Political Business Cycles in the Turkish Economy: 1977-2001

Yasemin Kuzu

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Abstract

This study is about political business cycles (PBC) and investigates the Turkish case especially in the 1977-2001 period. The PBC literature has developed in the last three decades and links politics and economics in several ways. Implications of the theories are investigated in many countries.

In the first part of the study, developments in the literature are mentioned and the link between New Classical Economics and New Political Economics is introduced. In the second part, Turkish case is analyzed in details to determine whether there have been PBC during the above mentioned period. Based on the results of the time series analysis of the autoregressions, it can be concluded that there have been political cycles in some macroeconomic variables. These are currency issued, broad money (M1), public sector credits and agricultural credits extended by Türkiye Cumhuriyet Merkez Bankası (Central Bank of the Republic of Turkey-CBRT), and tax revenues. CBRT has not allowed occurrence of PBC especially on the targeted variables (CBRT balance sheet size, net domestic assets and monetary base), after 1989. However, there has been some evidence of PBC on the currency issued and M1 in the period analyzed. Due to the high legal ceilings of CBRT credits to the public sector, CBRT had not been able to limit those credits, especially before 1991 general elections. There had been similar PBC on agricultural credits which had been extended in the 1977-1991 period by CBRT. In addition to the regression analysis, different from other PBC studies, comparative tables and figures for personnel expenditures of State Economic Enterprises (SEEs), agricultural credits which had been extended by Türkiye Cumhuriyeti Ziraat Bankası (Agricultural Bank of the Republic of Turkey-ABRT) in the 1964-1998 period and agricultural prices which had been declared by governments in the 1986-1999 period are provided in the paper. The results confirm the opportunistic cycles.

It is important to determine which policy instruments could have been used to produce PBC in the Turkish economy, in order to prevent the occurrence of PBC in the future. In this study, some policy instruments that could have been used to produce PBC are researched and what can be done to prevent the occurrence of PBC is left for the future work.

JEL Classification: E5; E6; H2; H3

Keywords: Political business cycles; Autoregression analysis; Time series analysis; Structural breaks; Dummy variables; Turkish economy

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1. Introduction

During the period in which Classical Economics had been a dominant school in economics, it had been a neglected issue that political institutions could affect economic policies. Until the 1960s, sciences of politics and economics had different lines of research. Political scientists had produced normative theories without using any economic tools and concepts, while economists were studying with mathematical tools without trying to understand the effect of political institutions on the economy. After 1960s, economists have been searching for the interaction between politics and macroeconomics. When constructing theoretical models usually depended on utility maximization, they accept voters and governments as economic agents maximizing their individual utilities. Thus, as a sub-discipline of political economics "New Political Economics" has been emerged. Since the last three decades, there have been many studies in this line of research. In these studies, political institutions have not been accepted as exogenous variables to macroeconomic policies. On the contrary, they have been considered as endogenously determined by the macroeconomic policies.

Since 1970s, new macroeconomic approaches which take into account, for example, the importance of "credibility problem" (Kydland and Prescott, 1977), the possible effects of general elections ("Political Business Cycles" by Nordhaus, 1975 and "Partisan Theory" by Hibbs, 1977) in applying macroeconomic policies have been developed.

Nordhaus and Hibbs' models are the pioneer works of PBC literature which emphasizes the link between political institutions and macroeconomic policies. The main point in both studies is that, the incumbent government manipulates the economy to have the maximum number of votes to be re-elected, and this manipulation in turn causes the economy to fluctuate around its long-run path. A political business cycle is therefore the economy's fluctuation around its long-run behaviour generated by the political system (Paldman, 1997). In other words, the PBC literature studies how interest groups and political pressures within a country influence its macroeconomic performance.

PBC theories, which have been developed in the last three decades, can be classified into two major groups. First classification can be regarded as "first and second generation models", and the second one 'opportunistic and partisan models'.

According to the first classification, the first generation models by Nordhaus and Hibbs can be regarded as "Keynesian models", while the second generation theories by Alesina (1987), Rogoff and Sibert (1988), Persson and Tabellini (1990), Alesina et al. (1992, 1997) can be regarded as "New Classical Theories".

Based on the second classification, there have been opportunistic and partisan theories including different approaches on the behaviour of governments. Nordhaus' theory depends on a Downsian approach. As discussed by Downs (1957), each politician prefers to be in office rather than out of office. Indeed, the idea that political parties apply policies only to win elections, not for political reasons, first occured by Schumpeter (1945). After 15 years, Downs with 'median voter theorem' made it theoretical based (Olters, 2001). Downs' study has been accepted as a classical reference about opportunistic PBC models (Alesina et al., 1997).

Nordhaus discusses that, in a democracy, governments fight against inflation and unemployment to compete with the other parties before elections. Nordhaus' model is a dynamic optimization model applying maximization criteria. 'Phillips Curve', including a trade off mechanism between unemployment and inflation rates and 'Voting function', are the most important components of the model[i]. According to his theory with myopic voters assumption, governments try to convince voters by creating rapid economic growth and slow growth of unemployment rate with monetary and financial policies which trigger aggregate demand. Inflationary results of these policies occur with a lag. After winning elections, tight policies are applied to decrease inflation.

On the other part, Hibbs argues that, left and right wing parties have different objectives to win elections. Left-wing parties are more interested in unemployment and growth, while right-wing parties are more concerned with inflation.

PBC literature, by the pioneered works of Nordhaus and Hibbs, has not been as attractive as it has been since the 1990s. By New Classical second generation versions of PBC theories with 'Rational Expectations' assumption in the 1990s, the

literature has become one of the most popular lines of research in political macroeconomics. Alesina (1987) developed 'Rational Partisan Theory' following Hibbs' 'Partisan Theory', Persson and Tabellini (1990), developed 'Rational PBC' following Nordhaus' PBC theory with 'Rational Expectations' assumption. Thus, second generation models emerged[ii].

Following the above mentioned studies, since the mid-seventies political economists have tried to explain the interaction between political and macroeconomic variables in the general elections (see for example, Berger and Voitek (1997, 1999, 2001); Pitruzello (1999); Treisman and Gimpelson (1999); Leertouwer and Maier (2000, 2001); Hallerberg and Souza (2000); Cameron and Crosby (2000), Lockwood et al. (2001); Block (2002)).

In Turkey also, there have been some studies on the PBC literature since 1999 (see for example, Eren and Bildirici (1999); Özatay (1999); Yamak and Yamak (1999); Özatay (2000); Tutar and Tansel (2000); Ergun (2000); Telatar (2001) and Kuzu (2001)).

It is important to determine which policy instruments could have been used to produce PBC in the economy, in order to prevent the occurrence of PBC in the future. By eliminating PBC from economic variables, macroeconomic efficiency and stabilization in the countries can be improved. The objective of the paper is to determine which policy instruments that could have been used to produce PBC in Turkey in the last decades. Did incumbent governments try to manipulate fiscal and monetary policy instruments so as to get re-elected and stay in office in Turkey? To find an answer to this question, some monetary, finance policy data are regressed and agricultural policies are analyzed.

The remaining of the paper is organized as follows. In the second part, there are some explanations about the methods applied in the empirical analysis of the Turkish case for PBC theory in monetary, fiscal and agricultural policies. The estimation results of the equations and interpretations of the comparative tables are discussed in the third part. And the study concludes with the fourth section.

2. Methodology

Autoregressions, comparative tables and figures are used to analyze PBC in several data. First, specification of the empirical tests are mentioned and then, comparative tables and figures are presented below.

2.1. Specification of Empirical Tests

The simplest and most direct way of testing the various economic theories is to run regressions of time-series data (Alesina et al., 1997).

Many economic theories have natural representations as stochastic difference equations. It is one of the most convenience way of modelling dynamic economic processes. Linear difference equations underly much of the theory of time-series econometrics. Especially one important methodology is Box-Jenkins (1976) methodology for estimating time-series models of the form:

$$y_t = \alpha_0 + \alpha_1 y_{t-1} + ... + \alpha_p y_{t-p} + \beta_0 \varepsilon_t + \beta_1 \varepsilon_{t-1} + ... + \beta_q \varepsilon_{t-q} \qquad (1)$$

where y_t is a certain variable on day t and ε_t is a random disturbance term that has an expected value of zero.

Such models are called autoregressive integrated moving average (ARIMA) time series models (Enders, 1995).

Based on the linear difference equations of time-series econometrics as mentioned above, to analyze PBC theory on the Turkish monetary and fiscal policy data, Alesina et al. (1992)'s methodology is applied. In this method, different lag lengths of the dependent variables and election dummies are used as explanatory variables. Here in this study, structural break dummies are also included as explanatory variables to the regressions. In the appendix B, some explanations about these dummy variables are provided.

Thus, general representation of the models used in this study can be defined in the following form:

$$m_t = \beta_0 + \beta_1 m_{t-1} + \beta_2 m_{t-2} + ... + \beta_n m_{t-n} + \beta_{n+1} K_t + \acute{\varepsilon}_t \qquad (2)$$

where m_t is the annual growth rate of the data defined as:

$m_t = ((RM1_t - RM1_{t-4})/RM1_{t-4}) (100)$ where RM1 is the level of the real variables which are provided in the appendix C and K_t is the dummy variable (or variables) appropriate for the related model.

2.2. Data

Annual, quarterly and monthly data without seasonally adjustment are used throughout the study. Periods analyzed for each data are changing. For monetary policy analysis, the periods are longer. All data and the related periods analyzed are provided in the appendix A.

2.3. Election Dummy Variables and Structural Break Dummies

To determine the effects of elections on the related data, dummy variables are included in the regressions. 'Composite election dummy' that takes a value of one for each election year and 'special election dummy' that takes a value of one for only the special election year are used.

In addition to political dummies, structural break dummies for eliminating the effects of the structural break and external economic shocks from the data are included in the regressions. Conventional approach to structural breaks was that, the effects of external shocks to the economic data would be diminishing and in the long run, data would be stationary. However, Nelson and Plosser (1982) has changed this point of view. They found structural breaks in 13 of 14 macroeconomic series. Perron (1989), Zivot and Andrews (1992) took attention to the possible misleading effects of structural breaks through the unit root tests. It is a controversial subject whether structural breaks should be taken as exogenous variable (Perron, 1989) or should be determined internally (Zivot and Andrews, 1992).

In this study Perron's methodology is adopted and structural breaks are taken as exogenous variables. The related structural break dummy variables are included in all unit root tests and election regressions.

2.4. Stationarity Tests

Since all of the series are seasonally unadjusted, possible seasonal unit roots are investigated. The results of the stationarity tests are provided in the appendix D[iii].

For analyzing unit root problem, *Augmented Dickey Fuller (ADF) Test* is applied in this paper. In ADF tests, under mentioned regression is applied to each data analyzed.

$$\Delta y_t = a_0 + \gamma\, y_{t-1} + a_2\, \tau + \sum_{i=2}^{p} \beta_i\, \Delta y_{t-i+1} + Dz + \varepsilon_t \qquad (3)$$

where Δy_t is the first difference of y_t, and Dz is structural break and external shock dummy variable[iv].

On Ordinary Least Squares (OLS) estimation results, hypothesis below are tested:

$H_0 : \gamma = 0$ ($\{y_t\}$ process contains unit root problem, series is non-stationary).

$H_1 : \gamma < 1$ ($\{y_t\}$ process does not contains unit root, series is stationary).

In determining the number of lags in the ADF regressions, Weber (2001)'s No Autocorrelation (NAC) method is adopted. For the NAC, autocorrelation up to order four in the residuals of the ADF regression is tested using the Lagrange Multiplier (LM) test. K is set at the smallest value such that the LM test fails to reject the hypothesis of no autocorrelation at the 0.10 level of significance.

According to the ADF regressions' results, the series in levels are non-stationary but their annual growth rates are stationary. That is why annual growth rates of the variables are included in the models.

3. Estimation Results and Implications

For the lag length selection in the autoregressions, Campbell and Perron's (1991) 'General to Specific Criteria (GSC)' is chosen[v]. Based on this criteria, regressions in the most general form with maximum lag length, structural break and external shock dummies are estimated first and then the final specific forms of the regressions without residual autocorrelation are reached [vi],[vii],[viii].

Estimation results by OLS are reported in Table 3.1-6, Table 3.2.1-3 and Table 3.3. Absolute t-ratio for each estimated coefficient is defined as t_i. R^2 is the adjusted coefficient of determination. SE is the standard error of the regression. LM is the 'Lagrange Multiplier test' for residual autocorrelation up to order four. ARCH is the autoregressive conditional heteroscedasticity. The null hypothesis of normally distributed residuals is tested by Jarque Bera statistics (JB).

3.1. Evidence of PBC Theory in Monetary Policies

The economic data on the PBC analysis in the Turkish monetary policies during the related period are quarterly time-series data of targeted variables by CBRT (CBRT balance sheet size, net domestic assets and monetary base), some other monetary data such as currecy issued and M1, and also public sector credits extended by CBRT. The political data are the election dates. Table 3.1 reports the results of the dynamic OLS regressions.

Table 3.1. Estimation Results of Monetary Policy Equations

1. Growth rate of quarterly real CBRT balance sheet size (Grrealbsq)

$$Grrealbsq = 2.59 + 0.86\ Grrealbsq(-1) + 0.51\ Grrealbsq(-4) - 0.58\ Grrealbsq(-5)$$
$$+ 0.27\ Grrealbsq(-7) - 17.78\ D94 - 13.27\ D77o3 - 1.37\ D77s3$$

$t_1 = 2.11$, $t_2 = 8.36$, $t_3 = -3,29$, $t_4 = 3.81$, $t_5 = -2.49$, $t_6 = -1.74$, $t_7 = -1.70$, $t_8 = 0.20$

$R^2 = 0.58$, SE = 9.97, Sample: 1976.IV – 2001.I

LM = 2.55, JB = 3521.64, ARCH= 1.25.

2. Growth rate of quarterly real currency issued (Grrealciq)

$$Grrealciq = -3.11 + 0.68\ Grrealciq(-1) - 0.61\ Grrealciq(-4) + 0.36\ Grrealciq(-5)$$
$$- 0.21\ Grrealciq(-7) + 6.35\ Db6 + 5.64\ Da6$$

$t_1 = -1.65$, $t_2 = 8.09$, $t_3 = -6.23$, $t_4 = 3.43$, $t_5 = -2.54$, $t_6 = 2.34$, $t_7 = 2.16$

$R^2 = 0.57$, SE = 9.19, Sample: 1979.IV – 2001.I

LM = 6.84, JB = 11.79, ARCH = 0.65.

3. Growth rate of quarterly real broad money supply (Grrealm1q)

$$Grrealm1q = 0.03 + 0.82\ Grrealm1q(-1) - 0.55\ Grrealm1q(-4) + 0.31\ Grrealm1q(-5)$$
$$- 0.23\ Grrealm1q(-8) - 18.59\ D99o1 + 6.20\ D99s1$$

$t_1 = 0.03$, $t_2 = 11.45$, $t_3 = -4.89$, $t_4 = 2.7$, $t_5 = -3.03$, $t_6 = 2.01$, $t_7 = 0.69$

$R^2 = 0.68$, SE = 8.78, Sample: 1980:I – 2001:I

LM = 8.20 (0.08), JB = 0.43 (0.81), ARCH = 4.14 (0.38).

4. Growth rate of quarterly real monetary base (Grrealmbq)

$$Grrealmbq = -1.76 + 0.77\ Grrealmbq(-1) - 0.65\ Grrealmbq(-2)$$
$$+ 0.83\ Grrealmbq(-3) - 1.19\ Grrealmbq(-4) + 1.03\ Grrealmbq(-5)$$
$$- 0.68\ Grrealmbq(-6) + 0.55\ Grrealmbq(-7) - 1.17\ Grrealmbq(-8)$$
$$+ 0.94\ Grrealmbq(-9) - 0.61\ Grrealmbq(-10) + 0.62\ Grrealmbq(-11)$$
$$- 0.41\ Grrealmbq(-12) - 7.93\ D89 + 5.49\ Db6 + 5.89\ Da6$$

$t_1 = -0.40$, $t_2 = 5.89$, $t_3 = -4.08$, $t_4 = 4.94$, $t_5 = -6.57$, $t_6 = 5$, $t_7 = -2.72$, $t_8 = 1.90$, $t_9 = -4.45$, $t_{10} = 3.84$, $t_{11} = 2.34$, $t_{12} = 2.21$, $t_{13} = -2.05$,

$$t_{14} = -1.68, t_{15} = 1.06, t_{16} = 1.06$$
$$R^2 = 0.64, DW = 2.1, SE = 17.09, \text{Sample: } 1981.I - 1999.IV$$
$$LM = 2.55, JB = 2.34, ARCH = 1.25.$$

5. Growth rate of quarterly real net domestic assets (Grrealndaq)

$$Grrealndaq = 63.98 - 0.46 \ Grrealndaq(-1) + 194.07 \ seas(3) - 1231.03 \ D9899$$
$$t_1 = 0.91, t_2 = -4.51, t_3 = -2.23, t_4 = -6.34$$
$$R^2 = 0.34, SE = 360.36, \text{Sample: } 1978.II - 2001.I$$
$$LM = 26.67, JB = 7096.25, ARCH = 2.20.$$

6. Growth rate of quarterly real public sector credits (Grrealpscq)

$$Grrealpscq = -1.90 + 0.96 \ Grrealpscq(-1) - 0.44 \ Grrealpscq(-4)$$
$$+ 0.28 \ Grrealpscq \ (-5) - 95.68 \ D94 + 23.72 \ Db1 + 18.14 \ Da1$$
$$t_1 = -0.59, t_2 = 13.66, t_3 = -3.96, t_4 = 2.65, t_5 = -3.49, t_6 = 1.72, t_7 = 1.30$$
$$R^2 = 0.74, SE = 26.61, \text{Sample: } 1980.II - 1998.IV$$
$$LM = 3.72, JB = 13.46, ARCH = 21.99.$$

The specific forms of equations above are regressed for each pairs of the election dummies such as before election dummies and after election dummies provided in Table E1-E6, appendix E. The signs of the coefficients are as expected apriori. According to the t-values of the election dummies, it can be concluded that there have been no PBC in the targeted variables of the monetary policy during the period analyzed[ix]. Indeed, the fifth model above for Grrealndaq is out of consideration because of its low R^2 value. However, based on the line graph of Grrealndaq following a stable path, it can be concluded that CBRT did not allow PBC occurrence in the Realndaq (see appendix F).

Although there have been no PBC in the targeted variables, there has been some evidence of PBC on the currency issued, M1 and public sector credits data. For example, ceteris paribus, based on the t-values and coefficients of composite dummy variables in the Tables E.2-3, five – six quarters before elections, annual growth rates of currency issued and M1 had been almost four – six percent higher than those of other periods.

3.2. Evidence of PBC in Finance Policies

In testing PBC theory in the Turkish finance policies from the late 1980s to the end of 2000, monthly time-series data of growth rate of monthly public expenditures, real public personnel expenditures, real tax revenues are regressed. The results of the equations are provided below.

Table 3.2. Estimation Results of Finance Policy Equations

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1. Growth rate of monthly public expenditures (with constant prices) (Grrealpe)

$$\text{Grrealpe} = 0.90 + 0.94 \ \text{Grrealpe}(-1) - 0.32 \ \text{Grrealpe}(-3) + 0.32 \ \text{Grrealpe}(-4)$$
$$-0.19 \ \text{Grrealpe}(-6) + 0.17 \ \text{Grrealpe}(-7) - 0.17 \ \text{Grrealpe}(-12)$$
$$+ 0.14 \ \text{Grrealpe}(-13) + 0.17 \ \text{Grrealpe}(-15) - 0.17 \ \text{Grrealpe}(-16)$$
$$+ 0.19 \ \text{Grrealpe}(-18) - 0.21 \ \text{Grrealpe}(-19) + 0.14 \ \text{Grrealpe}(-21)$$
$$- 0.18 \ \text{Grrealpe}(-22) - 35.21 \ D94 - 1.07 \ Db6 + 0.54 \ Da6$$

$t_1 = 0.92$, $t_2 = 14.76$, $t_3 = -3.14$, $t_4 = 3.09$, $t_5 = -1.92$, $t_6 = 1.93$, $t_7 = -2.66$,
$t_8 = 1.85$, $t_9 = 2.15$, $t_{10} = -2.06$, $t_{11} = 2.23$, $t_{12} = -2.43$, $t_{13} = 1.82$, $t_{14} = -2.67$,
$t_{15} = -3.63$, $t_{16} = 0.42$, $t_{17} = 0.22$
$R^2 = 0.83$, SE = 9.11, Sample: 1989.XI – 2000.XII
LM = 12.69, JB = 297.86, ARCH= 13.09.

2. Growth rate of monthly real public personnel expenditures (Grrealppe)

$$\text{Grrealppe} = 1.68 + 0.96 \ \text{Grrealppe}(-1) - 0.36 \ \text{Grrealppe}(-12)$$
$$+ 0.29 \ \text{Grrealppe}(-13) - 19.50 \ D94 + 0.74 \ Db6 - 1.39 \ Da6$$

$t_1 = 1.86$, $t_2 = 38.06$, $t_3 = -4.68$, $t_4 = 3.82$, $t_5 = -2.52$, $t_6 = 0.43$, $t_7 = -0.79$
$R^2 = 0.90$, SE = 7.69, Sample: 1987.II – 2000.XII
LM = 18.25, JB = 2184.74, ARCH = 9.83.

3. Growth rate of monthly real tax revenues (Grrealtr)

$$\text{Grrealtr} = 0.87 + 0.98 \ \text{Grrealtr}(-1) - 0.23 \ \text{Grrealtr}(-2) + 0.11 \ \text{Grrealtr}(-6)$$
$$- 0.52 \ \text{Grrealtr}(-12) + 0.33 \ \text{Grrealtr}(-13) + 0.11 \ \text{Grrealtr}(-18)$$
$$+ 0.21 \ \text{Grrealtr}(-23) - 0.29 \ \text{Grrealtr}(-24) + 3.61 \ D89 - 25.08 \ D94$$
$$- 3.18 \ Db6 - 0.85 \ Da6$$

$t_1 = 0.57$, $t_2 = 14.27$, $t_3 = -3.42$, $t_4 = 2.42$, $t_5 = 6.18$, $t_6 = 3.81$, $t_7 = 2.07$,
$t_8 = 2.62$, $t_9 = -3.63$, $t_{10} = 2.26$, $t_{11} = -4.84$, $t_{12} = -2.35$, $t_{13} = -0.67$
$R^2 = 0.87$, SE = 5.12, Sample: 1988.I – 2000.XII
LM = 9.77, JB = 341.26, ARCH = 25.42.

According to the estimation results of the finance policy equations, except tax revenue equations, the signs of the coefficients and t-values of election dummies are not as expected apriori. It can be concluded that, there had been no PBC on Grrealpe and Grrealppe during the 1987-2000 period. However, the coefficients and t-values of election dummies of the tax revenue model are as expected and there had been PBC as suggested by Rogoff and Sibert (1988). They argue that, before elections, growth rate of the real tax revenues are lowered than those of non-election years and after elections, governments increase tax rates to gain more tax revenues. In accordance with the argument above, in Turkey during the 1988-2000 period, ceteris paribus, before election years growth rates of tax revenues had been decreased substantially and after election years, they had been increased considerably. The coefficients and t-values of dummies are provided in the Tables E12-13 in the appendix E.

In addition to the regression analysis, a figure which has a comparison between the series of 'the annual growth rate of public personnel expenditures per-person in SEEs (Grppe)' and 'annual inflation rate (inflation)' is presented below.
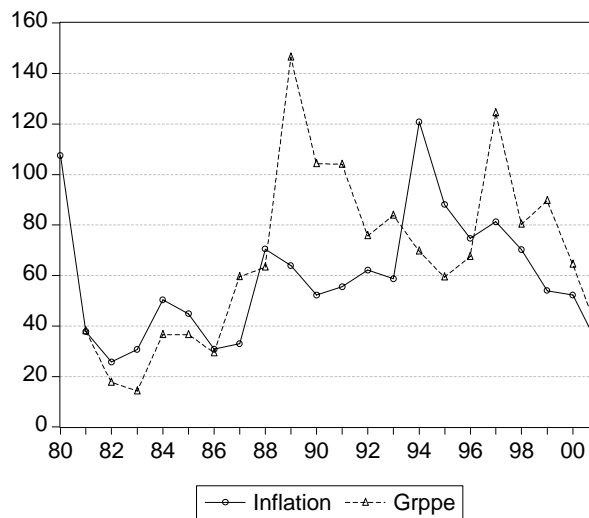
Figure 3.1. Relationship between Inflation and Grppe

As can be observed from the Figure 3.1, there had been substantial growth rates which exceed inflation rate in 1987, 1991 and 1999 elections. In 1991 and 1999 elections, values of the series also circulated above the average of the series[x]. It can be concluded from the data that there had been PBC in public personnel expenditures of SEEs in the period of 1980-2001.

3.3. Evidence of PBC in Agricultural Policies

CBRT had extended agricultural credits before 1991. In testing the PBC theory on agricultural policies, the series of growth rate of agricultural credits which had been extended by CBRT in the 1977-1991 period are regressed. In addition to the regression analysis, agricultural credits extended by ABRT in the 1965-1999 period, and the relationship between the announcement dates of some subsidized agricultural product prices declared by governments and general election dates are analyzed in terms of PBC theory by comparative tables in this sub-section.

Table 3.3. Estimation results of the growth rate of quarterly real agricultural credits (Grrealacq)

Grrealacq = 1.10 + 0.65 Grrealacq(-1) + 0.26 Grrealacq(-5) - 0.38 Grrealacq(-6)

      + 76.42 Db1 + 60.66 Da1

      $t_1 = 0.12$, $t_2 = 6.14$, $t_3 = 1.83$, $t_4 = -2.70$, $t_5 = 2.15$, $t_6 = 1.42$

$R^2 = 0.60$, SE = 58.64, Sample: 1979.III – 1991.III

LM = 0.76, JB = 259.65, ARCH = 0.37.

According to the estimation results of the regression in Table 3.3, there had been PBC especially before election years in the Grreealacq series. Ceteris paribus, one quarter before election date, the growth rate of the credits had been 76.42 percent more than those of non-election terms. For the other t-values and coefficients of the specific election year dummies see Table E7 provided in the appendix E. There is also clear evidence of PBC on the specific election dummies of 1987 and 1991 elections.

Table 3.4. Annual growth rate of agricultural credits extended by ABRT   (1965-1999) (GRAC)

Year	GRAC (%)	Avnonel	π
1965	-1		10
1966	63		4
1967	11		6
1968	25		3
1969	8*	25	6
1970	-4		6
1971	-5		17
1972	58		18
1973	66***	16	20
1974	40		30
1975	62		11
1976	7		16
1977	21	36	24
1978	35		50
1979	86		65
1980	55		107
1981	44		38
1982	-14		26
1983	46***	42	30
1984	33		51
1985	55		40
1986	96		27
1987	40	61	40
1988	24		37
1989	68		105
1990	43		52
1991	73***	45	55
1992	90		62
1993	84		59
1994	36		121
1995	224***	70	88
1996	40		75
1997	95		81
1998	178		70
Average	52		

Source: State Statistics Institute (SSI) "Agricultural Statistics, 1923-1998", (2001)
Avnonel: Average of non-election years before the election year
π   : Annual inflation ratio
***   : GRAC exceeds π, Avnonel and average of the series
**   : GRAC exceeds two of π, Avnonel or average of the series
*   :GRAC exceeds one of π, Avnonel or average of the series
 Years characterized in bold letters are the election years.

Based on the values provided by Table 3.4, GRAC exceeds π during the five (1969, 1973, 1983, 1991, 1995) of the seven election years. In 1973, 1983, 1991 and 1995 elections, GRAC exceeds both π, Avnonel and average of the series.

Table 3.5. Relationship between announcement dates of subsidized prices of some agricultural products declared by governments and the general election dates

Subsidized agricultural products	Date of announcement by Council of Ministers	General Election Year		Subsidized agricultural products	Date of announcement by Council of Ministers	General Election Year
Tobacco	20.08.1986			Tobacco	28.05.1993	
Cereals	09.10.1986			Cereals	28.05.1993	
Sugar beet	09.10.1986			Sugar beet	03.09.1993	
Tobacco	27.12.1987	**29.11.1987**		Tobacco	05.02.1994	
Cereals	10.12.1987			Cereals	10.06.1994	
Sugar beet	02.12.1987			Sugar beet	02.10.1994	
Tobacco	-			Tobacco	03.05.1995	**24.12.1995**
Cereals	31.05.1988			Cereals	31.08.1995	
Sugar beet	-			Sugar beet	21.10.1995	
Tobacco	03.08.1989			Tobacco	08.05.1996	
Cereals	18.05.1989			Cereals	09.06.1996	
Sugar beet	30.07.1989			Sugar beet	21.06.1996	
Tobacco	16.03.1990			Tobacco	26.11.1997	
Cereals	16.05.1990			Cereals		
Sugar beet	10.03.1990			Sugar beet	22.03.1997	
Tobacco	03.05.1991	**20.10.1991**		Tobacco	28.11.1998	
Cereals	15.06.1991			Cereals	16.05.1998	
Sugar beet	14.08.1991			Sugar beet	01.10.1998	
Tobacco	-			Tobacco	01.04.1999	**18.04.1999**
Cereals	14.07.1992			Cereals	01.07.1999	
Sugar beet	05.12.1992			Sugar beet	-	

According to the Table 3.5, some agricultural products' subsidized prices had been announced only a few months before general election dates except the year 1987.

Table 3.6. Growth rates of annual average prices of some subsidized agricultural products during the period of 1965-1998 (GRAP)

Year	Barley	Avnonel	Wheat	Avnonel	Darnel	Avnonel	Oat	Avnonel	Tobacco	Avnonel	Cotton	Avnonel	Sugar beet	Avnonel.	Hazelnut	Avnonel	Grape	Avnonel	π
1965	10		4		0		13*		10		-		-		-		-		10
1966	4		0		0		4		-8		-		-		-4		0		4
1967	-20		0		0		0		-2		-		-		5		0		6
1968	11		0		0		11		6		-		-		0		0		3
1969	12**	-5	3*	0	5*	0	6*	5	4*	-1	-		-		9**	0.3	0		6
1970	18		6		8		9		-6		21		33		32		23		6
1971	23		16		15		22		8		20		0		13		4		17
1972	0		0		-1		0		29		14		0		0		0		18
1973	19*	14	21**	7	20*	7	21**	10	13*	10	60***	18	50***	11	14	15	140***	9	20
1974	73		77		76		75		75		33		37		39		43		30
1975	7		10		6		10		35		0		34		4		0		11
1976	6		10		6		6		25		28		18		4		5		16
1977	6	29	11	32	7	29	6	30	13	45	5	20	5	30	14	16	14	16	24
1978	36		12		31		26		13		28		32		30		46		50
1979	75		57		90		92		22		82		58		74		129		65
1980	89		103		80		85		83		100		118		193		113		107
1981	56		83		52		41		24		26		48		14		29		38
1982	12		22		19		17		53		24		28		20		20		26
1983	37*	54	29	55	16	54	21	52	34*	39	22	52	16	57	17	66	20	67	30
1984	101		58		144		159		34		97		32		44		33		51
1985	20		33		14		14		42		29		56		167		38		40
1986	23		27		25		22		44		23		23		2		38		27
1987	26	48	22	39	26	61	30	65	87**	40	110**	50	33	37	73**	71	43**	36	40
1988	70		71		71		76		101		41		99		70		-100		37
1989	99		98		101		80		62		86		85		36		-		105
1990	44		54		55		67		63		38		69		25		-		52
1991	61**	71	50*	74	44	75	41	74	41	75	57***	55	54	84	63***	44	63***	-33	55
1992	57		53		54		57		137		69		63		72		76		62
1993	63		59		64		28		27		51		56		104		46		59
1994	69		92		82		132		63		180		86		185		106		121
1995	99***	63	111***	68	97***	67	79**	72	90***	76	59*	100	166***	68	45	120	80**	76	88
1996	179		197		149		188		86		69		74		152		111		75
1997	69		59		99		91		105		104		154		158		104		81
1998	53		52		54		56		74		30		46		45		59		70
Average	44		44		44		47		44		52		54		52		41		

Source: State Statistics Institute (SSI) "Agricultural Statistics, 1923-1998", (2001)
Avnonel: Average of non-election years before the election year
π   : Annual inflation ratio
***   : GRAP exceeds π, Avnonel and average of the series
**   : GRAP exceeds two of π, Avnonel or average of the series
*   :GRAP exceeds one of π, Avnonel or average of the series
Years characterized in bold letters are the election years.

According to the Table 3.6, GRAP of many agricultural products exceeds

both π, Avnonel and average of the series during or before the election year.

4. Conclusions

Although the pioneered works of the PBC literature had been developed in the late 1970s as a branch of New Political Economics, the PBC theories have been a popular line of research in the 1990s'. Since it is now a widely accepted issue that political institutions can not be excluded from the analysis of macroeconomic policies, possible effects of political institutions on macroeconomic policies has been researched in several countries.

Following the PBC literature in this paper, possible effects of general elections on the monetary and finance policies and agricultural policies during the last decades in the Turkish economy are investigated. The results of the analysis are interesting. While CBRT has not allowed PBC occurrence on the targeted variables, there has been some evidence of PBC on some monetary data such as currency issued and M1. In addition, before 1998, CBRT had to extend some public sector credits. Due to the high legal ceilings, CBRT had not been able to limit these credits during the related period. So, there has been clear evidence of PBC on the public sector credits data. After 1998, CBRT has never extended any credits to the public sector. This issue is strictly determined in the CBRT Law No. 1211 which was changed in 25.4.2001 with Law no. 4651. According to the changes in the CBRT Law, CBRT will never extend public credits. It seems an appropriate application for central banking independency from public authorities also in accordance with the results reached in this paper in terms of PBC theory .

There has been some evidence of PBC in the finance policies, especially for tax revenues in the 1988-2000 period. Based on the regression results, it can be concluded that, before election years, growth rates of tax revenues had been decreased substantially, and after elections they had been increased considerably in the period analyzed.

Based on the analysis of the agricultural policies, it is determined that, some opportunistic policies had been occurred over the period of 1964-1998 in Turkey. Annual agricultural credits extended by ABRT had been increased substantially before election years. Prices of some subsidized agricultural products had been announced just a few months before the election dates. Annual growth rates of the subsidized agricultural products' prices had been realized higher than those of non-

election years before and in the election years. The series of the growth rate of agricultural credits extended by CBRT had followed a similar PBC during the 1977-1991 period. Ceteris paribus, the growth rates of real agricultural credits by CBRT before election years had been higher than those of non-election periods. After 1991, CBRT has never extended agricultural credits.

It is important to determine which policy instruments could have been used to produce PBC in the Turkish economy, in order to prevent the occurrence of PBC in the future. In this study, some policy instruments that could have been used to produce PBC are researched and what can be done to prevent the occurrence of PBC is left for the future work.

Appendix A: Data

Quarterly Data:

CBRT balance sheet size (BS) (1974:I-2001:I),
Currency issued (CI) (1977:I-2000:IV),
Broad money supply (M1) (1977:I-2000:IV),
Net domestic assets of CBRT (NDA) (1977:I-2000:IV),
Monetary base (MB) (1977:I-2000:IV),
CBRT credits to public sector (net) (PSC) (1977:I- 1998:IV).
Agricultural credits extended by CBRT (AC) (1977:I-1991:III),

Monthly Data:

Public expenditures (PE) (1987:01-2000:12),
Tax revenues (TR) (1985:01-2000:12),
Public personnel expenditures (PPE) (1985:01-2000:12).

Annual Data:

Personnel expenditures of State Economic Enterprises (1985-2001),
Agricultural prices declared by governments (1986-1999).
Agricultural credits extended by ABRT (1965-1998).

General Election Dates in Turkey:

1965 – October 10, 1965
1969 – October 12, 1969
1973 – October 14, 1973
1977 – June 5, 1977
1980 – September 12, 1980
1983 – November 6, 1983
1987 – October 29, 1987
1991 – October 20, 1991
1995 – December 24, 1995
1999 – April 18, 1999

Appendix B: Dummy Variables

I. Political Dummy Variables

    1. Composite Election Dummies:

        a) Before election dummies (Dbn) are dummy variables that take a value of one in the n periods before election date. Otherwise, they take a value of zero.

        b) After election dummies (Dan) take a value of one in the n periods after election date. Otherwise, they take a value of zero.

    2. Special Election Dummies (*D77bn/an, D83bn/an, D91bnasn, D95bn/an, D99b/a)* are the dummy variables that take a value of one in the n periods before election date (D..bn), and after election date (D..an).

II. Structural Break Dummies:

    1. '1980 shock dummy variable (D80)' takes a value of one in the military administration period beginning by 12th of September in 1980. Otherwise, it takes a value of zero.

    2. '1989 structural break dummy variable (D89)' takes a value of one in the full capital mobility period beginning by August of 1989. Otherwise, it takes a value of zero.

    3. '1994 shock dummy variable (D94)', takes a value of one in the 1994 Turkish economy crisis period beginning by 5th of April in 1994. Otherwise, it takes a value of zero.

    4. '1998 Russian crisis dummy variable (D98)' takes a value of one in the 1998 Russian economy crisis year. Otherwise, it takes a value of zero.

Appendix C: List of Variables

1. Level of Variables:

REALACQ   Quarterly real agricultural credits

REALBSQ   Quarterly real CBRT balance sheet size

REALCIQ   Quarterly real currency issued

REALM1Q   Quarterly real broad money supply

REALMBQ   Quarterly real monetary base

REALNDAQ   Quarterly real net domestic assets

REALPE   Monthly public expenditures (with constant prices)

REALPPE   Monthly real public personnel expenditures

REALPSC   Quarterly real public sector credits

REALTE   Monthly real tax revenues

2. Growth of Variables

GRREALPE   Annual growth rate of monthly public expenditures (with constant

              prices)

GRREALAC   Annual growth rate of quarterly real agricultural credits

GRREALBSQ   Annual growth rate of quarterly real CBRT balance sheet size

GRREALCIQ   Annual growth rate of quarterly real currency issued

GRREALM1Q   Annual growth rate of quarterly real broad money supply

GRREALMBQ   Annual growth rate of quarterly real monetary base

GRREALNDAQ   Annual growth rate of quarterly real net domestic assets

GRREALPPE   Annual growth rate of monthly real public personnel expenditures

GREALPSCQ   Annual growth rate of quarterly real public sector credits

GRREALTR   Annual growth rate of monthly real tax revenues

Appendix D: ADF(K) Unit Root Test Results

Table D1: Level Results

LEVEL				
VARIABLE	**K**	**A**	**B**	**C**
REALCIQ	6	-3.71*	-3.11*	-3.64**
REALM1Q	8	-3.51	-4	-0.52
REALNDAQ	1	-1.87	-1.07	-1.21
REALMBQ	5	-1.64	-1.74	-2.3
REALACQ	2	-0.89	-2.55	-3.46**
REALPSCQ	0	-0.75	-0.16	-0.72
REALBSQ	0	1.21	1.83	1.42
% 1 Critical Values		-4.06	-3.51	-2.59
% 5 Critical Values		-3.46	-2.89	-1.94
REALTE	24	1.72	2.78	2.12
REALPE	9	-1	-0.89	-0.6
REALPPE	12	-2.68	-1.99	-1.39
% 1 Critical Values		-4.01	-3.46	-2.57
% 5 Critical Values		-3.43	-2.87	-1.94

1. k, is the number of lags in ADF regressions. In lag length selection, Weber's No Autocorrelation (NAC) method is applied.
2. Column A, B and C give the t-statistics from ADF regression including constant and trend, constant and without constant respectively.
3. The critical values are from MacKinnon (1991). The superscripts * and ** denotes rejection at 5 % and 1% critical values.

Tablo D2: Annual Growth Rate Results

ANNUAL GROWTH RATE (%)				
VARIABLE	**K**	**A**	**B**	**C**
GRREALCIQ	4	-3.79*	-3.78**	-3.74**
GRREALM1Q	4	-3.98*	-3.67**	-3.62**
GRREALNDAQ	1	-7.44**	-7.11**	-6.99**
GRREALMBQ	4	-2.54	-2.57	-2.59*
GRREALACQ	0	-2.97	-2.67	-2.68*
GRREALPSCQ	3	-3.87*	-3.76**	-3.75**
GRREALBSQ	6	-2.33	-2.24	-2.3*
% 1 Critical Values		-4.06	-3.51	-2.59
% 5 Critical Values		-3.46	-2.89	-1.94
GRREALTR	12	-3.61*	-3.53**	-3.94**
GRREALPE	6	-3.13	-3*	-3.08**
GRREALPPE	6	-4.12**	-3.62**	-3.44**
% 1 Critical Values		-4.01	-3.46	-2.57
% 5 Critical Values		-3.43	-2.87	-1.94

1. k, is the number of lags in ADF regressions. In lag length selection, Weber's No Autocorrelation (NAC) method is applied.

2. Column A, B and C give the t-statistics from ADF regression including constant and trend, constant and without constant respectively.
3. The critical values are from MacKinnon (1991). The superscripts * and ** denotes rejection at 5 % and 1% critical values.

Appendix E: Estimation Results for Dummy Variables[xi]

Table E1. Growth rate of quarterly real CBRT balance sheet size (Grrelbsq)

Grrealbsq	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	0.24 (0.05)	1.35 (0.41)	-1.07 (-0.37)	-0.83 (-0.31)	-1.45 (0.55)	-0.61 (-0.22)	-1.14 (-0.26)	0.85 (0.26)	0.45 (0.16)	-0.86 (-0.33)	-2.07 (-0.81)	-2.80 (-1.07)
1977	16.01 (1.52)	12.61 (1.63)	*13.27 (1.70)*	12.64 (1.61)	12.14 (1.54)	12.48 (1.59)	-1.93 (-0.17)	-3.43 (-0.43)	1.37 (0.21)	-1.47 (-0.24)	-2.96 (-0.52)	-1.88 (-0.35)
1983	-4.43 (-0.43)	-5.38 (-0.74)	-5.38 (-0.90)	-4.61 (-0.88)	-3.96 (-0.85)	-3.75 (-0.87)	1.76 (0.17)	2.14 (0.29)	-0.28 (-0.04)	-1.26 (-0.24)	-1.02 (-0.22)	-1.28 (-0.30)
1987	-6.12 (-0.60)	-5.25 (-0.72)	-4.44 (-0.74)	-3.54 (-0.67)	-1.79 (-0.38)	-0.94 (-0.22)	-7.26 (-0.71)	-5.88 (-0.81)	-3.42 (-0.57)	-4.04 (-0.77)	-4.40 (-0.94)	-6.08 (-1.42)
1991	4.68 (0.44)	-1.43 (-0.18)	-2.87 (-0.43)	-4.61 (-0.78)	-5.86 (-1.09)	-3.59 (-0.72)	4.45 (0.43)	5.88 (0.78)	3.27 (0.51)	1.74 (0.31)	0.37 (0.07)	-1.33 (-0.28)
1995	-3.08 (-0.29)	5.56 (0.76)	1.72 (0.28)	1.97 (0.38)	3.79 (0.81)	3.77 (0.80)	-1 (-0.09)	3.41 (0.47)	2.78 (0.47)	1.19 (0.23)	-0.79 (-0.17)	-0.99 (-0.23)
1999	-4.25 (-0.41)	1.39 (0.19)	-2.16 (-0.36)	1.98 (0.37)	-0.20 (-0.04)	3.17 (0.73)	-1.51 (-0.14)	2.30 (0.31)	0.96 (0.16)	1.79 (0.34)	2.32 (0.49)	2.04 (0.47)

Table E2. Growth rate of quarterly real currency issued (Grrealciq)

Grrealciq	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	2.09 (0.45)	-1.01 (-0.30)	1.75 (0.59)	1.19 (0.43)	2.78 (1.04)	*6.35 (2.34)*	-0.19 (-0.04)	-1.79 (-0.54)	-1.17 (-0.41)	-1.78 (-0.66)	-0.10 (-0.03)	*5.64 (2.16)*
1983	-8.71 (-0.88)	-8.05 (-1.16)	-6.30 (-1.11)	-4.33 (-0.86)	-1.73 (-0.38)	-0.45 (-0.11)	2.83 (0.29)	2.02 (0.29)	-0.28 (0.05)	-3.36 (-0.67)	-2.49 (-0.55)	-0.65 (-0.16)
1987	4.31 (0.45)	1.12 (0.16)	3.95 (0.69)	2.47 (0.49)	4.18 (0.93)	4.81 (1.18)	-9.91 (-1.03)	-7.57 (-1.10)	-4.86 (-0.85)	-5.87 (-1.18)	-5 (-1.11)	-4.84 (-1.18)
1991	-2.15 (-0.22)	-9.32 (-1.32)	2.16 (0.36)	1.44 (0.27)	2.76 (0.58)	3.68 (0.87)	-1.55 (-0.15)	2.11 (0.29)	-0.45 (-0.07)	2.96 (0.57)	2.54 (0.55)	*8.87 (2.20)*
1995	3.22 (0.31)	0.68 (0.09)	2.08 (0.33)	-1.42 (-0.26)	-0.84 (-0.17)	-3.61 (-0.83)	7.66 (0.77)	-6.21 (-0.87)	-4.06 (-0.68)	-5.22 (-1)	-3.62 (-0.78)	-0.95 (-0.22)
1999	12.71 (1.31)	*11.68 (1.73)*	6.94 (1.23)	*8.62 (1.78)*	5.59 (1.28)	5.52 (1.38)	-0.31 (-0.03)	1.74 (0.26)	2.63 (0.46)	2.93 (0.59)	4.11 (0.93)	5.75 (1.42)

Table E3. Growth rate of quarterly real broad money supply (Grrelm1q)

Grrealm1q	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	1.18 (0.28)	-0.01 (-0.004)	0.76 (0.27)	1.87 (0.73)	*4.36 (1.73)*	*5.88 (2.28)*	-2.19 (-0.52)	-3.73 (-1.21)	-1.95 (0.72)	0.28 (0.11)	*4.74 (1.91)*	*6.19 (2.45)*
1983	-9.05 (-0.99)	-6.65 (-1.02)	-1.46 (-0.27)	1.46 (0.31)	2.21 (0.52)	0.27 (0.07)	-10.13 (-1.11)	-7.38 (-1.13)	-8.07 (-1.49)	-6.99 (-1.47)	-5.28 (-1.22)	-3.96 (-0.99)
1987	5.36 (0.59)	2.31 (0.35)	1.56 (0.28)	3.73 (0.77)	4.45 (1.02)	4.78 (1.20)	-13.62 (-1.49)	-7.62 (-1.14)	-4.61 (-0.83)	-6.22 (-1.27)	-3.61 (-0.80)	-2.46 (-0.60)
1991	1 (0.11)	-0.31 (-0.04)	-0.55 (-0.09)	-2.39 (-0.49)	-4.41 (-1.03)	-0.97 (-0.24)	-3.05 (-0.33)	-2.05 (-0.31)	1.04 (0.19)	1.59 (0.33)	4.15 (0.98)	2.96 (0.76)
1995	-9.08 (-0.98)	3.32 (0.48)	2.67 (0.47)	-1.46 (-0.30)	0.14 (0.03)	-1.64 (-0.41)	9.83 (1.06)	-0.88 (-0.13)	-2.17 (-0.39)	5.33 (1.08)	*8.61 (1.98)*	5.69 (1.43)
1999	*18.59 (2)*	3.68 (0.53)	2.71 (0.48)	5.93 (1.22)	5.68 (1.29)	5.70 (1.43)	6.2 (0.69)	0.67 (0.10)	4.23 (0.79)	4.86 (1.06)	6.15 (1.49)	*7.29 (1.93)*

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Table E4. Growth rate of quarterly real monetary base (Grrelmbq)

Grrelmbq	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	5.94 (0.69)	4.77 (0.76)	0.58 (0.11)	0.15 (0.03)	-0.07 (-0.01)	-3.03 (-0.57)	-4.65 (-0.53)	3.71 (0.58)	-2.15 (-0.38)	-1.96 (-0.36)	0.07 (0.01)	-1.02 (-0.18)
1983	-14.95 (-0.80)	-6.75 (-0.49)	-1.03 (-0.08)	3.74 (0.35)	2.54 (0.26)	6.97 (0.78)	-12.19 (-0.65)	2.69 (0.20)	1.86 (0.16)	4.49 (0.45)	10.25 (1.12)	11.35 (1.33)
1987	9.77 (0.54)	6.74 (0.52)	6.19 (0.57)	1.55 (0.16)	3.92 (0.45)	3.32 (0.41)	-1.01 (-0.05)	-0.93 (-0.07)	-9.58 (-0.88)	-9.60 (-1)	-11.04 (-1.29)	-12.02 (-1.51)
1991	30.18 (1.67)	7.41 (0.56)	8.66 (0.78)	-0.78 (-0.08)	-2 (-0.23)	-3.93 (-0.49)	14.50 (0.81)	11.97 (0.91)	9.08 (0.86)	10.94 (1.17)	9.45 (1.10)	8.70 (1.10)
1995	-4.93 (-0.26)	20.42 (1.56)	16.05 (1.51)	8.54 (0.91)	1.52 (0.17)	-1.23 (-0.15)	*-36.87 (-1.94)*	-21.52 (-1.57)	*-27.29 (-2.44)*	*-28.55 (-2.84)*	*-17.42 (-1.91)*	-10.94 (-1.33)
1999	1.99 (0.06)	-22.18 (-1.28)	*-31.46 (-2.85)*	-8.42 (-0.84)	-5.87 (-0.67)	-13.44 (-1.72)	24.80 (0.74)	*45.38 (2.39)*	*44.18 (2.52)*	*39.36 (2.13)*	*38.97 (2.11)*	*36.47 (2)*

Table E6. Growth rate of quarterly real public sector credits (Grrealpscq)

Grrealpscq	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	*23.72 (1.72)*	-0.04 (-0.004)	1.88 (0.22)	-1.07 (-0.14)	-1.58 (-0.21)	0.78 (0.10)	18.14 (1.30)	12.57 (1.17)	-3.24 (-0.34)	-4.01 (-0.47)	-2.96 (-0.37)	4.99 (0.61)
1983	-6.32 (-0.23)	-7.75 (-0.39)	-6.13 (-0.38)	-4.76 (-0.34)	-4.55 (-0.36)	-4.79 (-0.41)	-7.38 (-0.27)	-3.64 (-0.18)	-4.51 (-0.28)	-9.81 (-0.69)	-4.16 (-0.32)	-4.44 (-0.37)
1987	11.74 (0.43)	6.47 (0.33)	-1 (-0.06)	5.06 (0.36)	3.93 (0.31)	2.43 (0.21)	-2.93 (-0.11)	-4.02 (-0.20)	-8.39 (-0.52)	-6.06 (-0.43)	-6 (-0.47)	-3.37 (-0.29)
1991	*73.52 (2.94)*	23.01 (1.24)	*37.23 (2.32)*	*24.15 (1.71)*	18.01 (1.41)	17.13 (1.49)	*79.19 (2.89)*	*79.59 (3.59)*	14.90 (0.61)	9.85 (0.44)	1.87 (0.09)	*40.20 (1.81)*
1995	9.68 (0.34)	-9.03 (-0.45)	-5.12 (-0.31)	-11.21 (-0.77)	-2.53 (-0.19)	-2.17 (-0.17)	8.73 (0.31)	-1.88 (-0.09)	-0.90 (-0.05)	2.04 (0.14)	2.73 (0.21)	8.87 (0.74)

Table E7. Growth rate of quarterly real agricultural credits by CBRT (Grrealacq)

Grrealacq	Db1	Db2	Db3	Db4	Db5	Db6	Da1	Da2	Da3	Da4	Da5	Da6
Composite dummy	*76.42 (2.16)*	32.80 (1.13)	*56.29 (2.44)*	*38.58 (1.82)*	24.06 (1.16)	16.09 (0.78)	60.66 (1.42)	-7.49 (-0.21)	0.20 (0.007)	-14.35 (-0.55)	-15.80 (-0.63)	-25.53 (-1)
1983	-8.61 (-0.13)	-16.44 (-0.36)	-23.78 (-0.63)	-28.68 (-0.88)	-30.65 (-1.05)	-35.70 (-1.34)	-14.93 (-0.23)	-15.96 (-0.35)	-22.59 (-0.59)	-40.37 (-1.23)	-47.25 (-1.59)	*-51.05 (-1.84)*
1987	95.03 (1.52)	49.42 (0.76)	*196.61 (4.81)*	*130.21 (3.76)*	*84.81 (2.61)*	*72.57 (2.45)*	*135.58 (2.22)*	4.95 (0.07)	*84.60 (1.93)*	40.70 (0.96)	29.62 (0.72)	4.58 (0.10)
1991	*141.17 (2.38)*	71.40 (1.63)	49.27 (1.35)	32.11 (0.99)	25.39 (0.86)	20.26 (0.74)						

Table E8. Growth rate of monthly real public expenditures (Grrealpe) (Before election dummies)

Grrealpe	Db1	Db2	Db3	Db4	Db5	Db6	Db7	Db8	Db9	Db10	Db11	Db12	Db13	Db14	Db15	Db16	Db17	Db18
Composite dummy	-1,24 (-0,23)	1,09 (0,27)	-2,62 (-0,78)	-2,23 (-0,75)	-0,62 (-0,22)	1,07 (0,42)	0,84 (0,35)	2,46 (1,09)	2,40 (1,09)	2,35 (1,09)	1,81 (0,85)	-0,20 (-0,09)	0,10 (0,05)	0,13 (0,06)	-0,44 (-0,21)	-0,72 (-0,33)	-1,23 (-0,55)	0,30 (0,13)
1991	-0,75 (-0,08)	-0,72 (-0,11)	-4,16 (-0,74)	-3,17 (-0,66)	-2,61 (-0,60)	-2,06 (-0,56)	-2,26 (-0,57)	-1,89 (-0,55)	-0,94 (-0,28)	-0,68 (-0,22)	-0,28 (-0,09)	-0,87 (-0,29)	-0,86 (-0,31)	-0,70 (-0,26)	-0,99 (-0,38)	-1,11 (-0,45)	-1,08 (-0,44)	0,07 (-0,27)
1995	-4,77 (-0,50)	1,72 (0,24)	-0,94 (-0,16)	0,22 (0,04)	3,46 (0,68)	2,26 (0,48)	1,68 (0,36)	*7,49 (1,72)*	5,51 (1,33)	4,31 (1,07)	1,39 (0,36)	0,19 (0,05)	-0,49 (-0,13)	-1,56 (-0,44)	-2,28 (-0,66)	-3,12 (-0,91)	-4,72 (-1,42)	-5,29 (-1,63)
1999	1,32 (0,14)	1,52 (0,22)	-3,67 (-0,63)	-2,21 (-0,43)	-1 (-0,21)	4,24 (0,98)	3,78 (0,95)	3,77 (0,99)	3,25 (0,88)	3,35 (0,94)	3,39 (0,98)	-0,47 (-0,14)	0,49 (0,14)	0,99 (0,29)	1,45 (0,42)	1,94 (0,58)	2,29 (0,69)	1,88 (0,57)

Table E9. Growth rate of monthly real public expenditures (After election dummies)

Grrealpe	Da1	Da2	Da3	Da4	Da5	Da6	Da7	Da8	Da9	Da10	Da11	Da12	Da13	Da14	Da15	Da16	Da17	Da18
Composite dummy	-2,09 (-0,38)	-1,47 (-0,36)	-5,27 (-1,57)	0,92 (0,31)	0,39 (0,15)	0,54 (0,22)	0,72 (0,31)	1 (0,46)	1,67 (0,81)	1,93 (0,96)	1,51 (0,76)	1,64 (0,84)	2,06 (1,06)	1,92 (0,96)	0,85 (0,42)	0,39 (0,19)	0,03 (0,02)	1,96 (0,88)
1991	-1,02 (-0,11)	-1,20 (-0,17)	-0,79 (-0,14)	0,67 (0,14)	-0,12 (-0,02)	1,91 (0,49)	1,87 (0,52)	1,54 (0,45)	1,03 (0,32)	0,96 (0,32)	0,77 (0,26)	0,52 (0,18)	0,42 (0,15)	0,36 (0,14)	-2,05 (-0,80)	-2,31 (-0,93)	-2,28 (-0,94)	-0,65 (-0,27)
1995	-8,43 (-0,88)	-5,83 (0,83)	-7,86 (-1,33)	8,28 (1,56)	7,26 (1,51)	6,16 (1,32)	5,93 (1,32)	6,58 (1,58)	5,58 (1,36)	5,63 (1,42)	4,78 (1,25)	4,48 (1,19)	5,61 (1,52)	5 (1,38)	5,85 (1,64)	5,06 (1,44)	5,15 (1,49)	*5,97 (1,73)*
1999	2,75 (0,29)	2,85 (0,41)	-7,25 (-1,27)	-5,39 (-1,10)	-4,43 (-0,99)	-4,96 (-1,22)	-4,19 (-1,10)	-3,62 (-0,99)	-0,65 (-0,18)	-0,04 (-0,01)	-0,47 (-0,15)	0,92 (0,29)	1,29 (0,43)	1,32 (0,45)	1,71 (0,60)	1,98 (0,71)	2,11 (0,77)	2,30 (0,86)

Table E10. Growth rate of monthly real public personnel expenditures (Grrealppe) (Before election dummies)

Grrealppe	Db1	Db2	Db3	Db4	Db5	Db6	Db7	Db8	Db9	Db10	Db11	Db12	Db13	Db14	Db15	Db16	Db17	Db18
Composite dummy	1,99 (0,51)	0,49 (0,17)	0,22 (0,09)	0,56 (0,27)	0,51 (0,27)	0,74 (0,43)	0,47 (0,29)	1,25 (0,79)	0,12 (0,08)	0,21 (0,14)	-0,11 (-0,07)	0,65 (-0,44)	-0,97 (-0,65)	-1,71 (-1,13)	-1,98 (-1,28)	-2,38 (-1,52)	-2,23 (-1,38)	-2,47 (-1,46)
1987	-2,10 (-0,27)	-2,61 (-0,48)	-1,65 (-0,37)	0,33 (0,08)	-0,34 (-0,09)	-0,63 (-0,19)	-0,72 (-0,24)	-0,81 (-0,29)	-0,82 (-0,29)	-0,83 (-0,29)	-0,84 (-0,30)	-0,89 (-0,32)	-0,89 (-0,32)	-0,88 (-0,32)	-0,76 (-0,27)	-0,79 (-0,28)	-0,79 (-0,28)	-0,81 (-0,29)
1991	4,69 (0,59)	2,37 (0,41)	1,71 (0,34)	2,30 (0,51)	4,03 (0,95)	5,76 (1,43)	4,48 (1,12)	6,22 (1,55)	2,42 (0,62)	3,18 (0,85)	3,52 (0,98)	2,74 (0,79)	1,23 (0,37)	-0,99 (-0,31)	-2,19 (-0,72)	-2,46 (-0,83)	-1,10 (-0,38)	-0,07 (-0,03)
1995	2,86 (0,37)	0,05 (0,01)	-1,25 (-0,27)	-2,25 (-0,27)	-3 (-0,79)	-3,05 (-0,87)	-2,23 (-0,67)	0,05 (0,02)	-0,46 (-0,15)	-0,58 (-0,19)	-1,97 (-0,68)	-2,64 (-0,94)	-2,60 (-0,95)	-2,99 (-1,13)	-3,32 (-1,28)	-3,19 (-1,25)	-3,28 (-1,30)	-3,35 (-0,05)
1999	2,81 (0,36)	2,77 (0,50)	1,75 (0,39)	2,06 (0,53)	2,21 (0,63)	2,43 (0,76)	1,95 (0,66)	2,18 (0,78)	1,39 (0,53)	1,39 (0,55)	1,46 (0,61)	1,27 (0,55)	1,27 (0,57)	1,18 (0,55)	1,11 (0,53)	0,79 (0,39)	0,58 (0,29)	0,42 (0,22)

Table E11. Growth rate of monthly real public personnel expenditures (After election dummies)

| Grrealppe	Da1	Da2	Da3	Da4	Da5	Da6	Da7	Da8	Da9	Da10	Da11	Da12	Da13	Da14	Da15	Da16	Da17	Da18
Composite dummy	4,13 (1,06)	-0,68 (-0,24)	2,54 (1,08)	-0,47 (-0,23)	-0,95 (-0,50)	-1,39 (-0,79)	-0,95 (-0,57)	-0,83 (-0,52)	-1,94 (-1,27)	-1,85 (-1,25)	-2,06 (-1,43)	-2,41 (-1,68)	-2,09 (-1,46)	-2,35 (-1,63)	-1,96 (-1,32)	-2,19 (-1,46)	-2,02 (-1,30)	-2,42 (-1,47)
1987	-3,52 (-0,45)	*-9,94 (-1,83)*	*7,91 (1,78)*	0,16 (0,04)	-1,86 (-0,53)	-2,45 (-0,76)	-2,09 (-0,70)	-2,25 (-0,81)	-2,24 (-0,85)	-2,25 (-0,89)	-2,21 (-0,92)	-2,62 (-1,14)	-2,56 (-1,15)	-2,33 (-1,08)	-0,76 (-0,36)	-1,13 (-0,55)	-0,98 (-0,49)	-1,13 (-0,58)
1991	1,29 (0,16)	1,42 (0,26)	-1,15 (-0,25)	-0,43 (-0,10)	1,09 (0,31)	0,85 (0,26)	1,10 (0,36)	1,41 (0,49)	0,89 (0,33)	0,58 (0,23)	0,15 (0,06)	-0,09 (-0,04)	-0,23 (-0,10)	-0,40 (-0,18)	-0,47 (-0,22)	-0,57 (-0,27)	-0,12 (-0,06)	-0,004 (-0,002)
1995	*19,43 (2,52)*	6,79 (1,20)	3,48 (0,74)	-0,51 (-0,12)	-1,77 (-0,47)	-2,58 (-0,74)	-1,45 (-0,45)	-0,80 (-0,26)	-0,63 (-0,22)	-0,73 (-0,26)	-1,43 (-0,54)	-1,69 (-0,66)	-0,31 (-0,12)	-0,45 (-0,19)	-0,47 (-0,21)	0,12 (0,06)	0,04 (0,02)	-0,11 (-0,05)
1999	-0,45 (-0,06)	-0,45 (-0,08)	-0,60 (-0,13)	-1,52 (-0,29)	-1,11 (-0,32)	-1,13 (-0,35)	-1,09 (-0,37)	-1,37 (-0,49)	-4,24 (-1,62)	-3,48 (-1,39)	-2,93 (-1,22)	-2,50 (-1,07)	-2,21 (-0,98)	-1,99 (-0,92)	-1,78 (-0,84)	-1,73 (-0,84)	-1,53 (-0,76)	-1,15 (-0,74)

Table E12. Growth rate of monthly real tax revenues (Grreaaltr) (Before election dummies)

Grrealtr	Db1	Db2	Db3	Db4	Db5	Db6	Db7	Db8	Db9	Db10	Db11	Db12	Db13	Db14	Db15	Db16	Db17	Db18
Composite dummy	-1,79 (-0,56)	-0,93 (-0,40)	*-3,97 (-2,15)*	*-3,54 (-2,18)*	*-2,93 (-1,99)*	*-3,18 (-2,35)*	*-2,51 (-1,97)*	*-2,15 (-1,77)*	-1,94 (-1,66)	-1,59 (-1,41)	-1,57 (-1,42)	-1,81 (-1,66)	*-2,08 (-1,90)*	-1,20 (-1,08)	-1,49 (-1,32)	-1,06 (-0,92)	-1,01 (-0,87)	-0,77 (-0,64)
1991	-0,25 (-0,05)	-1,59 (-0,42)	0,02 (0,008)	-0,93 (-0,34)	-1,06 (-0,43)	-0,98 (-0,44)	-1,32 (-0,63)	-0,99 (-0,50)	-1,09 (-0,58)	-1,19 (-0,66)	-1,16 (-0,67)	-1,30 (-0,77)	-1,61 (-0,98)	-2,08 (-1,29)	-1,89 (-1,18)	-1,58 (-1)	-1,19 (-0,77)	-0,82 (-0,54)
1995	-3,03 (-0,55)	-0,76 (-0,19)	-1,42 (-0,43)	-1,94 (-0,67)	-1,98 (-0,75)	-3,55 (-1,46)	-2,20 (-0,94)	-1,73 (-0,77)	-2,44 (-1,14)	-2,49 (-1,21)	-2,84 (-1,42)	*-3,54 (-1,83)*	*-3,84 (-2,03)*	*-3,99 (-2,14)*	*-4,14 (-2,31)*	*-4,04 (-2,29)*	*-4,34 (-2,49)*	*-4,45 (-2,57)*
1999	-2,03 (-0,37)	-0,16 (-0,04)	*-10,50 (-3,33)*	*-7,54 (-2,74)*	*-5,46 (-2,18)*	*-4,63 (-1,99)*	*-3,86 (-1,77)*	-3,44 (-1,66)	-2,20 (-1,13)	-1,59 (-0,88)	-1,05 (-0,59)	-0,54 (-0,32)	-0,11 (-0,06)	2,24 (1,39)	1,61 (1,03)	1,68 (1,10)	1,57 (1,06)	1,45 (0,99)

Table E13. Growth rate of monthly real tax revenues (After election dummies)

Grrealtr	Da1	Da2	Da3	Da4	Da5	Da6	Da7	Da8	Da9	Da10	Da11	Da12	Da13	Da14	Da15	Da16	Da17	Da18
Composite dummy	-0,68 (-0,23)	-1,77 (-0,79)	-1,71 (-0,98)	-0,45 (-0,30)	0,04 (0,03)	-0,85 (-0,67)	-0,45 (-0,37)	-0,67 (-0,58)	-0,26 (-0,24)	0,64 (0,59)	0,47 (0,44)	0,05 (0,04)	-0,47 (-0,45)	0,21 (0,19)	0,03 (0,02)	0,58 (0,53)	0,59 (0,52)	0,89 (0,75)
1991	-0,48 (-0,09)	-1,72 (-0,45)	-1,41 (-0,45)	-1,67 (-0,61)	-1,78 (-0,73)	-1,14 (-0,51)	-1,36 (-0,65)	-0,90 (-0,46)	-0,92 (-0,49)	-0,56 (-0,31)	-0,43 (-0,25)	-0,64 (-0,39)	-0,55 (-0,34)	-0,36 (-0,23)	-0,24 (-0,16)	0,23 (0,16)	0,08 (0,06)	0,44 (0,32)
1995	-1,83 (-0,34)	-3,11 (-0,80)	-1,41 (-0,42)	0,38 (0,13)	2,43 (0,91)	0,85 (0,36)	1,08 (0,48)	0,69 (0,33)	0,41 (0,20)	0,13 (0,06)	-0,14 (-0,07)	-0,29 (-0,17)	-0,54 (-0,31)	-0,37 (-0,22)	-1,37 (-0,85)	-0,63 (-0,41)	-0,97 (-0,66)	-0,75 (-0,53)
1999	0,25 (0,05)	-0,31 (-0,08)	-1,56 (-0,50)	-0,13 (-0,05)	-0,23 (-0,09)	-0,55 (-0,23)	-0,17 (-0,07)	-0,53 (-0,24)	2,09 (1,03)	*4,64 (2,40)*	*4,35 (2,31)*	*3,60 (1,99)*	*2,73 (1,55)*	*3,87 (2,27)*	*3,54 (2,15)*	*3,67 (2,35)*	*3,61 (2,38)*	*3,67 (2,47)*

Appendix F. Line Graph of Grrealndaq
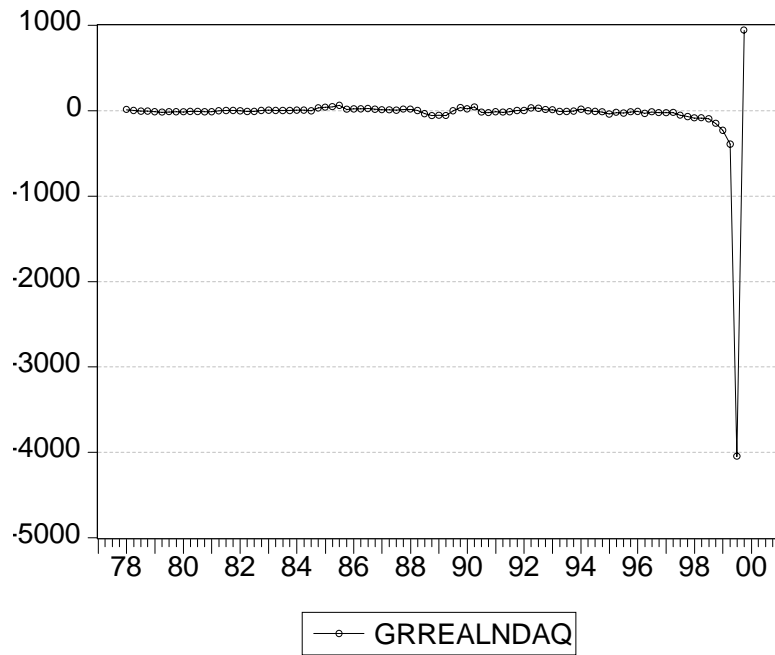
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Endnotes

[i] For detailed information about 'Phillips Curve', see the well known paper by Phillips (1958).

[ii] For the original 'Rational Expectations Theorem", see Muth (1961).

[iii] After the study of Nelson and Plosser (1982), there have been arguments about dynamic properties of macroeconomic and financial time series. Stochastic processes may not be stationary and contain unit root problem. In this situation, these processes can not be evaluated by standard statistics theorem. That is why, macroeconomic series should pass through stationarity tests. This is a standard process in econometrics.

[iv] From D80, D89, D94 or D98 dummies, appropriate ones for the related period analyzed in the regression dummies are included in the ADF regressions.

[v] In their broad overview of the literature on unit root econometrics, Campbell and Perron claimed "GSC" as an appropriate procedure for setting the lag length in ADF regressions.

[vi] Maximum lag length is taken according to the Perron (1989), Zivot and Andrews (1992), Hall (1994) as $k^{max} = 12$ for quarterly data and $k^{max} = 24$ for monthly data as mentioned in Weber (2001).

[vii] For the importance of structural breaks in unit root tests' reliability, see Perron (1989), Zivot and Andrews (1992).

[viii] The autocorrelation test results can be obtained from the author.

[ix] In Turkey, after institutional reforms realized in the 1980s, CBRT's monetary policy tools has been diversified. Before 1980, currency issued, which is an important percentage of CBRT balance sheet size, had been used as a monetary indicator for CBRT's monetary policies. After 1980, reserve money, monetary base, central bank money, M series (M1, M2, M2Y, M3Y) have been used as monetary indicators (Öztürk, 1992).

The first monetary programme of CBRT "1990 Monetary Programme" and the second one "1992 Monetary Programme" determine monetary indicators of CBRT monetary policies as follows:

- Net Domestic Assets,
- Sum of Domestic Liabilities,
- CBRT Balance Sheet Size,
- Central Bank Money (Ersel and Öztürk, 1992).

[x] Descriptive statistics of the series can be obtained from the author.

[xi] The critical values are from MacKinnon (1991). Coefficients and t-values of the election dummies are represented in bold and italic letters that reject null hypothesis (non-importance in explaining the dependent variable) at 5 % and 1% critical values.