

## IS CURRENT ACCOUNT DEFICIT A MESSAGE FOR ECONOMIC CRISES FOR TURKEY?

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### Abstract

This Study examines the interaction of current account (CA) deficits with other macroeconomic and demographic variables such as per capita GDP, inflation rate (INF), government consumption (Govc), electric consumption (epw), fertility rate (fert), domestic credit to private sector (Dcr), industry value added (iva), life expectancy for Turkey (lifexp), and population age 65 or above (pop) using specification methods on Least Squares Methods (OLS). The dependent variable is per capita GDP since it represents well-being of a country. Recent debates in the Turkish Congress and in the media are full of acrimony about the accretion of the CA deficits because they believe that huge current account deficit is a sign of an economic crisis in the near future. Thus, this study's priority is to test whether the CA deficit may deteriorate well-being of Turkey and which in turn cause economic crises or not.

JEL Classifications: E0, E31, F41

Keywords: Current account deficit, per capita GDP, inflation rate, and economic crises.

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### 1. Introduction

One of the most important debates in the Turkish Congress and in the media is current account (CA) deficit. This concern is meaningful since the Turkish CA balance has been deeply in deficit in recent years, including the record 29 billion dollars in 2006. The CA deficit was 8 billion dollars in 2003, but implemented policies, such as high interest rates and strong national currency, have caused the CA balance to deteriorate. These economic policies can also be questioned because in economic theory, strong national currency must be resulted from lower CA deficit, not high current account deficit. Therefore, a

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number of economists can ask that huge CA deficit may be an indicator of currency crises in the near future. As stated by Mann C. L. (2002), the CA deficit can mean that a country is living beyond its means, because overall consumption and investment are higher than the national saving. In this case, no country can sustain the CA deficit when the direction of international capital changes and global investors may not willing to hold Turkish assets in their portfolios to finance Turkish current account deficit for ever.

Since the CA deficit is financed by international capital movements the question of what is the economic impact of rapidly declining foreign capital inflows will be crucial. As stated by Cakman and Cakmak (2007), the one side of the debate is that Turkish markets do not percept increasing current account deficit as a big question, therefore, as long as markets behave like this, financing of CA deficit is not a real problem. On the other hand, there is no any guarantee of financing the CA deficit if the value of national currency, New Turkish Liras (YTL), continues to appreciate against other currencies; for example US dollars and Euro. When this risk is connected with other exogenous shocks, markets do behave unexpectedly under these adverse economic conditions and in this final case, adjustments will be though and currency crises will be inevitable. In this adverse scenario, it is argued that the CA deficit has been financed by foreign capital last four years and what should be done if “sudden stops” of capital inflows occurrence. Edwards, S. (2004) also suggests that sudden stops of foreign capital and the CA reversals have been closely related, meaning that if foreign capital goes back to home country, the expectation of currency crises will increase, which in turn investment and output will deteriorate. But, to have this scenario, Turkey must suffer from a sudden lack of confidence by foreign investors. Thus, sustain the CA deficit depends on sustain confidence of foreign investors and their confidence depends on sound economic policies, which feed positive expectations. Erturk, K. (2003) expresses that capital inflows continues as long as asset prices are expected to rise. Opposition parties and some media criticize Justice and Development Party in this perspective and they claim that there is a limit in this positive expectation and an

abrupt reversal of capital flows ensues once foreign investors thought that asset prices are peaked or unfavorable economic climates are inevitable.

As stated before, Turkey is financing its deficit by borrowing from abroad with high interest rates; therefore, the CA deficit is inevitable. Turkey does not try to the price cuts which are required to increase export revenues to repay the debt because Turkish government considers that having strong national currency is a matter of national honor. Therefore, they are proud to have strong currency, but if the consequences of these policies are resulted in lower living standards; for example, bankruptcy of firms which could not compete with lower price firms in traded goods, so the CA deficit should be a cause for concern. The concern for high-valued national currency comes from its impact on level of employment. The table 1 shows total labor force and employment level in Turkey. As it has been seen in the table 1, unemployment level has increased since 1999. Even though the Justice and Development Party (AK Party) took office in 2003, the party has been exposed to severe critics in the prospect of high unemployment rate. However, table 1 shows that unemployment rate has been stable since 2002. Thus, the advocates of Ak Party can claim that current policies implemented by their parties will not cause any crises expected by their opposites.

Turkish CA deficit has reached at its acme since 2003, but Gross Domestic National Product (GDP) has also increased. Table 2 presents the growth of the GDP per capita for Turkey. GDP per capita is not less than 5 % since 2000. In 2001, Turkey experienced an economic crises and GDP per capita growth was negative (-6 %). Therefore, in order to mention a sign of currency crises, some macroeconomic variables, such as unemployment and GDP growth rate (or GDP per capita growth) must be declining considerably; for example, before the 2001 economic crises, the Turkish GDP per capita growth rate was -6 and 6 % in 1999 and 2000 respectively.

Graph 1 and graph 2 show how the CA balance and GDP per capita change from the period 1974 to 2005. The question of

whether high CA deficit is a sign of economic deterioration can be answered by focusing on these two graphs. Turkey has experienced three major economic crises since 1990. In 1994 crises, Turkish CA deficit was its peak along with a sharp decline in the GDP per capita, meaning lower living standards. However, in 2000 Turkish financial crisis, even though the CA deficit blew up, the GDP per capita growth was increasing (6%). In 2001, there was a reverse interrelationship between the CA deficit and the GDP per capita growth as shown in figure 1 and figure 2. Thus, increase in the CA deficit does not mean that a currency crisis is inevitable by just looking at one period. This situation is supported by Edward, S. (2001) who points out that every large CA deficit does not lead to a currency crises. Discussions on the CA deficit in Turkey deprive of theoretical and empirical backgrounds. This study investigates whether CA deficit adversely affects well-being of Turkey when per capita GDP is accepted a measure of economic welfare. The organization of this study will be as followed: section 2 represents methodology and data, section 3 shows the results and discussions, and section 4 presents conclusion.

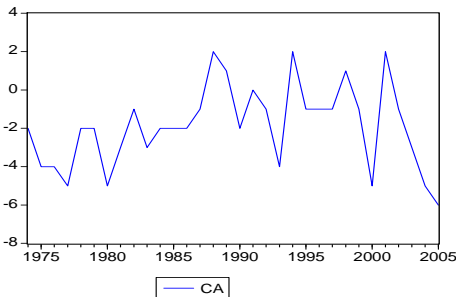
**Table 1.**

(Million)	1999	2000	2001	2002	2003	2004	2005
<b>Labor force</b>	23.9	23.1	23.5	23.8	23.6	24.3	24.6
<b>Employment</b>	22.0	21.6	21.5	21.4	21.2	21.8	22.1
<b>Unemployment</b>	1.8	1.5	2.0	2.5	2.5	2.5	2.5
<b>Unemployment rate (%)</b>	7.7	6.5	8.4	10.3	10.5	10.3	10.3

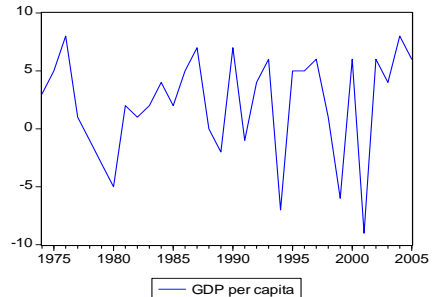
**Table 2. GDP per capita growth (annual)**

1999	2000	2001	2002	2003	2004	2005	2006
-6 %	6 %	-9 %	6 %	4 %	8 %	6 %	5 %

**Graph 1. Current Account (% of GDP) growth (annual %)**



**Graph 2. GDP per capita**



## 2. Model, data, and methodology

As mentioned before, current account deficit has been accepted as a sign of crises by many economists. During the economic crises, GDP per capita is dampened and living standards deteriorated. Therefore, this study gets GDP per capita as dependent variable and all other variables are explanatory variables. Ordinary least squares (OLS) and a parsimonious specification will be used in order to identify the insignificant variables which are going to be dropped sequentially from the first setup, so as to arrive at a final specification. The following variables are accepted as explanatory variables in this study:

CA: Turkey's current account balance (percent of GDP)

CAG: Germany's current account (percent of GDP)

CAuk: United Kingdom's current account (percent of GDP)

CAfr: France's current account (percent of GDP)

CAus: US's current account (percent of GDP)

CAita: Italy's current account (percent of GDP)

CAsp: Spain's current account (percent of GDP)

INF: Turkey's inflation rate (consumer prices, annual percent)

Fert: Turkey's fertility rate (birth per woman)

Govc: Government final consumption expenditure (% of GDP) of Turkey

IVA: Industry value added (annual percent growth) for Turkey

CrP: Domestic credit to private sector (% of GDP) for Turkey

INFus: US's inflation rate

INFuk: United Kingdom's inflation rate

INFita: Italy's inflation rate

INFsp: Spain's inflation rate

Pop: Population age 65 and above (% of total) for Turkey

Univ: University graduation for Turkey

Lifexp: Life expectancy for Turkey

Dum: Dummy variable which includes unfavorable situations such as economic crises, earth quake, and Turkish army takes power in 1980.

Epw: Electric power consumption (kwh per capita) for Turkey

The model will look as follows:

$$\begin{aligned}
 GDP = & \beta_0 + \beta_1(CA) + \beta_2(CAg) + \beta_3(CAuk) + \beta_4(CAfr) + \beta_5(CAus) + \beta_6(CAit) + \beta_7(CAasp) \\
 & + \beta_8(INF) + \beta_9(Fert) + \beta_{10}(Govc) + \beta_{11}(Pr od) + \beta_{12}(Crp) + \beta_{13}(INFus) + \beta_{14}(INFuk) \\
 & + \beta_{15}(INFita) + \beta_{16}(INFsp) + \beta_{17}(Pop) + \beta_{18}(Univ) + \beta_{19}(Lif exp) + \beta_{20}(Dum) + \beta_{21}(Epw) + \varepsilon
 \end{aligned}$$

This study uses annual data covering the period from 1974 to 2005 for GDP per capita, current account balance (CA) which has been taken percent of GDP, Inflation Consumer Prices (INF), fertility rate (FR), industry value added (IVA), government final consumption (GFC) which has been taken as a percent of GDP, domestic credit to private sector (DCP) which is also used as a percent of GDP, money and quasi money (M), and university graduate (UNI), this variable is taken as a proxy for human capital. Also, the paper has used the CA data for Turkey's fourth biggest trade partners; these are Germany,

England, U.S.A., Spain, Italy, and France because the deficit of a country's trade balance means surplus in another country's trade. All data were obtained from World Bank's *World Development Indicators* (WDI Online)

The testing procedure contains two steps: 1) Testing the existence of unit roots by using Augmented-Dickey Fuller (ADF) test and Phillips-Perron (PH) test. Econometric methodology firstly examines whether selected economic variables exhibit stationarity or not because these tests are important, otherwise the least squares method (OLS) gives unreal conclusions, high  $R^2$  and high t-statistics, and variance is not constant in time. 2) Making a parsimonious specification using OLS. All details for these tests can be seen in the Annex.

### **3. Results and Discussions**

*3.1 Results of the unit root tests:* The results of the ADF and PP tests for stationarity properties of the variables are presented in the table A1. The table A1 in the Annex shows that  $\tau$  (*tau*) statistics for Turkey's GDP, current account (CA), and industry valued added (Pro) is significantly negative and these variables do not have unit root. However,  $\tau$  statistics for other variables (current account (CA) and inflation of Turkey's (INF) and its trade partners, such as United Kingdom (CAuk), Germany (CAg), United States (CAus), Italy (CAit), and Spain (CAsp); government consumption (Govc), fertility rate (fert), university graduate (UNIV), credit to private sector (Crp), population age 65 and above (Pop), and life expectancy (Lifexp) are not significantly negative since they are greater than the critical values at, respectively, 1%, 5%, and 10% levels from both the ADF and the PP tests. Thus, it is not possible to reject to the null hypothesis of the presence of the unit roots for these variables. The ADF and the PP tests reveal that after first differencing all nonstationary variables become stationariy, meaning that all these variables are integrated of order I(1).

#### *3.2 Results of the parsimonious specification:*

Table 3.1 reports the results of multivariate models which takes Turkey's GDP as dependent variable. Model 1 includes Turkey's

current account and her sixth biggest trade partners' current account as independent variables. According to model 1, only Turkey's current account is important in explaining her GDP per capita growth since the value of the test statistic is statistically significant. In model 2, when all countries' inflation rate has been added to the model, the U.S. current account has become significant to affect the Turkish GDP, but other variables are insignificant and do not affect the Turkish GDP.

The U.S. current account deficit is added to the model since policymakers and analysts have focused on the U.S. current account which has been in deficit since the beginning of the 1980's. In addition to this concern, the U.S. economy represents a large country and any policy implications of the U.S. have repercussions on its trade partners. Model 2 presents that the U.S. current account deficit has a positive impact on the Turkish GDP and this effect is statistically significant at 1 % level.

Another important variable in the model 3 is industry value added (iva) which is statistically significant at five percent level. It is accepted that when industry value added is increased, production will be increased because it is a proxy of productivity. Therefore, GDP is affected by industry value added positively.

Economic theory generally predicts that there is a unidirectional causality running from electricity consumption to real GDP; for example, Yuan and others (2005) examine the relationship between electric consumption and real GDP for China. Authors have found that there is a unidirectional Granger causality running from electric consumption to real GDP, not vice versa. Also, Altinay and Karagol (2005) investigate the causal relationship between electric consumption and real GDP for Turkey from the period 1950 to 2000. The authors state that the supply of electricity is vitally important to sustain the economic growth of Turkey. Thus, electric power consumption is added to the model 3. The coefficient of electric consumption has been found positive and statistically significant at 1 percent level. This conclusion supports the previous literature.



**Table 3.1. Multivariate Regression Analysis Explaining Level of Turkey's GDP**

<b>Indep. variables</b>	<b>Model 1</b>	<b>Model 2</b>	<b>Model 3</b>	<b>Model 4</b>
CA	- 0.973(0.457)**	-1.07(0.442)**	- 0.787(0.271)***	- 0.685(0.309)***
CAg	0.33(0.722)	-0.978(0.786)		
CAus	0.593(1.404)	- 7.75(1.496)***	1.876(0.843)**	1.315(0.756)
CAfr	-0.618(1.216)	-1.727(1.265)		
CAuk	-0.776(0.814)	-0.288(0.885)		
CAita	0.447(0.936)	0.837(1.021)		
Casp	0.478(0.775)	-0.06(0.902)		
INFtur		-0.02(0.05)	0.05(0.03)	
INFus		-0.869(0.683)	-0.618(0.422)	- 0.869(0.268)***
INFuk		0.966(0.464)	-0.118(0.197)	
INFspa		-0.127(0.451)	-0.363(0.319)	- 0.733(0.253)***
INFita		-1.81(0.816)**	-0.466(0.302)	
Iva			0.244(0.107)**	0.172(0.098)
Dcr			-0.495(0.334)	-0.003(0.331)
Govc			0.06(0.545)	-0.407(0.595)
Pop			-0.505(1.416)	-1.529(1.473)
Lifexp			1.388(0.89)	1.11(0.87)
Fert			2.71(2.185)	-0.80(2.176)
Univ			0.502(0.448)	0.87(0.51)
Epw			0.096(0.018)***	0.08(0.02)***
Dum			-1.85(1.343)	-1.93(1.454)
(Constant)				
Adj.R2		0.25	0.90	0.80
N			29	30

Unstandardized coefficient followed by standard error in parentheses and statistical significance denoted by \* $p \leq .10$ ; \*\* $p \leq .05$ ;  $p \leq 0.01$  (two-tailed test)

In the final model, the Turkish current account, The U.S. and Spain's inflation rate, and electric consumption have been found statistically significant at 1 % level. On the other hand, in the final model, the U.S. current account fails to achieve statistical significance and adds nothing to the total explained variance. But, the Turkish current account deficit keeps its significance in the final model. Thus, the question of how current account deficit affects economic growth or GDP is answered in the final specification. When a country's total investment is greater than its total saving, that country's future economic growth will be

dependent on foreign investors' confidence in that country's economic atmosphere. Also, in the final model, it has been seen that as Turkey's two trade partners' inflation rate increases, the Turkish GDP negatively affected. The association with a country's trade partners' inflation rate and its GDP can be explained by taking into account of the purchasing power parity (PPP) model. According to the PPP model, nominal exchange rate is defined as  $E=P/P^*$ , where E is nominal exchange rate, P is domestic inflation, and P\* is foreign inflation, when foreign prices increases, holding other variables constant, nominal exchange rate decreases, which in turn causes domestic currency to appreciate and export revenues to decrease. In economic theory it is accepted that the less exports one country makes, the less opportunity that country will have to use its resources and the less GDP it will have in the future.

#### **4. Conclusion**

Even though the main question addressed in this study is that whether the current account is vitally important in determining living standards, this study uses other macroeconomic and demographic variables such as population age 65 or above and life expectancy, and fertility rate.

Table 3.1 shows that current account matters for Turkey in each model. In each case, the coefficient of the CA is negative and statistically and economically significant in determining the GDP for Turkey. While the significance of the CA was 5% level in the model 1, it increased to 1% level in the model 2 and 3, meaning that current account deficit negatively affect the GDP. If the level of GDP is crucial in determining the level of living standards of a country, deterioration of the GDP means that individuals cannot purchase the same basket of goods in the current period.

Current account matters but the duration of current account deficit is also important factor in deciding to predict an economic crisis. For example, high import always does not mean backwardness in welfare because with imports, a country can have more competitive intermediate goods which are necessary for exportable goods. Nevertheless, if country never gets competitiveness in tradable goods in time, it cannot sustain its current account deficit for ever.

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## Annex

The ADF test is based on the following regressions:

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^n \alpha_i \Delta y_i + e_t \quad (1)$$

$$\Delta y_t = \alpha_0 + \alpha_1 y_{t-1} + \sum_{i=1}^n \alpha_i \Delta y_i + \delta_t + e_t \quad (2)$$

where  $y$  is a time series,  $t$  is linear time trend,  $\Delta$  is the first difference operator,  $\alpha_0$  is a constant,  $n$  is the optimum number of lags on the dependent variable (the lag length is determined by either the Akaike Information Criterion (AIC) or Schwartz Bayesian Criterion (SBC)), and  $e$  is random error term. The

difference between equation 1 and equation 2 is that the first equation includes just drift, however, the second one includes both drift and linear time trend. The null hypothesis of testing nonstationarity is that  $H_0 : \alpha_1 = 0$ , meaning  $y_t$  has a random walk, so this series has a unit root. This study also employs the Phillips-Perron (PP) test, for the possibility of the presence of structural breaks which will tend to bias the ADF test towards non rejection of the null hypothesis of the unit root. Therefore, this study uses both the ADF test and the PP tests to examine the stationarity of the data (Sekmen, F. and Saribas, H).

**Table A1. Results of the ADF and PP Unit Root Tests**

Variable	AugmentedDickey-Fuller (ADF)		Phillips-Perron (PP)	
	Level	First Difference	Level	First Difference
GDP	-5.95		-5.95	
CA	-3.85		-3.91	
CAg	-1.87	-4.28	-1.58	-4.28
CAuk	-2.06	-4.97	-2.44	-5.23
CAfr	-2.20	-6.11	-2.25	-6.3
CAusa	-0.39	-5.10	-0.39	-5.10
CAita	-2.45	-5.98	-3.33	-7.68
CAsp	-1.70	-3.71	-1.15	-3.42
INF	-2.20	-6.47	-2.17	-6.63
fert	-1.17	-6.0	-0.99	-6.51
Govc	-1.37	-4.80	-1.65	-4.89
IVA	-4.64		-4.64	
CrP=DCR	-2.62	-4.57	-1.02	-5.29
INFus	-2.56	-4.82	-2.74	-4.57
INFuk	-1.99	-7.39	-1.99	-7.39
INFita	-1.54	-4.90	-1.54	-5.56
INFsp	-1.16	-5.53	-1.16	-5.53
Pop	-1.78	-4.83	-1.78	-4.83
UNIV	2.77	-4.08	2.77	-5.15
Lifexp	-2.62	-7.83	-2.37	-7.83
Epw	2.24	-3.47	2.33	-3.47

Critical values at 1%, 5%, and 10% significance levels: -3.65, -2.96, and -2.62.

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