

# The Impact of Trade Liberalization on Current Account Deficit: The Turkish Case

E. Selçuk, Z. Karaçor, P. Yardımcı

**Abstract**—Trade liberalization and its effects on the economies of developing countries have been investigated by many different studies, and some of them have focused on its impact on the current account balance. Turkey, as being one of the countries, which has liberalized its foreign trade in the 1980s, also needs to be studied in terms of the impact of liberalization on current account deficits. Therefore, the aim of this study is to find out whether trade liberalization has affected Turkey's trade and current account balances. In order to determine this, yearly data of Turkey from 1980 to 2013 is used. As liberalization dummy, the year 1989, which was set for Turkey, is selected. Structural break test and model estimation results show that trade liberalization has a negative impact on trade balance but do not have a significant impact on the current account balance.

**Keywords**—Budget deficit, current account, liberalization, Turkish economy.

## I. INTRODUCTION

THE impacts of trade and financial liberalization movements which have influenced all the economies in the world, particularly developing countries, starting from the 1980s, is a controversial issue which continues to be investigated. In the aftermath of trade liberalization, current account deficit problems and successive economic crises in developing countries have occupied the world agenda for a long time. In many countries, interventions to stop the appreciation of the currency in order to avoid a balance of payments problems after trade liberalization has not been successful. This is valid for especially the countries with larger growth in imports than in exports in the period following liberalization (Argentina, Colombia, Mexico, and Turkey) and the real exchange rates in all of them appreciated [1]. The country's overvalued exchange rate caused goods produced in that country to become more expensive on the world market and exports to fall, and by increasing imports, led to the growth of the foreign trade deficit. Turkey as being one of the countries which have liberalized its foreign trade in this period, has experienced the problems of exchange rate appreciation, trade deficit and the current account deficit since the 1980s, growing current account deficits still continue to pose a problem.

E.Selçuk and Z. Karaçor are with the Selçuk University, Faculty of Economics and Administrative Sciences, Department of Economics, Konya, 42151. Turkey (phone: +903322244238, +90-332-223-4363; fax: +903322244803, +90-332-241-0046; e-mail: eselcuk@hotmail.com, zkaracor@selcuk.edu.tr).

P. Yardımcı is with the Selçuk University, Silifke-Taşucu Vocational School, Department of Foreign Trade, Silifke, Mersin. Turkey (phone: +90-324-741-2734; fax: +90-324-741-3847; e-mail: pinar@selcuk.edu.tr).

## II. FOREIGN TRADE LIBERALIZATION AFTER 1980

1973-74 oil shocks and rising inflation in the western world have led to the deterioration of terms of trade and increase in current account deficits. Exchange rate policies have been insufficient to prevent the overvaluation of TL. In order to ensure the balance, imports were tried to be taken under control and exchange rate controls have been increased. Due to the rapid growth in the economy and consequently in imports, increasing current account deficits during the 1970s has come to an unsustainable point by the end of Third Five-years Development Plan and in 1978 Turkish economy entered into a severe economic crisis [2]. Therefore, it has become inevitable to make some changes in the economy. In this context, 1980 has been a major turning point in terms of Turkey's economy and international trade. Within the framework of January 24, 1980, Decisions, Turkey's economic development strategy changed from the import substitution (or closed) strategy which had continued throughout the 1960s and 1970s, to an export-oriented growth strategy and trade liberalization policies began to be implemented [3]. In order to improve the export performance of Turkey, the Turkish lira was devalued by 32.7% against US dollars by the January 24 Decisions. The purpose of this strategy is to ensure that the Turkish economy functions according to the rules of the free market and becomes integrated into the world economy.

With the term of trade liberalization, it is generally expressed the changes in trade policies that prevents the free trade flow due to government interferences. These policy changes are divided into two basic groups. The first group is composed of price interventions like tariffs, taxes, and surcharges and the latter cover the non-tariff barriers like quotas, licensing rights, and prohibitions [4]. In 1980, the first step was the reduction of taxes on imports from 252 percent to 1 percent and the simplification of import regulations. Quota list repealed in 1981 and many items in the list numbered II, have been shifted to the less restrictive list numbered I [5]. Importation of goods in list no2 has needed the ministry permission; there was no need for permission for the list no 1. Imports have been liberalized gradually. The exports, on the other hand, have been tried to be encouraged by various incentives such as tax rebates, low-interest loans, and the customs exemption on imported inputs for manufacturing exporters. By the import regime which entered into force in 1984, the quota lists were completely removed. In particular, the 1984 import regime has brought much more radical structural changes from those in other years [2]. The liberalization process has gained momentum in goods and services markets since 1984. Liberalization of the imports

began with the replacement of protection by quantity restrictions with tariff rates plus funds, and customs duties have been reduced to almost half from 76,3 % to 48.9%. At the end of the 1980s, the ratio reached 94 per cent liberalization of imports [6].

However, the GATT agreement that was signed in 1985 led to the phasing out of the tax return gradually, so that, after 1984, the payments made from extra-budgetary funds have become more important. In addition, the acceleration of the liberalization process in imports was another factor that encourages exports. As a result, export-oriented direct subsidies were decreased gradually, lowered to 4.4 percent in 1990 and then completely removed [5]. Moreover, with the Decree number 32 on the protection of Turkish Currency that was published in the Official Gazette and came into force on 11.08.1989, brought largely freedom to exchange rate regime, and in this way, the legal framework that was necessary for the convertibility of the Turkish currency was provided [2]. After 1992, liberalization in the flow of goods emerged in the context of Uruguay Round of GATT and the EC Customs Union agreement. By the completion of the 22-year transition period in the Customs Union and passing onto the last period, EU compelled Turkey to increase liberalization degree against third countries on the way towards the harmonization with EU's Common Tariff policy [6]. In accordance with promises given to the EU, all tariffs except customs duty and the Housing Fund charges were abolished, necessary reductions in other taxes and TKF charges were completed until the beginning of 1996 [5]. As a result, since 1 January 1996, the protection rate on the goods originating from EU and EFTA countries was reduced from 5.9 percent to zero percent. In addition, import protection rate that applies to products coming from third countries also fell from 10.8 percent to 6 percent [5].

### III. TRADE BALANCE AND CURRENT ACCOUNT BALANCE AFTER 1980

When we look at the changes in trade balance and current account balance post-1980, although the process of liberalization in foreign trade contributed to the increase in exports, it seems to be more effective in increasing imports. In Fig. 1, it can be seen that especially in the post-1988 period, an increase in imports was realized at higher rates than the increase in exports. Although imports show serious declines during the crisis, aftermath it has continued to rise over the export again.

In Turkey, in the first half of the 1980s, significant increases in exports were observed especially with the help of export subsidies and the devaluation in 1980. However, these increases appeared to be temporary and unsustainable in the second half of 1980, and this increased the question marks over the sustainability of the current account deficit [7]. Liberalization in the flow of goods has largely increased the degree of Turkey's dependence on and responsiveness to outside world. While the share of foreign trade in GDP was 15 percent in the 1970s and in 1980, it rose to 45 percent in 1990s, and it approached 50% in 2000. As the convertibility of

Turkish Lira and liberalization of capital movements added to this process, current account deficit exploded in a few years, but since exchange rate remained stable, TL appreciated and this deterred export and encouraged imports. The export coverage ratio of imports in the goods market has fallen from 72.4 percent between 1984 and 1989 to 55.8 percent between 1993 and 1997 [6]. This opening up process, starting without the necessary legal and structural reforms, resulted in importing more than what is exported and a continuous trade deficit [8].

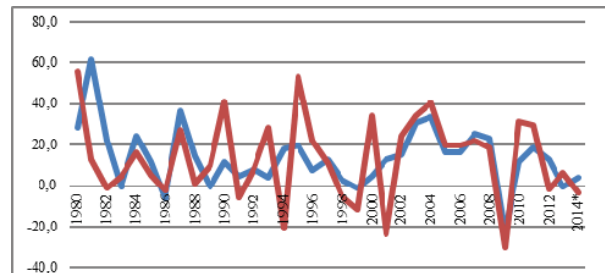


Fig. 1 The change in exports (blue) and imports (red) (%)

The mismatch between the fiscal policy and exchange rate policy has marked the term. While export growth had reached to expected high acceleration rate, macroeconomic instabilities had continued to show their impact on external balances negatively in the late 1980s and 1990s. When it has reached to 2000s, the process of Customs Union beginning in 1996, stabilization measures and economic crisis in 1999 has led to further questioning the sustainability of the current account deficit in Turkey [7].

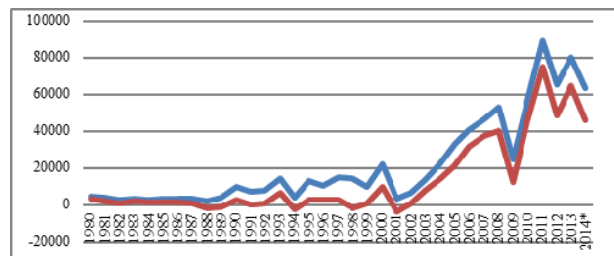


Fig. 2 Trade Deficit (blue) and Current Account Deficit (red) (Milion US \$)

Fig. 2 shows the graph of the change of trade deficit and current account deficit between 1980 and 2014. Generally, trade deficit and current account deficit seem to decline during the crisis, but soon after they start to rise again. The current account deficit mainly stems from the trade deficit. The current account gives a surplus for the years that the economy is in stagnation and/or crisis, it is in deficit in normal years especially because Turkish economy depends on the imports of intermediate goods. However, this relationship greatly deteriorated in the 2000s, the current account deficit and trade deficit did not decrease even in the years which economy shrank. No doubt, this structure is closely related to the increasing dependence of the production of industrial sector

which forms the most basic items of foreign trade in Turkish economy to imports [9].

Exports, amounting to about \$ 2.9 billion in 1980, had reached 85 billion US \$ at the end of 2006. While the average annual increase in exports was 12.1 percent in dollar terms during the period 1980-2002, it had risen to 18.5 percent in the 2000-2006 period. Between 2001 and 2006 by showing continuous growth over the historical average, Turkey's export was realized as 20.8 percent. Despite all these positive developments, because of both low exchange high-rate interest rate policy, and increase the imports of consumption goods, besides intermediate and capital goods, due to the increase in domestic demand, imports grew faster than exports. The trade deficit that was 5.4 in 1994 became 26.8 in 2000 and rose to 54.1 billion \$ in 2006 [10].

#### IV. LITERATURE SURVEY

It is possible to find many different studies in the literature on the causes and the sustainability of the current account deficits, but the number of studies focusing on the effects of trade liberalization on current account is more limited. Chinn and Prasad (2003), in the empirical work they did on the medium-term determinants of current account deficit with a data set consisting of both developed and developing countries, they found that openness to foreign trade, among other factors, has a negative relationship with the current account balance in particular for developing countries. In this study, to measure the openness to foreign trade, the ratio of exports and imports in total to GDP is used [11].

Another indicator of the openness to trade is the change in the tariff rates. Ostry and Rose (1992), who chose this indicator, examined the impact of changes in the tariff rates on the trade balance empirically with five different sets of data and had concluded that there is a significant relationship [12].

Santos-Paulino (2002) in his study on 22 developing countries showed that trade liberalization worsens the trade balance and balance of payments because in these countries imports responded faster than exports to the liberalization. In Paulino's study, to measure the degree of openness, change in customs duties on imports and exports and a dummy variable indicating the years in which arrangements were made to liberalize the trade were used. Accordingly, while a 1% decline in taxes on exports improves trade balance as 0.2 % of GDP, the 1% decline in import tax worsens trade balance as 0.8% of GDP. On the other hand, the trade liberalization process worsens the trade balance by at least 1% of GDP. When considering the current account balance, the results show that the negative impact of the openness to foreign trade applies, although it is weaker [13].

Ju, Wu, and Zeng examined the impact of trade liberalization on imports, exports and trade balance in developing countries using trade liberalization criteria established. Although they found strong evidence on that trade liberalization increases imports and exports, findings on trade liberalization having a negative effect on trade balance are not obvious [14].

In a study conducted to investigate the effects of trade

liberalization on the current account deficits in developing countries, Parikh has determined that liberalization, in the short term, by increasing imports could lead to trade and current account deficits, and furthermore economic growth brought by liberalization could lead to higher imports than exports in the short.

Lopez (2003) unlike other studies, instead of using panel data, worked with Mexican data, he included liberalization dummies based on Mexico's trade liberalization past in the model and tried to determine the impact of opening to foreign trade on Mexico's trade and current account balance in this way. Time series analysis shows that foreign trade reforms in the 1980s worsened the trade balance by 14-18% but did not have a significant effect on the balance of payments [15]. In this study, by following an analogous procedure to Lopez's study, the impact of Turkey's opening to foreign trade after 1980 on the trade balance and current account deficit will be analyzed.

We see that studies about Turkey's current account balance mostly focus on the causes and the sustainability of the current account deficit. Eşiyok (2012) found an appreciation of TL as a result of inflation targeting, increasing dependence on imports in energy, internal processing regime and delayed effects of the Customs Union which entered into force in 1996 as major developments causing the rapidly growing current account deficit in the 2000s [9].

Peker and Hotunluoğlu (2009), in their studies that they analyzed the determinants of current account deficit in Turkey with the help of vector autoregression (VAR) method and 1992: 01-2007: 12 monthly data, they found that the real exchange rate, real interest rate, and the ISE National-100 Index are the most important determinants of the current account deficit in Turkey [16].

Göçer (2013) analyzed the causes and financing quality of current account deficit in Turkey; using 1996: M01-2012: M01 data, VAR model and Johansen and VEC method, and has concluded that the current account deficit is sustainable in the weak form [8]. Kalyoncu tried to determine the sustainability of the current account deficit in Turkey by looking at the long-term relationship between real exports and real imports in 1987: 1-2002: 4 range and has concluded that the current account deficit sustainable in the long term [17].

#### V. MODEL

In this study, in order to examine the impact of trade liberalization on the current account deficit, trade balance and current account balance are tried to be estimated as an econometric model, using annual data for 1980-2013. Since in the previous studies different results were obtained according to different countries and different models and also the impact of trade liberalization on the current account deficit is uncertain theoretically, expected results are not clear.

$$TB=X/M$$

While X and M are exports and imports respectively, we take the log and first differences of these variables:

$$tb = (p_x + x) - (p_m + m) \quad (1)$$

$x$  and  $m$  indicate the change in export and import volumes respectively and  $(p_x - p_m)$  indicates the change in the difference between the prices of exports and imports i.e. change in terms of trade. If we rearrange this (1) with standard export and import equations;

$$tb = \alpha + \beta_1 yw + \beta_2 yd + \beta_3 rer + \beta_4 tot + \varepsilon \quad (2)$$

$yw$  is the growth in international income;  $yd$  is growth in domestic income,  $rer$  is the change in the real exchange rate,  $tot$  shows the change in terms of trade,  $\alpha$  shows a constant and  $\varepsilon$  the error term. If we add import duties (MD) and a dummy variable ( $lib$ ) showing the year of trade liberalization to this model as the indicators of openness to trade;

$$tb_t = \alpha + \beta_1 yw_t + \beta_2 yd_t + \beta_3 rer_t + \beta_4 tot_t + \beta_5 md_t + \beta_6 lib_t + \varepsilon_t \quad (3)$$

Similarly, the following models can be estimated for the current account balance (CAB).

$$cab_t = \alpha + \theta_1 yw_t + \theta_2 yd_t + \theta_3 rer_t + \theta_4 tot_t + \theta_5 md_t + \theta_6 lib_t + \varepsilon_t \quad (4)$$

#### VI. DATA AND METHOD

In this study, the data set includes annual data of Turkey from 1980 to 2013. Growth data for the world and Turkey, customs duties on imports and the terms of trade data from the is obtained from World Bank Development Indicators dataset;

TABLE I  
DESCRIPTIVE STATISTICS

Variable	Description	Average	Median	Max	Min	Std. Dev.
DTD	Trade Balance (milion \$)	-20409.15	-9.965,50	-1.813,00	-89.160,00	23,692.30
CID	Current Account Balance (milion \$)	-12624.00	-2.388,00	3.760,00	-75008.00	20551.56
YD	GDP (milion \$)	297,031.20	185,655.10	822,135.20	59,989.91	252,230.50
YW	World GDP(milion \$)	37693463.00	36231153.00	56528756.00	22632766.00	10612899.00
RER	Real Exchange Rate	130,97	124,20	182,82	91,02	27,29
TOT	Terms of Trade	102,71	101,62	120,41	88,90	8,76
TARIFF	Tariff rate on import	18,21	7,28	60,00	1,75	22,37
lib89	Liberalization time dummy	0,03	0,00	1,00	0,00	0,17

TABLE II  
ADF TEST RESULTS

Variable	Level		1 <sup>st</sup> Difference		Stationarity
	t stat	Critical Value	t stat	Critical Value	
DTD	-2,31	-3,55	-7,39	-3,56	I(1)
CID	0,74	-3,56	-8,64	-3,56	I(1)
YD	-1,33	-3,55	-6,41	-3,55	I(1)
YW	-2,07	-3,55	-4,92	-3,55	I(1)
RER	-2,49	-3,55	-7,09	-3,55	I(1)
TOT	-2,28	-3,59	-4,15	-3,59	I(1)
TARIFF	-1,1	-3,55	-4,99	-3,56	I(1)

According to the estimation results of model No. 3 trade deficit is positively related to GDP growth rate, i.e. as income increases, trade deficit also increases in Turkey. Based on this model, 1% increase in growth leads to a 0,1% increase in the

trade balance, current account balance, and the real exchange rate data are obtained from the Central Bank of Turkish Republic. Liberalization dummy is selected as the year 1989 which was set for Turkey and used by Ju, Wu, Zeng (2010) in their study, and it was included in the model by confirming with the Chow structural break test [14].

#### VII. ECONOMETRIC ANALYSIS

Before the estimation of the models created for the trade balance and current account balance, the stationarity of the variables was tested. ADF test results for trade balance, current account balance, the real exchange rate, terms of trade, Turkey's and world's GDP show that these series are not stationary in level, but they become stationary by taking their first differences i.e. series are I(1). Since the change in these variables will be used in the models, the model will be estimated by taking the first differences of the series. ADF test results are shown in Table II.

First of all, the trade balance was taken as the dependent variable and the effects of the other variables on the trade balance were tried to be determined. In order to determine the time dummy, it was tested whether a structural break existed in 1989. According to Chow test, 1989 can be seen as a breaking point in Table III.

Accordingly,  $lib89$  dummy that takes the date of trade liberalization as 1989 was included in the model, and by taking the logarithms and first differences of other variables, the model was estimated using least squares (OLS) method with Eviews8. The estimation results are shown in Table IV.

trade deficit. However, a significant and meaningful relationship between the growth rate of world income and Turkey's trade deficit could not be detected. The increase in world income does not affect the trade deficit in Turkey.

TABLE III  
RESULTS OF STRUCTURAL BREAK TEST

Chow Breakpoint Test: 1989			
Null Hypothesis: No breaks at specified breakpoints			
Varying regressors: All equation variables			
Equation Sample: 1981 2013			
F-statistic	2.482265	Prob. F(6,21)	0.0566
Log likelihood ratio	17.68920	Prob. Chi-Square(6)	0.0071
Wald Statistic	14.89359	Prob. Chi-Square(6)	0.0211

The change in real exchange rate emerges as another

variable affecting the change in the trade deficit. There is a positive and significant relationship between real exchange rate and a trade deficit at the 1% importance level, and it is estimated that the trade deficit increases by 2.49%, in response to a 1% increase in real exchange rate. On the other hand, no significant relationship between changes in terms of trade and trade deficit can be found.

Model (3) estimation results demonstrate that there is a positive and significant relationship between the dummy variable lib89, which shows the liberalization year, and change in the trade deficit at 5% significance level. According to this, the reforms carried out since 1980, in which liberalization started, became fully effective on 1989 and gave rise to a structural change in the trade deficit in Turkey. However, in line with the findings of Ostry and Rose (1992), a significant relationship between the tariff rates and the trade deficit could not be found [12].

TABLE IV  
ESTIMATION RESULTS FOR TRADE BALANCE MODEL

Dependent Variable: tb				
Method: OLS				
Sample: 1981 2013				
Observation: 33				
Variable	Coeff	Std. Error	t-Stat	Prob.
C	-0,2591	0,1227	-2,1110	0,0445
yw	-0,0505	0,0452	-1,1166	0,2744
yd	0,1009	0,0167	6,0569	0,0000
rer	2,4931	0,6079	4,1009	0,0004
tot	-0,7715	1,0170	-0,7586	0,4549
md	-0,0232	0,2206	-0,1051	0,9171
lib89	0,9751	0,3688	2,6442	0,0137
R2	0,8213	Mean dependent var		0,0865
Adjusted R-squared	0,7801	S.D. dependent var		0,6263
S.E. of regression	0,2937	Akaike info criterion		0,5731
Sum squared resid	2,2423	Schwarz criterion		0,8906
Log likelihood	-2,4565	Hannan-Quinn criter.		0,6799
F-statistic	19,9214	Durbin-Watson stat		2,1854
Prob(F-statistic)	0,0000			

Table V shows the estimation results of Model (4) which was created to explain changes in current account deficit (CAB). As in Model (3) explaining the changes in the trade deficit, the change in GDP growth rate and the real exchange rate are found to have a significant and positive relation with the change in current account deficit. However, time dummy showing trade liberalization has lost its importance in this model. Similar results were also found in Lopez (2003) that while trade liberalization has a significant relationship with the change in the trade balance, but no relationship with the current account balance [15].

#### VIII. CONCLUSION

As a result of this study which was conducted in order to determine the impact of trade liberalization movements in 1980s on Turkey's trade deficit and hence the current account deficit, 1989, in which trade-related reforms came into effect and opening economy to foreign trade took place, identified as

a structural breakpoint in terms of the trade balance. The estimation results of this model indicate that trade liberalization is a factor that increases the trade deficit. However, the same results are not valid for the current account deficit. According to the model determined in this study, there is no clear evidence showing that liberalization increases current account deficit. The change in tariff rates, while other variables are given, does not have a significant relationship with the trade balance and current account balance.

TABLE V  
ESTIMATION RESULTS FOR TRADE BALANCE MODEL

Dependent Variable: cab				
Method: OLS				
Sample: 1981 2013				
Observation: 33				
Variable	Coeff	Std. Error	t-Stat	Prob.
C	0,062440	2,053566	0,030405	0,9760
YW	-0,916161	0,758524	-1,207821	0,2376
YD	0,572146	0,276199	2,071498	0,0480
LRER	18,21539	10,19496	1,786706	0,0852
LTOT	5,198158	16,96540	0,306398	0,7617
LIB89	2,144185	5,424978	0,395243	0,6958
R2	0,353107	Mean dependent var		0,089181
Adjusted R-squared	0,233313	S.D. dependent var		5,628072
S.E. of regression	4,927979	Akaike info criterion		6,190700
Sum squared resid	655,6942	Schwarz criterion		6,462793
Log likelihood	-96,14656	Hannan-Quinn criter.		6,282251
F-statistic	2,947599	Durbin-Watson stat		2,862520
Prob(F-statistic)	0,029973			

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