION

1.1. What is current account deficit?

Current account deficit is the difference between the amount of foreign currency getting in and out a country. Export and tourism make up foreign currency income and import and foreign expenditure make up foreign currency expenditure. Current account deficit is reached: the foreign currency obtained from goods export, service export like tourism (e.g. the wage income of those working abroad) and manufacture factors are added and the expenditures made in the same category (import, tourism expenditures, the transfer of the profit gained by

foreigners) are subtracted from total. If the figures obtained show a value then it means that you have a current account deficit.

The economic relations of a country with outsideworld is monitored in a balance-sheet called payment balance. This balance-sheet shows us how much foreign currency surplus or deficit occurred within the term mentioned demonstrating the foreign currency incomes and expenditures in a balanced approach.

Payment balance is made up of two sections. Current deficit balance and capital account. Only current deficit balance will be clarified here. Current account balance consists of 4 sub-balances.

1. Goods balance
2. Services balance
3. Investment revenues balance
4. Current account transfers

Goods Balance: The difference between foreign currency incomes obtained from the sales abroad and foreign currency costs for goods purchased from abroad by a country.

Services Balance: The difference between foreign currency incomes obtained from services such as transport, insurance, tourism and foreign currency costs paid for similar services.

Investment Revenues Balance: The difference between the profits gained from the FDI, interest revenues from portfolio investments by a particular country etc. and foreigners' profits from similar investments in that country and foreign currency revenues in foreign currencies.

Current Account Transfers: The foreign currency input from workers abroad. Therefore, we can formulate current account balance as;

Current Account Balance = Goods Balance + Services Balance + Investment Revenue Balance + Current Account Transfers. If the result of this total is minus(-), current account deficit exists.

1.2. What Are The Effect of Current Account on Economy?

An economy whose current account is on the rise needs to grow its capital accounts as well. The foreign dependence of an economy whose capital accounts grow increases. One of the most debated issues in Turkish economy is current account deficit. Given that the final goal of macroeconomic policies is to provide an interior and exterior balance in the economy of a particular economy, an un acceptable and unsustainable current deficit will mean gradual deviation from exterior balance, therefore, in this case, the problem needs solving through economic policies.

While the provision and maintenance of interior balance means, in general, price stability and exact employment, exterior balance means the payment balance between the total expenditure and revenues of a particular country. Current account deficit can be explained as a deviation related to exterior imbalances in this regard(Telatar, 2011).

1.3.What are the Objectives of this Study?

The aim of this study is to analyse the determinants of current account deficit through 2002:M1-2011:M12 data. This issue needs to be discussed and suggestions for solution need

to be developed because of the fact that current account deficit reached its peak 2011. The study is important in this respect. The rest of the study consists of 6 main sections. In the primary sections are completed that it is introduction, second section determinants of current account deficit in Turkey, the third section up-to-date data regarding current account deficit in Turkey, the fourth section literature, the fifth section analysis and final section.

2. Determinants of Current Account Deficit in Turkey

The determinants of current account deficits (CAD) are now at the centre of international macroeconomics with the recent experience of large imbalances of a number of countries including the USA. The empirical literature appears to focus on the determinants and sustainability of CAD in individual countries or the consequences in a cross-section of countries (Özmen, 2005).

The determinants of current account balances are of considerable interest in open economy macroeconomics. Alternative theoretical models have different predictions about the factors underlying current account dynamics and about the sign and magnitude of the relationships between current account fluctuations and these determinants (Chinn and Prasad, 2000). Hence, empirical analysis of the sort undertaken in this paper could help discriminate among competing theories.

The current account deficit (CA), we define as follows¹⁴:

$$CA_t = NX_t + r_t B_t + TR_t \quad (1)$$

In the equation (1) current account deficit; explained through trade in goods, interest payments on foreign debt and transfer payments.

NX_t ; net exports of goods and services, B_t ; bills, bonds, equities, loans and physical capital that exceed the net foreign assets (foreign debt of countries, external debt stock), r_t ; international interest rate, $r_t B_t$; net return on net foreign assets (foreign debt of the countries, the interest on foreign debt) and TR_t ; represents transfer payments net of public and private sector.

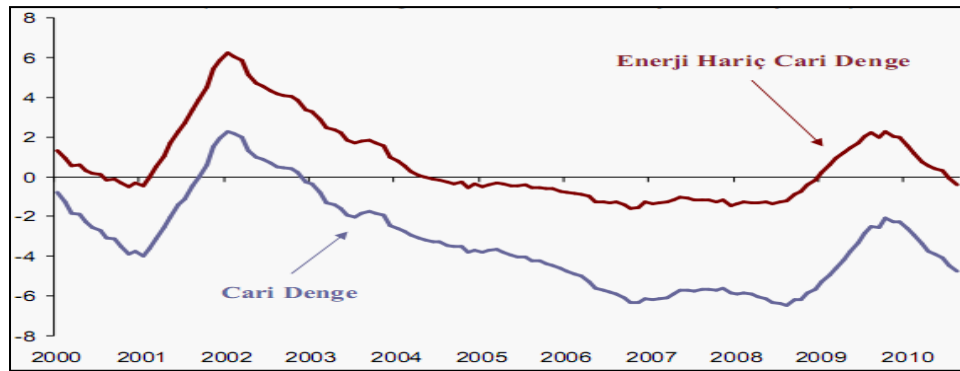
$NX_t = X_t - M_t$, part of CA_t has the biggest share is the last period in Turkey. When the country is indebted to $r_t B_t$ and CA_t is negative value adversely affected. Transfer payments are usually made out of small countries, since there is little outsiders, TR_t positive affected CA_t . According to this definition, the causes of the current account deficit, external debt and interest payments on trade in goods.

3. Up-to-date data regarding current account deficit in Turkey

The republic of Turkey produced 57 billion dolar current account deficit from 1923 to 2002. The current account deficit, which was 48,5 billion dollars in 2010, rose to 77,1 billion dollars in late 2011.

Figure 1. Current Account Balance (January 2000 - August 2010. GDP ratio,%)

¹⁴In this section, Uygur(2004) were the work of the reference analysis.



Source: Central Bank President D. Yilmaz Submission of Plan and Budget Commission of the Parliament (October 2010).

Mehmet Simsek, Turkish Finance Minister, points out that current account deficit is an issue that has both structural and cyclical aspects. He also added that domestic demand in Turkey has grown 8-10 times as fast as that of Europe, and surging oil prices and Arab spring in the region caused the current account deficit to rise to an unpredictably high levels.

4.Literature

The studies in which current account deficit is analyzed through exterior balance approach was launched by Husted (1992), and he was followed by Milesi-Ferretti and Razin (1996), Fountas and Wu (1999) and Edwards (2001).

Khan and Knight (1983), using pooled cross-section time-series analysis for a sample of 32 non-oil developing countries during the period 1973-80. The empirical results suggest the importance of exercising circumspection in attributing to any single cause the current account imbalances experienced by non-oil developing countries during the 1970s.

When foreign Exchange rate falls down, export goods' prices rise and export is badly influenced. And imported goods' prices relatively fall down and import increases. (Peker Hotunluoğlu, 2009)

Edwards (2005) examined the relation between US dolar and US current account deficit. It was pointed out in the analysis that foreign demand for dollars will lower current account deficit and in the near future US foreign deficit will decrease the rate of growth at a remarkable scale.

Aristovnik (2006) reached the conclusion in his research on transition economies that, in case current account transactions deficit surpasses 5% of GDP, economies generally have trouble with foreign sustainability.

Yamak and Korkmaz (2007), in his study in which he used a data set of 2001:04-2005:09 period and modern times series techniques, reached the conclusion that Turkish current account deficit is sustainable in weak form and there is a co-integration relation between export-import series.

Peker (2009) analyzed the sustainability of current account transaction deficit in Turkey through co-integration method using 1992:01-2007:12 period monthly data. As a result of the survey, he found out that current account deficit can be sustained at alow level, though a long-term relation between export and import series exists, co-integration co-efficient is 0,8926

consequently, he concluded that foreign currency revenues are lower than foreign currency expenditures.

Oktar and Dalyancı (2011) found out that the sustainability of Turkish economical growth depends on maintenance of current account deficit. He also examined the relation between monetary policies and current account transactions for Turkish economy through time series, and found out that there is no Granger causality between Central Bank of Turkish Republic policy interest rate and current account transactions balance in the short term and an adverse co-integration relation in the long-run.

Erdil Sahin (2011) emphasized that current account deficit because of high rate growth depending on domestic demand and excessively valuable Turkish Lira should be recovered through new structural reform policies based on firm growth Fundamentals. He concluded that current account deficit financed by short-term capital entrances like in Turkey, however, is unsustainable due to capital exit risk, whatever size it is.

Chen (2011) examined the sustainability of current account deficit on economy policy in G-7 countries through econometric methods and found out that while current account deficit is sustainable for Germany and Japan in the long run, he couldn't reach positive results for Canada, France, Italy, UK and USA.

Kim, Min, Hwang and Mcdonald (2009) concluded in the studies they conducted on the 1981-2003 period quarter data of far-east countries such as Indonesia, Korea, Malasia, the Phillippines and Thailand that those developing countries had a high growth rate and their current account deficit was sustainable.

5.ANALYSIS

5.1.Data Set

2002:M1-2011:M12 covering the period of this study, five variables were used. What variables stand for; (CAD), the level of current account deficit, (NX), net exports (FID), interest on external debt, (TP) transfer payments and (TE) represents the costs of tourism. Variables were obtained from Central Bank of Turkey Electronic Data Delivery System, balance of payments detailed presentation part. As a result of the analysis, which variable or variables were effective on the variables that detrmine the current account deficit was analyzed. Estimates for all the test and computer package Eviews 5.1 program was used.

5.2.Method

Without any restrictions on the VAR models, structural models can be delivered between the dynamic relationships and for this reason, often used in time series (Keating, 1990:453 - 454). Since the VAR model which is most frequently used in Time series of economic studies does not require inernal-external distinction, in any way out of economic theory, it differs from simultaneous equation systems in this respect. Moreover, that lagged values of dependent variables are also included in VAR models makes strong predictions for the future possible. (Kumar, Leona, Gasking, 1995: 365).

As a result of estimating VAR model, instead of interpreting the parameters obtained, comments can be made for the future by passing the analysis of residues obtained from the estimated result of the system. The effects of shocks that these are likely to occur in error terms of the variables in the models are measured with Impulse-Response functions as shown in

Enders(1995: 305-311), the Variance Decomposition which is determined with the model prediction and measures the prediction error variance another technique is used in the analysis of residuals. It is mention that with technical assistance mentioned, the effects of statistical shocks on the variables will be observed.

5.3.Unit Root Test

Static variables are checked in the methods used in time series analysis. A time series is stationary if its average and variance does not change over time and the covariance in a period is dependent on only the distance between two periods not the period the covariance is calculated (Gujarati, 1999: 713). Dickey and the problem of the estimated regression models are faced with a fake because of the (Granger and Newbold, 1974), the obtained results do not reflect the true relationship. In such a case, T and F statistics are lost. Therefore, meaningful and non-stationary time series regression analysis reflect real relationships, but this is a co-integration relationship between the time series is made possible by the presence of (Gujarati, 1999: 725-726).

This level of stability study, the variables before Augmented Dickey-Fuller (1979) test was analyzed to compare the results of this test is then Phillips-Perron (1988) test was used.

Table 1. ADF Unit Root Test

Variable	ADF Test			Critical Value (%1)
	Level Value	1.Difference	2.Differece	
<i>CAD</i>	-2.758[0]	-2.022[12]*	-9.457[11]**	-3.493
<i>NX</i>	-1.695[1]	-14.142[0]*	---	-3.489
<i>FID</i>	-1.414 [6]	-5.436 [5]*	---	-3.489
<i>TE</i>	-0.003[12]	-4.907[11]*	---	-3.492
<i>TP</i>	-7.736[0]	---	---	-3.486

Note: ADF with Schwarz criterion were tested. Level for all variables in the test format and the intercept was used as the level value. The first difference variables (*) and the second difference (**) and the level values were used. The values in square brackets, variables, states that the length of SIC determined by the appropriate delay.

NX CAD and the second by taking the difference of the variables, and *TE FID* has become stationary by taking first difference. *TP* was the model-level value. The level of each variable included in the model are stationary.

VAR will be estimated prior to model, appropriate for the model determined the length of the delay. To do this, the following tests were used:

Table 2. Corelation LM Test

Lags	LM-Stat	Prob
1	35.40355	0.0812
2	33.27135	0.1244
3	30.48034	0.2068
4	47.77828	0.0640
5	31.62167	0.1693
6	23.02558	0.5761
7	30.94912	0.1907
8	17.11513	0.8776

9	22.40669	0.6122
10	16.95346	0.8835
11	27.58093	0.3275
12	20.79169	0.7042

Table 3. VAR Lag Selection Criteria Endogenous Variables

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-8784.908	NA	7.62e+63	161.2827	161.4062	161.3328
1	-8676.626	204.6417	1.65e+63	159.7546	160.4954	160.0550
2	-8604.155	130.3155	6.94e+62	158.8836	160.2416*	159.4343
3	-8563.791	68.87893	5.27e+62	158.6017	160.5770	159.4027
4	-8542.246	34.78816	5.70e+62	158.6651	161.2576	159.7164
5	-8483.881	88.88556	3.16e+62	158.0529	161.2627	159.3546
6	-8418.272	93.89887	1.55e+62	157.3077	161.1349	158.8598*
7	-8390.276	37.49885	1.54e+62	157.2528	161.6972	159.0552
8	-8348.860	51.67573	1.22e+62	156.9516	162.0133	159.0043
9	-8315.491	38.57332*	1.14e+62*	156.7980*	162.4770	159.1010

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

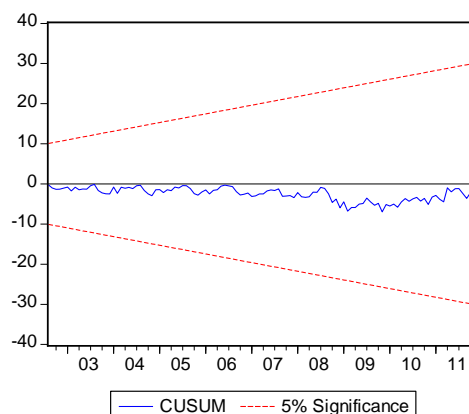
HQ: Hannan-Quinn information criterion

Table 3 is examined, LR, FPE and AIC values are in the same direction, and 9 is the minimum value for the delay. Both aim to determine the level of consistent delay, and, due to lack of a very long time period covered nine-term delay, the delay level is determined as appropriate for the model.

5.4. Variances Decomposition

To investigate the presence of structural breaks related to the variables, using the squares of residuals, and thus return the system investigating the CUSUM structural break related to the variables (Brown, Durbin and Evans, 1975:149-155) chart was used.

Figure 2. CUSUM of variables



Equalities, we can say that the structural break related to other variables. Due to a fracture model variables were observed in the break out will be estimated using an artificial variable to express any.

Table 4. Variance Decomposition Results

Variance Decomposition of DDCAD:						
Period	S.E.	DDCAD	DNX	DFID	DTE	TP
1	84300967	100.0000	0.000000	0.000000	0.000000	0.000000
2	1.49E+08	95.09178	2.023950	1.984184	0.591259	0.308826
3	1.61E+08	90.33680	2.747490	4.052956	2.412449	0.450309
4	1.63E+08	87.25829	5.747876	4.171563	2.333944	0.488322
5	1.71E+08	81.11985	7.289460	3.938387	7.201878	0.450421
6	1.71E+08	80.28052	7.239189	3.901067	8.099975	0.479254
7	1.78E+08	77.81817	6.709760	5.361156	7.610183	2.500734
8	1.94E+08	72.94288	6.458122	6.146644	10.21749	4.234860
9	2.02E+08	69.33291	6.572370	7.840872	12.30576	3.948098
10	2.04E+08	68.12074	6.577430	8.276226	12.54971	4.475894

Variance Decomposition of DNX:						
Period	S.E.	DDCAD	DNX	DFID	DTE	TP
1	726.8696	62.11543	37.88457	0.000000	0.000000	0.000000
2	822.0173	60.45094	31.35544	0.956160	7.233698	0.003761
3	835.0815	59.89074	31.07529	0.938940	7.125766	0.969261
4	875.3560	61.66188	28.68063	1.468556	7.026169	1.162764
5	889.0531	59.94052	28.02536	1.528729	9.333278	1.172110
6	904.9741	58.08003	28.67585	3.093604	9.012475	1.138039
7	971.0690	53.04461	33.22206	2.904349	8.086086	2.742890
8	1001.682	52.55017	31.41238	3.676091	9.583833	2.777520
9	1016.415	51.33369	30.52297	4.409506	9.308097	4.425732
10	1029.796	50.83004	29.86570	4.308151	9.425688	5.570417

Variance Decomposition of DFID:						
Period	S.E.	DDCAD	DNX	DFID	DTE	TP
1	6409819.	0.960621	3.561922	95.47746	0.000000	0.000000
2	8578346.	1.703198	7.614193	87.11718	0.278227	3.287206
3	8867969.	1.816690	9.815775	82.08521	2.768816	3.513511
4	8929659.	1.843917	10.02791	80.96368	2.734430	4.430063
5	9101219.	1.913250	10.74781	78.29582	4.769543	4.273574
6	9537165.	5.070666	10.02298	72.88628	7.228628	4.791440
7	10506134	4.620808	8.634321	76.81778	5.978435	3.948656
8	11332499	4.982647	7.593771	76.05110	7.402783	3.969697
9	11463066	5.196262	9.053756	74.52841	7.297956	3.923618
10	11850968	5.048882	11.80834	71.04702	7.549994	4.545765

Variance Decomposition of DTE:						
Period	S.E.	DDCAD	DNX	DFID	DTE	TP

1	3664782.	4.144082	0.903425	0.009031	94.94346	0.000000
2	4203964.	9.252956	0.705626	3.328949	86.21273	0.499736
3	4559527.	8.289357	6.540827	3.097522	78.29637	3.775922
4	4967974.	7.025928	9.021794	5.351039	69.75619	8.845054
5	5040278.	7.202990	9.302489	5.226973	68.86394	9.403608
6	5131554.	8.425076	9.819431	6.159875	66.43832	9.157296
7	5398903.	11.91116	12.21158	6.516126	60.95210	8.409036
8	5870845.	11.86556	17.82288	10.86181	52.02978	7.419963
9	6065571.	12.60093	21.15931	10.38818	48.82419	7.027386
10	6194207.	14.69380	20.81232	10.05785	47.10559	7.330433

Variance Decomposition of TP:

Period	S.E.	DDCAD	DNX	DFID	DTE	TP
1	5585095.	10.32720	0.065194	1.202163	0.198028	88.20741
2	5933919.	10.60821	0.778084	1.230677	1.858145	85.52488
3	6556542.	9.127853	1.108046	6.006631	8.924092	74.83338
4	6756191.	10.77251	1.114342	5.727087	11.34185	71.04422
5	7099558.	13.86680	1.179061	7.423425	10.38171	67.14900
6	7377532.	13.17017	2.558330	6.979129	13.20643	64.08594
7	7431274.	14.08089	2.533998	6.881688	13.29330	63.21013
8	7561157.	14.27852	3.692998	6.671441	13.02000	62.33704
9	7734123.	13.79738	3.539359	10.22790	12.45194	59.98342
10	8063976.	20.45568	3.295772	9.469962	11.50355	55.27503

Cholesky Ordering: DDCAD DNX DFID DTE TP

Accordingly, the current account deficit is largely determined by its own shocks. Net exports are determined by its own shocks in the short term, and by tourism expenditure and external debt with interest in the long term. It looks that net exports are determined by current account deficit and tourism expenditures as well as its own shocks in the long run. Foreign debt interest rate results from supply shocks and net exports in the long term. Tourism expenditures are affected by net exports and current account deficit in the long term. Supply shocks of transfer payments result from itself in the short term and from tourism expenditures and foreign debt interest rate in the long term.

That is, a negative increase in exports affects macroeconomic variables by triggering current account deficit. It is a challenge to take current account deficit that follows an unstable trend to a stable line. In other words, unless a regulation is made in order to break the trend of unrest result in the continuation of current account deficit. This situation is among basic findings of the survey. One of the most significant consequences of variance decomposition is that current account deficit is determined again by itself. The results obtained are supported by the outcomes of impulse-response analysis.

5.5. Impulse Response Function

Analysis of basic situation arising as a result, net exports as the determinants of current account deficit, external debt interest, transfer payments and indirect effects of tourism expenditures affect the current account deficit.

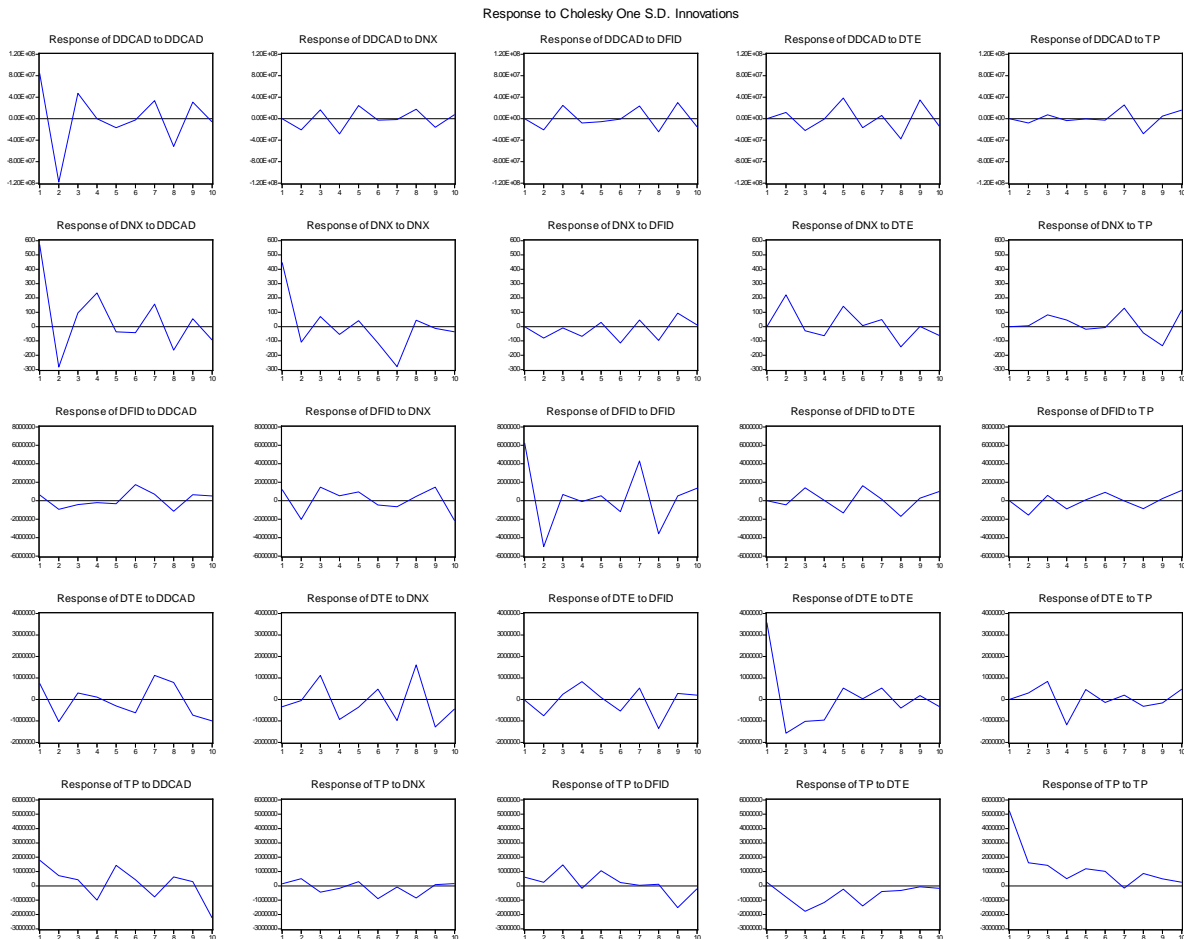


Figure 3. Impulse-Response

6. Conclusion

In this survey, which was conducted on the determinants of current account deficit, current account deficit, export, foreign debt interest rate, transfer payments and tourism expenditure were studied. The variables mentioned were subjected to VAR analysis for 2002:M1-2011:M12 period as a result of stationarity research as long as they are stationary.

First, of the variables CAD and NX, the second difference taken, FID and TE the first difference taken, were made stationary. TP was involved in the model with its surface value. Each variable was involved in the model so long as they are stationary. The model's time-lag length was determined as 9.

According to variance discrimination results obtained from VAR model composed under this roof, current account deficit is determined by its own shocks in the short term. In addition, current account deficit prediction error variance is determined by tourism expenditures and foreign debt interest rate as well as its own variables. Current account deficit is affected by export, foreign debt interest rate, transfer payments and shock given to tourism expenditures.

It was observed that current account deficit is a potential problem in Turkey. It is thought that it can stimulate crisis unless kept under control. However, the precautions taken by the Central Bank of Turkish Republic recently are of great importance in terms of hindering current account deficit. Therefore, not only total demand will be intimidated but also national amount of savings will be raised. In this respect, increasing tourism revenues, keeping short term capital movements under control measures to decrease imports and increase exports could be taken into account.

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