POLITICAL MONETARY CYCLES: THE POLITICAL MANIPULATION OF MONETARY POLICY INSTRUMENTS AND OUTCOMES IN TURKEY

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ABSTRACT

The literature on political business cycles (PBC) suggests that due to the myopic nature of individual voters and their retrospective voting attitudes, governments can manipulate the economy to create such conditions to increase their popularity to win elections. The theoretical model of this opportunistic PBC is based on Nordhaus theoretic (1975).

This study attempts to investigate the presence of politically manufactured monetary cycles (PMC) in Turkey within the traditional Nordhausian opportunistic PBC model. Initially, a descriptive statistical analysis with the data related to the monetary aggregates is conducted for the period of 1986-2002 (monthly and annually) to search for the impact of elections on such variables in terms of deviation from the mean values. Thus, deviations from and interruptions in the trend in the monetary policy instruments are attributed to the political manipulations of these variables due to electioneering. In addition, the monetary policy instruments and outcomes are analysed in an econometric analysis, in which they are modelled within interrupted time-series analysis with monthly data for the 1986 M1-2002 M11 period. In order to produce the most efficient result of the model as set in the research, the *interrupted time-series model*, which is a version of the classical multiple regression model, is chosen as a good fit for analysing the impact of an election on the behaviour of the monetary policy instruments and outcomes.

The results of the econometric time-series analysis provide strong evidence for the existence of PMC or simply PBC in the case of Turkey, and hence supports the Nordhausian theoretic. The statistical analysis, however, renders certain degree of support for the presence of PMC in Turkey.

The results implicate that incumbent governments in Turkey have used monetary policy instruments and outcomes in creating PMC during election periods in their attempts to *buy votes* for winning elections or to enhance their chances of re-election during the period in question.

Keywords: Political business cycles, political monetary cycles, opportunistic business cycles, Nordhaus model, elections, monetary policy, monetary instruments and outcomes, time series analysis, Turkey.

JEL Classification: E32; E42; E52; E58; E63

> "*Whilst it cannot be denied that great economic progress has been made, it is unfortunately the case that these principles have not been strictly followed by Turkey's policy makers … due to numerous elections held in 1987… [N]umerous legitimate objectives … have deliberately been sacrificed in order to meet the excessive public sector spending on infrastructure projects and services such as transportation, power, telecommunications, highways which had a special significance for the country's voters.*"
>
> TUSIAD (1988: iii)

I. INTRODUCTION

The literature on political business cycles (PBC) suggests that incumbent governments use monetary and fiscal policies to create opportunistic policy cycles for manipulating the economy to win elections. A particular attempt is the use of monetary policy instruments, which results in the creation of politically manufactured monetary cycles (PMC). This can be either due to financing of the increased government expenditures for election reasons or direct increase in money supply in the economy. It should, however, be noted that this is probably not a very straightforward policy in those countries where a central bank has independence, which constrains the government's manipulation of monetary policy.

This study aims to explore the impact of elections on the behaviour of monetary aggregates in Turkey. Monetary policy instruments and outcomes can be influenced by elections through the political manipulation of the economy as well as due to the need for injecting money into the economy for expensive election campaigns. Although economic bureaucracy formulates monetary policy similar to fiscal policy, considering the close political links between the bureaucrats and the government, it is reasonable to assume that bureaucracy would not have any power to resist the requirements of the government in Turkey. Considering that in Turkey, the Governor of the Central Bank and the Under-Secretary of the Treasury are directly appointed by the government and that the Central Bank did not possess independence until later months of 2001, as it was part of the government apparatus, the likelihood of political manipulation of the monetary policies becomes more unambiguous. Unlike independent central banks, Central Bank of Turkey operated in an opportunistic manner to help the incumbent governments to remain in power, to which end it could use the monetary policy instruments within its portfolio. This provides the rationale to study the development and trends in monetary policy and its instruments for political intervention for electoral profiteering.

Although a general understanding of electoral economy is common among people in Turkey, there is not any clear indication of the degree and the extent of the relationship between elections and, for instance, money supply in the economy. Analysis in this study thus aims to examine and uncover the nature of these associations in a systematic manner and attempts to substantiate the predictions and the results of the an earlier study, where it was demonstrated that incumbent governments in Turkey were involved in manufacturing opportunistic type of PBC in fiscal and monetary policies the post-1980 period in Turkey (Asutay, 2004).

A close study on Turkish political economy would indicate that factors other than unemployment and inflation play an important role in conditioning elections in Turkey, such as political patronage and other socio-political factors. It may therefore be difficult to expect direct association between macroeconomic variables and the outcomes of elections as precisely as expected from empirical analysis. However, the personal networks of the politicians and political patronage implies the use of money in particular during election periods. Thus, the dynamics of politically motivated business cycles features different elements in the case of Turkey.

The political economy of Turkey implicitly demonstrates the overwhelming power of the state over macroeconomic management and policy-making. Thus, governments in Turkey have used every opportunity to intervene in the economy. However, as this study discusses, the important issue is the motivation of government in their intervention. This motivation can be, as it is most of the time, for political gains, as politicians aim to remain in power at the expense of the political manipulation of economy.

It should be noted that political instability in Turkey does not help us to draw direct conclusions with regards to the political manipulation of the economy. In other words, without sound empirical support it is not possible to reach any conclusions for the strong motivation of governments to manipulate the economy for electoral purposes. In addition, the insensitivity of the electorate to economic issues in electoral politics in Turkey as compared to European and American citizens contributes to the difficulty of observing such systematic manipulation.

This study focuses on monetary policy oriented macroeconomic variables, which are expected to be more vulnerable to political manipulation in Turkey, such as money supply, inflation and government finance. Hence, the behavioural changes in inflation and monetary aggregates are analysed in an attempt to model a politico-economy interaction through monetary policy.

It should also be noted that money increase in the economy during election periods can be significantly affected by an election motivated demand for credit from the private sector during the election period, though this is not the major research concern of this study. For instance, parties allocate and spend extremely large amounts of money for their campaigns in their attempt to appeal to and attract the public.

II. ELECTIONS AND MONETARY POLICY: A LITERATURE SURVEY ON POLITICAL MONETARY CYCLES

The various variants of PBC, in particular the opportunistic models, assume that governments increase their intervention in the economy through manipulations of fiscal and monetary policies before elections to enhance their re-election chances. The cycle is completed in the post-election period, when governments attempt to pursue policies to reduce inflation leading to increased unemployment. The underlying assumption of these models is the 'myopic voters', who are assumed to be concerned only with the immediate past economic performance of a government, namely the assumption of retrospective voter.

2.1. Political Monetary Cycles: The Model and Assumptions

The opportunistic model of PBC predicts that the incumbent governments attempt to launch expansionary or pro-growth policies prior to elections with the objective of boosting consumption and to demonstrate the visible active nature of the economy. This in turn is expected to boost the popularity of the incumbent government. It should be stated that governments have only two main policy instruments in their attempt to manipulate the economy, namely fiscal and monetary policy. These are employed individually or together to increase the aggregate demand in the economy. As a result, as enunciated by Brownstone *et al.* (1980: 116), these macroeconomic policies serve not only economic but also political objectives. Thus, theoretical models of PBC can be extended into monetary policy to examine the rise of politically manipulated monetary cycles of PMCs as well.

Following the same logic as in PBC, in the case of PMC, as illustrated in figure 1, the theoretical model suggests that if money supply increases before elections for non-economic reasons such as politically motivated reasons, it is likely to decrease after the election at a greater rate. A decrease in money supply takes place due to the fact that government attempts to offset the negative effects of pre-electoral monetary and fiscal expansionary policies such as inflation, or simply because money increase is neutralised as necessitated by the real economy. However, when the next election (2) approaches, the government again attempts to use fiscal and monetary policies to boost the economy with an attempt to *buy votes*.

Figure 1. Creating the PMC

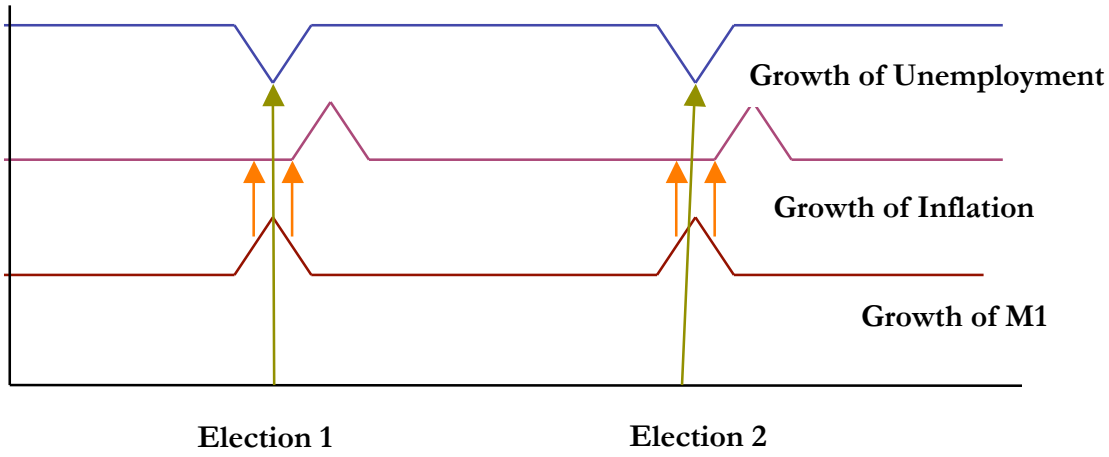
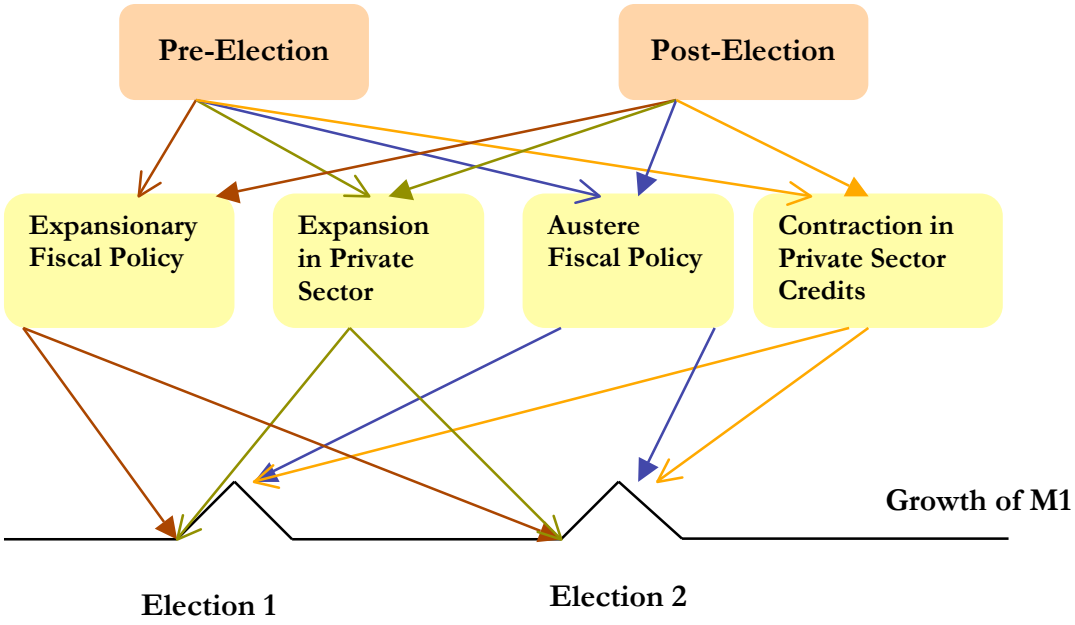


Figure 1 demonstrates that when the money supply increase in the economy due to the incumbent government's attempts to politically manipulate the economy during an election period (1), this helps the economy to boost and creates jobs through expanding aggregate demand. The impact can be immediately observed in declining unemployment. The increased money supply normally brings about inflation in the economy. However, as can be seen in figure 2, inflation increase shows itself in a lagged manner after the election period as the theory predicates. Thus, while the impact of politically-manipulated monetary policies on unemployment can be detected or felt immediately, such an impact takes time to affect inflation.

Figure 2 further illustrates the entire working mechanism of politically manipulated monetary policy cycles. As can be seen, the economy experiences a shock in the form of expansionary fiscal policy and expansion in private sector credits through expansionary monetary policy. In other words, it depicts that pre-electoral money supply increase in the economy due to the fact that the incumbent government intervenes to boost the economy with the objective of increasing its own popularity. Figure 2. also depicts that money supply increase in the economy can be due to the increase in demand for money before the elections to finance expensive election campaigns.

Figure 2. Working Mechanism of PMC through Growth of M1



In the post-election period, as can be seen in figure 2, the economy goes through another shock in the form of austere fiscal policies and monetary policies in the form of private sector credits to contract the economy to offset the negative consequences of the previous expansion. The direct consequence of this is contraction in private sector credits as well. This process is repeated through the entire election period from one election to another.

2.2. Empirical Studies on PMC: A Brief Survey

The literature evidences the existence of a number of studies investigating the existence of politically-motivated monetary and fiscal policy cycles. For instance, Frey and Schneider (1981) provide an extensive literature review, which demonstrates the abundance of empirical findings on politically motivated expansionary monetary and fiscal policies before elections.

In addition, Havrilesky (1988) and Wagner (1980b) conclude that governments indeed use their monopoly power over money to manipulate the economy for electoral gains or profiteering. Tufte (1978), Alesina (1989) and Rogoff (1990) provide further evidence that governments increase their spending and reduce their collections to profit from elections.

There are a number of studies, which attempt to examine and question the existence of PMC in industrialised democracies. For example, Cargill and Hutchinson (1991) examine interbank interest rates in Japan, and find that they decrease prior to elections, which refers to the existence of expansionary monetary policy for the purpose of electoral profiteering for the incumbent government. In contrast, Kohno and Nishizawa (1990) reason that monetary policy in Japan is hardly exploitable for political purposes, because they hold that the Bank of Japan is independent of the influences of politicians, as well as to the fact that the complex nature of monetary policy in Japan discourages political manipulation. By providing the same lines of conclusion, Li (1988) argues that since presidents protect the central bank in Taiwan, it is immune to political manipulation. However, Limmanee (1999) provides statistical evidence to demonstrate the use of money supply for electoral purposes, as she reveals that incumbent governments expand the monetary base prior to elections to boost their popularity.

Remmer (1993) studies the case for Latin America, and measures the growth rate of money both before and after elections in efforts to analyse the impact of elections on macroeconomic performance. She concludes that money supply might expand rapidly before elections. This, she argues, is because; money supply is susceptible to the pre-electoral economic manipulation of the governments. Such expansion in the money base is used to *buy votes* and finance political patronage and informal and personal networks. As a result, money base can significantly increase through an election motivated demand for credits from the private sector. Therefore, Remmer (1993) measures the growth rate of M1 in the pre and post election periods in estimating the influence of elections on macroeconomic performance in Latin American countries. She modelled her study on the assumption that an increase in M1 before elections is associated with macroeconomic expansion. However, her results indicate that M1 tend to increase after, not prior, to elections, in contrast to the assumption of the theory.

Rogoff (1990) extends the PBC model into the dominant party system, which resembles the developing country case. He suggests that even in such systems the incumbent government would attempt to pursue expansionary fiscal and monetary policies prior to elections. This is because of the fact that in such dominant party systems, incumbent parties attempt to maximise their margin of winning election, as this determines their governing ability and capacity as well as affecting intra-party dissent.

To shed some light on the post-election behaviour of governments, it is useful to examine the changes that take place and the behaviour of monetary policy after the elections. Nordhaus (1975) and Havrilesky (1988) found that more disciplined monetary policy and stringent fiscal policies are applied during post-election periods to counterbalance the impact of expansionary policies before the elections. This implies that if money supply is increased by electoral politics, its growth rate is likely to be corrected in the post-election period. It is difficult to categorically expect the 'correction' process, as 'displacement effect' can set in to prevent money growth rate correcting itself to return to the pre-election trend.

Within the analysis of PMC, it is equally important to discuss the concept of 'manufactured inflation'. In other words, inflation can be a result of the electioneering polices of the government in attempting to increase its popularity, as governments launch expansionary aggregate demand policies (Dornbusch and Fischer, 1987: 15). Thus, the political economy of inflation is another aspect of PBC and PMC, and Hirsch and Goldthorpe (1978) and Peretz (1983) initiate a discussion and framework of research on

the political foundations of inflation, which is an economic phenomenon. Among others, Goodhart and Bhansali (1970), Happy (1989), Hibbing (1987), Hibbs (1985), Madsen (1980) and Norpoth (1994) extend the analysis of PBC into inflation. All these studies found that inflation takes place prior to elections as governments attempt to provide a more robust economy to cheat the voters. In particular Remmer (1993) finds that inflation is associated with governmental policy manipulation in Latin American countries.

III. DESIGNING THE RESEARCH

This study investigates the possible association between elections and money supply. Although it may sound simple, there exists no previous systematic research on the subject matter in the case of Turkey. Thus, examining the relationship between elections and money supply could shed some new light on an important aspect of PBC, namely PMC.

The objectives of this paper as regards to examining the existence of PMC can be summarised as follow:

i. Do elections have any influence on money supply and inflation?
ii. If so, how does it take place?
iii. Why does or does not elections and economy relationship or causality take place?

In endeavouring to provide responses to these questions, the analysis in this section commences with an investigation of the movements in the trend of monetary policy instruments and outcomes before and after elections. Therefore, it uses the electoral economy approach rather than economic voting approach as its frame of reference, as the later model assumes the relationship between economics and politics in a reverse causal direction. This approach requires analysis of changes in macroeconomic performance before and after elections. It is therefore in this model that economic behaviour is explained by political events, in contrast to the economic voting approach where political behaviour is explained by the use of economic factors. This implies that the study follows the postulate that economics does not exist in a realm of independent of politics, as Tufte (1978: 137) argues that "[p]olitical life, then, is far more than an occasional random shock to a self-contained isolated economic system, rather economic life vibrates with the rhythms of politics".

The econometric analysis in this research, first, attempts to demonstrate if there are changes in the behaviour of money supply prior to election and after elections. Due to the nature of the inquiry, M1 is used as a measure of the money supply in the economy. This is because M1 denotes the short-term money available immediately for spending. If hypothesis structure is used, then the following hypotheses are postulated to test the case:

H_1: Money supply, $M1_t$, increases prior to elections;

H_2: Money supply, $M1_t$, decreases after elections.

The choice of M1 as the measure of money supply in relation to the election period can easily be justified, as the growth of M1 directly correlates with growth in national production (Brownstone *et al.*, 1980: 181). The implication of this is that if there is an unexpected increase in M1 growth by a non-economic shock such as an election, a following decrease in M1 growth rate is likely after the effects of the shock disappear. As

a result, the postulated hypotheses imply that election shocks lead to divergences, or increase and decrease, in the normal trends of changes in M1 in Turkey.

In order to see if the impact of elections on M1, if any, is related to the government's expansionary policies or is just the result of costly election campaigns, two more hypotheses are postulated.

H_3: Money supply, $M1_t$, is determined by government policy, GF_t during the election period;

H_4: Money supply, $M1_t$, is determined by fluctuations and cycles in the demand of private sector, PC_t, during the election period.

The research extends to see the developments in inflation rates in relation to electoral manipulation of the economy, too. Due to only confining to domestic demand factors, inflation, then, takes place in a lagged manner due to expansionary fiscal policies, which lead to a rapid rise in the circulation of money in the economy. It is therefore likely to see that inflation occurs prior to an election or immediately after an election and then persists for some time afterwards. It is a fact that increased money supply does not necessarily result in inflation absolutely. For instance, monetary authorities can take the necessary measures to prevent inflation through their intervention in the financial markets. Thus, to test the significance of changes in inflation prior to, during and post-elections in Turkey, the following hypotheses are postulated:

H_5: Inflation, I_t, increases prior to elections;

H_6: Inflation, I_t, declines after elections.

If analysis in this section finds that inflation is affected by elections, then it is plausible to examine the relationship between inflation and public finance and the credit of private sector during election periods. The underlying theoretical understanding is the fact that during election time, the government increases money supply either directly or through fiscal policies, which lead to increased private credit in the economy. Thus, as can be conceived there is a dynamic relationship between inflation and public and private finance, which can be expressed in the following hypotheses:

H_7: Inflation, I_t, is determined by government policy, G_t, during an election period;

H_8: Inflation, I_t, is determined by changes in demand condition in the private sector, P_t, during an election period.

In order to ensure the econometric precision, the time lag between the change in a macroeconomic field and elections is clarified, and the signs and the degree of influence are estimated through econometric testing. The results of the study are utilised to postulate an enhanced theoretical generalisation on the relationship between elections and monetary behaviour in Turkey.

IV. MODELLING PMC: ECONOMETRIC FEATURES

The research related to the political economy of elections within public choice or new political economics attempts to model the relationship between macroeconomic variables and elections, whereby aims to examine the impact of politics on economy. Thus, in order to measure the impact of pre-election economic performance of the government

on the election outcome, the model examining the relationship is formulated in the following function:

Votes for the incumbent = *f* (macroeconomic conditions)

The function depicts that macroeconomic conditions such as income, inflation and unemployment are exogenous variables. However, the percentage of votes obtained by the incumbent government is treated as an endogenous variable. Among the many variants of this version of PBC modelling, Kramer (1971), Happy (1986) and Hibbing (1987) provide some of the examples.

The second version of PBC, on the other hand, focuses on the reversed causality set out in the model mentioned above. Thus, the relationship is expressed as:

Behaviour of Macroeconomic Variables = *f* (election time)

In this version of PBC modelling, elections and time are independent variables, and trends in the development in one of the macroeconomic variables constitute the dependent variable. In this second version, which constitutes the research framework for this research, the essential concern is the change taking place in macroeconomic variables prior to and post-elections.

So as to see the development in the modelling of PBC, two pioneering models are presented before delving into the particularities of the model:

Lewis-Beck (1986: 212-220) forms his model aiming to quantify the impact of elections on macro-economy as:

$$Y_t = b_0 + b_1X_{1t} + b_2X_{2t} + b_3X_{3t} + b_4X_{4t} + b_5X_{5t} + e_t \quad (1)$$

where

Y_t equals n time-series observations of the exogenous variable or dependent variable;

X_{1t} stands for a dummy variable counter for time from 1 to n;

X_{2t} is a dichotomous dummy variable, which is assigned 0 for observations before the first intervention and 1 for observations after that intervention;

X_{3t} denotes a dummy variable which is equal to 0 for observations before the first intervention and 1, 2, …, for observations after;

X_{4t} and X_{5t} acts in the same way for the second intervention as X_{2t} and X_{3t} do for the first intervention; and

e_t stands for the error term.

It should be noted that X_{2t} aims to measure the post-intervention change in intercept, and X_{3t} is instated to measure the post-intervention change in slope.

Remmer's (1993) model, on the other hand, is particularly applied in developing country cases as mentioned above, which aims to measure the performance of macroeconomic variables in pre- and post-election periods as well. It should be stated that Remmer's model is the modified version of Lewis-Beck's model, which is briefly described above. Her modifications include the addition of three more dummy variables to capture the

state of the economy in one quarter prior to an election (X_{2t}), the quarter in which the election takes place (X_{3t}) and lastly the quarter after the elections (X_{4t}). In the model, interventions or elections can be modelled to be more than one. Remmer's model (1993: 396) is expressed in equation 2:

$$Y_t = b_0 + b_1X_{1t} + b_2X_{2t} + b_3X_{3t} + b_4X_{4t} + b_5X_{5t} + b_6X_{6t} + e_t \quad (2)$$

where

Y_t and X_{1t} are described in much the same way as in equation 1.

X_{5t} and X_{6t} are defined in the same way as X_{2t} and X_{3t} in equation 1 respectively.

To enable the model to include more than one intervention, for instance in the case of adding one more election, two new dummy variables are added, which enables the model to capture post-electoral changes in intercept and slope.

It should be emphasised that research in this paper follows the model put forward by Remmer (1993). However, the model is modified to reflect the general aim of the research. Therefore, from Remmer's model (equation 2), individual election terms for measuring post election intercept shift (X_{5t}) and slope (X_{6t}) are omitted. These dummy variables aim to capture the impact of individual elections of economy. The objective of this research, however, is to find the general pattern of monetary behaviour during pre- and post-election periods. This provides justification for the modification of the model.

This research amends the model in such a way as to avoid any arbitrary restrictions on modelling. As in Remmer's (1993) study, many other studies in the literature assume that economic changes occur during pre- and post-electoral periods. But, these changes, then, disappear about one quarter before and after elections. Among the many studies, which are modelled around such an assumption Erikson (1989), Hibbs (1985), Kirchgassner (1985a, 1985b and 1986), Mosley (1978), Norpoth (1994), Owens and Wade (1988), Prysby and Books (1994), Warwick (1992) and Williams (1990) may be mentioned. However, it is not plausible to assume that the electoral economy exhibits the same type of cycles regardless of variations of electoral and campaign systems across different countries. Therefore, the model presented in equation 3 aims to avoid an arbitrary manipulation of the model

$$Y_t = b_0 + \sum_{i=1}^{4} b_tX_{it} + e_t \quad (3)$$

where

Y_t denotes the n time series observations on macroeconomic variables, i.e. money supply ($\Delta ln\text{M1}_t$) and inflation (ΔI_t), which are measured in first difference form;

X_{1t} is a dummy variable for measuring a time trend of money supply (1, 2, …, n);

X_{2t} is a dichotomous dummy variable, which represents the month(s) immediately preceding elections;

X_{3t} stands for a dichotomous dummy variable representing the month in which elections occur;

X_{4t} is a dichotomous dummy variable which represents the month(s) immediately following elections; and lastly

e_t is the usual error term.

The regression coefficients in the model represent the following terms:

b_0 estimates the intercept term;

b_1 estimates the time trend of Y_t;

b_2 estimates the pre-electoral change in Y_t;

b_3 estimates the change in Y_t in the month of election, and lastly

b_4 estimates the post-electoral change in Y_t.

It should be established that among these regression coefficients, b_2 and b_4 exist to test hypotheses H_1 and H_2, and H_5 and H_6, as b_2 estimates pre-electoral macroeconomic changes whilst b_4 as a coefficient stands for post-election macroeconomic changes. It should be noted that if pre-electoral and post-electoral macroeconomic changes are present, it is important to find out when they commence and disappear. This is determined by the coefficient b_3.

In addition, the following model in equation 4 is formulated for testing hypotheses H_3 and H_4, and H_7 and H_8:

$$DY_t = c_0 + c_1 DG_t + c_2 DP_t + e_t \qquad (4)$$

where

DY_t is n time-series observations on a macroeconomic variable such as money supply ($\Delta ln M1_t$) and inflation (ΔI_t), which are measured in first difference form during election periods (D),

DG_t denotes the n time series observations on government finance ($\Delta ln G_t$), which is measured in first difference form during election periods (D),

DP_t stands for n time series observations on private credit growth ($\Delta ln P_t$), which is measured in first difference form during election periods (D), and lastly

e_t is the usual error term.

In the equation or the model 4., the coefficients estimate the following terms:

c_0 denotes the coefficient of the intercept term,

c_1 stands for the coefficient estimating the impact of government finance on a macroeconomic variable, such as money supply and inflation during election periods (D), and

c_2 is the coefficient estimating the effect of private money on a macroeconomic variable such as money supply and inflation during election periods (D).

V. DEFINITIONS AND MEASUREMENTS OF VARIABLES

As the above postulated hypotheses indicate, money supply, inflation, government finance and the credit of the private sector constitute the time-series econometric analysis in this research. So as to capture the impact of elections, three dummy variables are

introduced: dummy variables for the pre-election months, dummy variables for the month in which the elections took place, and lastly dummy variables for the post-election months.

5.1. Money Supply

Money supply consists of various definitions, and includes a broader range of money terms. For instance, M1 represents narrow transaction money, such as currency, demand deposits, and checkable deposits (Shim and Siegel, 1995: 236).

In defining which money definitions are to be used, it is important to consider that elections are likely to invite short-term money demand instead of medium or long-term money demand. In the case of Turkey, political parties, which are represented in the parliament, receive direct funding from the budget according to the number of deputies they have. It is unambiguous to predict that these funds are directly injected into the market through campaign spending. In addition, each individual prospective candidate in the selection process of the political party has to pay a handsome amount of application fee to the party for which he/she might run in the election as a candidate. Considering that Turkish parliament seats 550 deputies, and considering that there are over ten political parties contest election through out the country and therefore considering the number of people who would like to be selected to run in the election render a general indication of how much money is injected into economy before each election only through selection process. Furthermore, political parties do also raise general funds. Such privately-donated funds are injected into the economy during the election process. Moreover, expensive, large and popularised election campaigns result in the injection of enormous monies in the economy. These are all in addition to the use of money supply by the incumbent government for electioneering purpose, such as the use of public funds for patronage and other kind of electioneering reasons. Consequently, a large increase in the monetary base is expected during each election period.

Ito (1989) employs M1 plus Certificates of Deposits (CD) to examine medium-term monetary policy of the Central Bank of Japan in relation to electoral cycles. However, taking into account the impact of election campaigns on money supply in the economy, it might be more plausible to estimate the constructed hypotheses with M1. This is a valid assertion in the case of Turkey as well, as elections are likely to invite short-term money demand rather than medium or long-term demand. The use of M1 in this case is vindicated by Özatay (1999), who states that the Central Bank of Turkey (CBTR) directly controls M1 and monetary base. Thus, M1 can be utilised together with money base and domestic credits provided by CBTR to investigate the existence of PMC in Turkey.

$$M_{1t} = \ln(M_{1t} - M_{1t}) \times 100 \qquad (5)$$

Logarithmic form and functional transformation expressed in equation 5 is used for M1 to differentiate the value of M1 by the order of one to ensure the econometric stationary process generating time series variables. After checking the stationary nature of the variable, values of M1 is multiplied by 100 to represent it in terms of growth rates or percentage.

5.2. Inflation

While inflation is expressed as a general increase in the price level, various measures can be utilised to measure it, such as CPI (consumer price index) and WPI (wholesale price index). While the latter is based on producer prices, the former measures the average level of prices of goods and services bought by an ordinary urban family, and hence is based on market prices. Although it might be expected that CPI may overstate the level of inflation due to the state of retail market and the profit mark-up, it is the CPI that the ordinary people are related, and thus, concerned with. Since this study attempts to investigate how monetary and fiscal policies are manipulated and hence have an impact on population, it is expected that CPI should be a better measure for such an objective.

As in the case of M1, inflation, *I*, is differentiated for stationary process generating time series variables, which is illustrated in equation 6:

$$I_t = (I_{t-1} - I_t) \tag{6}$$

A particular case for Turkey needs to be stressed: unemployment, despite its enormity, is not a major concern in the elections other than in the general discourse of the politicians to create jobs. Price increases, however, is a general discussion matter for the ordinary voters. In particular when the state owned enterprises continue to supply the main commodities in the economy, as consumption goods and input, the impact of price increases can influence election results. Despite the necessity for increasing prices of the state economic enterprise (SEE) produced and distributed commodities, including oil and electricity, governments prefer to suppress prices and defer price increases. Therefore, in contrast to the theory, it is expected that during election years or months inflation should be low to allow the incumbent government to utilise it for electoral profiteering. In other words, the popularity of governments is determined by lower price increases in the economy in Turkey, which may be in conflict with increased government spending. However, the issue is not *no-price increase* but rather non-excessive increases, which can be tolerated by the public. On the other hand, the theory suggests that inflation occurs in lags. Therefore, it is expected that increased government spending to enhance political popularity through the creation of opportunistic cycles in the election months causes inflation in the later month.

5.3. Government Finance

Government finance is chosen to represent the government policy variable, despite the fact that government policies for economic manipulation pre- and post-elections are composed of both fiscal and monetary policies. For choosing government finance, a number of issues are considered. Firstly, as Brownstone *et al.* (1980: 181) state, monetary policy is not a single policy field, but instead is a set of money-related policies from the central bank's open market operations to management of discount rates, and from regulative policies on the availability of credits to the requirements of reserve control. Utilising monetary policy to determine government policy with regards to elections is, therefore, a difficult task. In addition, considering that money targets in the economy are set in most cases one quarter in advance of actual policy implementation, it becomes extremely difficult for the incumbent government to use it to boost the economy prior to the election. This is particularly difficult in the case of endogenously determined election dates. This is substantiated by Kohno and Nishizawa (1990: 158) in the case of Japan,

when they argue that "[t]he prime minister does not know how long will it take for monetary measures to have an impact. When the election is triggered by some factors that are out of prime minister's control, it is probably too late to use monetary policy. Even if the election date is set well in advance, the timing of such decision remains difficult – and consequently the uncertainty becomes a substantial obstacle for the political manipulation of the economy for electoral purposes".

Against the difficulties posed by monetary policy, fiscal policy is comparatively easy to observe. In addition, the time lag of fiscal policy is short enough to impact on the election outcomes, and therefore that fiscal policy is more likely to be subject to political manipulation than the other macroeconomic policies (Kohno and Nishizawa, 1990: 158-159). In any case, as Swank (1988) rightly argues, the self-interest of policy-makers is clearly one of the factors that shape the behaviour of governmental expenditure.

With regards to the definitions of fiscal policy in this context, it is taken as the difference in government finances, which, in turn, is defined as "the difference between revenue, and if applicable, grants received on the one hand and expenditure and lending minus repayments on the other" (IMF, 1996: xxii). This implies that in the context of this study, government finance denotes the state of budget as budget surplus or deficit, which is expressed in equation 7 in the form of a natural log difference in the percentage growth rate.

$$G_t = \ln(G_{t-1} - G_t) \times 100 \qquad (7)$$

5.4. Private Demand

Being the fourth variable in the model, private money demand in the economy during election periods, such as for financing campaign expenses is measured by the total credit of the private sector in a country. According to the IMF definition, the government sector and the public enterprise sector form the remaining part of the domestic credit (IMF, 1996: xvii). Private money, P_r, represents the aggregate credit of a social sector thereby it can obtain its own categorical identity from the endogenous variable, namely *M1*. Being the main variable in the model, M1 denotes money with a high "level of liquidity" (Mishkin, 1995: 60).

It should be noted that fund raising for election campaigns in Turkey is not run as professional as it is in the industrialised Western countries, as politics, as a concept, and political parties, as institutions, have not been able to establish the tradition of *being institutional.* Therefore, fund raising ways are indeed multidimensional, as for electoral campaigns parties draw funds from government in terms of fund provision according to the number of deputies that each party has in the parliament. Tacit donations from industry including public sector enterprises are another method of financing. In the developments of private demand, as mentioned above, the applications fee of those potential candidates who like to be selected by a particular party to run in the election has to be considered as well.

However, whatever the source of campaign financing, the effect of increasing money supply in the economy would be the same: they are expected to cause an increase in the aggregate credit of the private sector. Therefore, the model in this research adopts total domestic credit claimed by the private sector as an auxiliary indicator for election

motivated demand, such as campaign finance demands of private sector. It is formulated as in equation 8:

$$P_t = \ln(P_{t-1} - P_t) \times 100 \quad (8)$$

The expression in equation 8 implies that the private credit variable, P_t, is expressed as a log-difference in percentage growth format.

VI. DEFINING THE MODEL AND THE TIME-SERIES SPECIFICATIONS

After presenting the model(s), the following section discusses other particularities of the model by first determining the expected signs of each variable used in the model.

6.1. Defining Expected Signs of Parameters

After formulating the model, the expected signs of parameters or variables are defined, and depicted in table 1.

Table 1. The Expected Signs of Variables in the Model

Variable	Label	Expected Sign
Time Trend	b_1	(+) (-)[a]
Money Supply		
Months Prior to Election	b_2	+
Post Election Months	b_4	-
Public Finance	c_1	-
Private Credit	c_2	+
Inflation		
Months Prior to Election	b_2	+
Post Election Months	b_4	(+) then (-)[b]
Public Finance	c_1	-
Private Credit	c_2	+

Notes: a. Determined by the trend; b. The precise trend is determined by lag effect

The money supply is expected to have a positive sign in the pre-election period and a negative sign in post-election period. This is because M1 is expected to grow above its normal trend before an election period, and due to contractionary polices the M1 base declines in the post-election period to combat inflation in the economy, which is a result of the expansionary monetary or fiscal policy in the pre-election period. Thus, the

coefficient of the immediate post-electoral money supply, namely b_4, is expected to hold a negative sign.

Since election month is not covered by this study, its coefficient sign (b_3) is ignored as it can hardly be predicted. This study aims to distinguish pre- and post-election changes in monetary developments. It should be added however, that this does not imply ruling out the particular pattern in monetary variables during the election month.

The pattern followed by private credit and public finance also plays an important role in the model. Since, as explained above, the money supply (M1) is predicted to increase at a quicker pace prior to an election and then retreat after the election, as in the case of PBC where expansionary fiscal policies adapted by governments prior to election and contractionary or austere fiscal policies to control the development in the public finances after election. Accordingly, PMC models formulate that there will be an increase in private credit before elections and a decline after the election. As a result, the sign of the coefficient of the public finance is expected to be negative (c_1), and by the same token the coefficient of the private finance (c_2) is also expected to be negative.

With regards to inflation, model assumes that it is not expected to decline before the election. It should be taken into account that inflation follows a time-lag pattern, and therefore election stimulated inflation will come out only according to the lag structure. Nevertheless, the PMC models assume that inflation should not decrease prior to elections. If this is the case and the sign of inflation coefficient (b_2) is negative, this can be interpreted to mean little to no correlation between inflation and elections. Due to the logic of the model and the real world experience, inflation is normally expected to increase prior to an election due to the expansionary fiscal and monetary policies to create PBC and PMC respectively. As the models predict, M1 is expected to follow an expansionary path together with expansionary fiscal policies. Therefore, in the model, inflation prior to an election (b_2) will have a positive sign, while after an election (b_4) it is expected to have a positive sign first and then a negative sign due to the lagged structure. Since the pattern of fiscal policy and monetary policy both determine the trend in inflation, when inflation is the dependent variable, the coefficients of public finance (c_1) are expected to have a negative and private credit (c_2) to produce a positive sign.

It should be noted that, in the case of Turkey, as explained previously, an amendment has to be made as regards to inflation, as voter sensitivity is very high for inflation, and therefore governments attempt to delay the inflationary process during election periods. Consequently, the sign for inflation, according to this amendment, would be positive indicating increase before the election and vice versa.

6.2. Model Specification

In order to produce the most efficient result of the model as set in this study, the *interrupted time-series model*, which is a version of the classical multiple regression model, is chosen as a good fit for analysing the impact of an election on the behaviour of the depended variable over the period for which analysis is carried out.

As identified above, there are four times-series variables in the model: money supply, inflation, public finance (surplus or deficit) and private sector credit. The model further incorporates three dummy variables representing pre-electoral months, the election month, and the post-electoral months.

It should be mentioned in passing that in model 3, it is noted that if pre-electoral and post-electoral macroeconomic changes are present, it is important to find out when they commence and disappear, which is defined by the coefficient b_3. Since the election campaign is limited to three months by the Constitution of Turkey, this can be taken as a benchmark to find the electoral surfing of the economy. In addition, since the incumbent government can call an early election at its discretion, another three months are assigned to capture the electoral impact before the election called or for capturing the discretionary knowledge. Thus, twelve models are constructed by combining from one to six months each pre- and post-election period. However, so as to choose the best-fit model among these to represent the aim of this study, the model with the highest coefficient of determination or goodness of fit statistics (R^2) is chosen.

Using the usual OLS (Ordinary Least Square) method, this study tests all the formulated models. However, in the case of the absence of white noise disturbance term in a time series variable, its ARMA (AutoRegressive Moving Averages) structure is integrated into the equation. This is due to the fact that incorporating the MA (Moving Averages) terms into equations helps to enhance the predictable power of the model. It should be noted that when new independent variables are added to the equation, AR (AutoRegresive) terms usually change. This implies that adding new dummy variables to capture the electoral impact could change the serial correlation of error term according to the model chosen. Therefore, in the case of necessity, AR terms are adjusted for its correction, and maximum likelihood method will be used to estimate the parameters. It should be stated that the presence of serial correlation does not affect the unbiassedness or consistency of regression estimators, but affects efficiency. In other words, parameter estimates look more precise than they actually are.

In the case of identified presence of heteroscedasticity, generalised autoregressive conditional heteroscedasticity term is incorporated into models. The failure of homoscedasticity in time-series analysis "may be complex and of the form of an ARCH or GARCH process"(Darnell, 1994: 169). While ARCH refers to AutoRegressive Conditional Heteroscedastic model, GARCH is the generalised version of ARCH. Therefore, in the case of heteroscedasticity, GARCH terms are used. The variance of the error terms should be homoscedastic to have efficient estimates.

The GARCH variance model with autoregressive errors, as defined by Pesaran and Pesaran (1997: 96) is;

$$y_t = \beta' x_t + u_t \tag{9}$$

where u_t is expressed as

$$V(u_t \mid \Omega_{t-1}) = h_t^2 = \alpha_0 + \sum_{i=1}^{q} \alpha_i u_{t-i}^2 + \sum_{i=1}^{p} \Phi_i h_{t-i}^2 + \delta' w_t \tag{10}$$

where h_t^2 is the conditional variance of u_t with respect to the information set Ω_{t-1}, and w_t is a vector of predetermined variables assumed to influence the conditional error variances in addition to the past squared errors. Thus, GARCH(*p,q*) is a special case of (10) where δ=0. As a result, the conditional variance is generated by an autoregressive moving average process with *'p'* autoregressive (AR) terms ($\sum_{i=1}^{p}\Phi_i h_{t-i}^2$) and *'q'* moving average (MA) terms ($\sum_{i=1}^{q}\alpha_i u_{t-i}^2$), and is described as an GARCH(*p,q*) (Pesaran and Pesaran, 1997; Darnell, 1994).

The model of dependent time-series variables is employed for M1 and inflation, which are identified by using the AutoRegressive Integrated Moving Average (ARIMA) procedure. It is then incorporated into building regression equations. An ARIMA (*p,d,q*) model includes autoregressive process (AR), the integrated process (I), and the moving average process (MA) (Yaffee, 2000: 108). A simple ARMA process is a univariate model, which seeks to model a single variable (Darnell, 1994: 9). ARMA model is represented by two parameters, *'p'* and *'q'*. While *'p'* stands for the order of the autoregressive component, '*q*' denotes the order of the moving average component. By following Darnell (1994), if y_t is described by an ARMA(*p,q*) process, then y_t is modelled as a stationary process as in equation 11:

$$y_t = \mu + \alpha_1 y_{t-1} + \alpha_2 y_{t-2} + ... + \alpha_p y_{t-p} + \varepsilon_t + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + ... + \beta_q \varepsilon_{t-q} \qquad (11)$$

The *'p'* terms in lagged '*y*' comprise the autoregressive component, and the *'q'* terms in the innovations ε_t are consisted of the moving average component.

ARMA models are applied to time series possibly after differencing the series to remove trends. "Time series whose d^{th} differences have a stationary, invertible ARMA (*p,q*) representation are called integrated process of order *'d'*, or I(*d*)" (Davidson, 2000: 95). Then the process is represented as:

$$\alpha(L)\Delta^d y_t = \mu + \theta(L)\varepsilon_t \qquad (12)$$

which is known as ARIMA model of *'y'*, and is denoted as ARIMA (*p,d,q*). In this process, '*p*' is the order of autoregressive component, '*d'* is the order of integration and *'q'* is the order of the moving average component. By following Darnell (1994), if y_t is an ARIMA (*p,d,q*) process, then

$$\Delta^d y_t = \mu + \alpha_1 \Delta^d y_{t-1} + \alpha_2 \Delta^d y_{t-2} + ... + \alpha_p \Delta^d y_{y-p} + \varepsilon_t + \beta_1 \varepsilon_{t-1} + \beta_2 \varepsilon_{t-2} + ... + \beta_q \varepsilon_{t-q} \qquad (13)$$

where the first *'p'* terms in $\Delta^d y_{t-i}$ comprise the autoregressive components of $\Delta^d y_t$, ε_t is a white noise-random variable, and the *'q'* terms in ε_{t-j} comprise the *'q'* moving average components.

6.3. Empirical Strategy: Time Series Characteristics

The data were analysed for their econometrics time-series features. The data for the study displays a strong seasonal factor and therefore for all time-series variables the raw data are seasonally adjusted for removing seasonal components.

Each of the variables is expressed in the natural logarithmic form and differentiated by the order one to ensure the stationary stochastic process generating time series observations. To check the stationary characteristic of the data, the Augmented Dickey-Fuller (ADF) test was utilised, which yielded that the first-order differentiation generates stationary time-series for the variables included in this study.

The diagnostic tests were utilised to analyse the data further for econometrics time-series, for instance to test the disturbance term, if it shows white noise. White noise stochastic disturbance term indicate that variations in the disturbance term are purely random and do not contain any systemic elements. In the case of monetary variable, M1, disturbance term did not reveal any white noise and the ARMA (3,3) benchmark autoregressive model selected by checking the AIC (Akaike Information Criterion) and SBC (Schwarz Bayesian Criterion).

In the case of inflation, I_t, since inflation is expressed in index form, it constitutes the growth rate of the inflation. This clearly implies first-order difference, and hence the coefficient of the inflation regression can be directly interpreted as the percentage growth. The unit root ADF test was performed and the results demonstrate that CPI, or '*I*' is stationary. The diagnostic test further provided information for selecting the autoregressive model, and it was found that inflation has an ARMA(1,1).

With regards to government finance, budget surplus/deficit used as an approximation, and the data was de-trended and seasonally-adjusted. First, deterministic polynomial trends were removed for de-trending after the data (Ender, 1995), like other variables, were transformed into natural logarithmic. The de-trended data then were seasonally-adjusted by following Gujarati (2003). The ADF test confirmed the stationarity of the government finance indicator by first-differentiation. The data for private demand were treated in the same manner by econometrics process to establish stationarity.

The selected ARMA structures of macroeconomic time series variables together with electoral variables were incorporated into regression equation. It should be added that in the selection of the best model after the goodness of fit tests, the model selection is based on the highest R^2.

6.4. The Data

The choice of data period or frequency can influence the outcome of the study. Annual data for instance cannot be as sensitive as quarterly or monthly data in capturing the impacts of interventions.

This study utilises monthly data in econometric time-series analysis. As the literature survey evidences, most of the studies on PBC used quarterly data in their attempt to quantify PBC. By taking into account that voters are assumed to have very short memories (Wagner, 1980: 208), monthly even weekly data may provide much more efficient performance in the analysis. In particular, by recalling the analysis of inflation within opportunistic PBC in Asutay (2004), the importance of monthly data may be better understood. Because in the case of inflation, only the election variables standing for the election quarter was found to be significant. Sensitivity of the voters towards inflation and the myopic assumption was thus accounted for. Hence, monthly data can be more desirable than longer-term data, as voters are more sensitive to more recent changes, and therefore, quarterly data on some occasions might debase the performance

and accuracy of the modelling. To illustrate the importance of using monthly data, Lewis-Beck (1980) can be mentioned among others. He found that in France, the popularity of both the prime minister and president is influenced by inflation and unemployment by a two-month lag.

By taking into account the merits of shorter-term data, this study uses monthly data. The monthly data is limited to the January 1986 to November 2002 period. Thus, this is a time-series modelling for the January 1986-November 2002 period, which includes the November 1987, October 1991, December 1995, April 1999 elections and the pre-election period of November 2002 elections.

VII. SEARCHING FOR PMC IN TURKEY: STATISTICAL ANALYSIS

In this section, data related to the monetary aggregates is analysed, monthly and annually, to find the impact of election years and the election months respectively on the growth rate of particular monetary policy instruments and outcomes. As theory predicts, it is expected that monetary policy instruments should increase in the election year or months to boost the economy and decrease after the election to pave the way for policies aimed at contracting the economy.

In descriptively investigating the particular variable for the existence of PMC, first the descriptive statistics of the data are presented and then each variable is illustrated in a graph for visual expression for inference. As the theoretical section discusses, statistical analysis aims to establish deviations from the mean values of each of the variable, and deviations, if any, from the trend (as measured by the mean value) is attributed to elections in the sense of interruption of the trend or the intervention of political manipulation.

7.1. Money in Circulation:

Deconstructing the data for *money in circulation* in terms of annual growth rate of money circulation depicts that it might have been used for opportunistic electoral purposes in 1987, 1999 and 2002 elections. The descriptive statistics are provided in table 2.

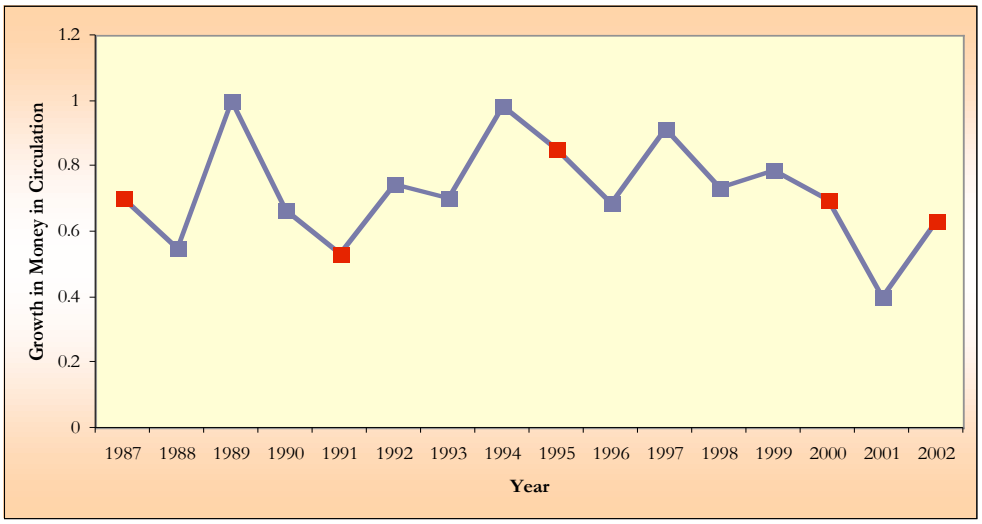
Table 2. Annual Real Growth Rate of Money in Circulation in Election Years

Election Years	Mean Growth: Pre-Election Years	One year before the Election	Growth in Election Year	One Year after the Election
1987			0.70	0.548
1991	0.736	0.66	0.533	0.741
1995	0.807	0.981	0.851	0.683
1999	0.776	0.731	0.783	0.694
2002	0.545	0.395	0.633	

The statistics demonstrate that, except the 1999 and 2002 elections, the growth rate of money in circulation in the election year has been lesser than the pre-election year. The election year growth of money in circulation in the 1987 election year is also rather high.

It is also important to note that, except for the 1991 election year, table 2 demonstrates that the growth of money in the election year is higher than the mean value of money growth in the non-election years. As opportunistic cycles theory indicates, the data depicts that money growth declined in the following years of 1987, 1995, and 1999 elections. Thus, descriptive statistics provide support for the use of money supply in terms of money in circulation in the case of the 1987, 1999 and 2002 elections. This is illustrated in figure 3, which depicts that the 1987, 1999 and 2002 elections coincided with the peaked real money growth rates in their period. At the same time, as illustrated, real money growth rates declined after the 1987, 1995 and 1999 elections. It should be stated, however, that the 1995 election does not provide support for opportunistic cycles, as the behaviour of the real growth rate of money during the election year and the previous year do not indicate any such cycles.

Figure 3. Annual Real Growth Rates of Money in Circulation



Note: Red colour marked points stands for election years

In order to give further meaning to the analysis, monthly data for *money in circulation* is analysed and deconstructed. The real indices demonstrated in table 3 for money in circulation indicate that the index declines in the election month for the 1987 and 1999 elections, whereas in the case of the 1991, 1995 and 2002 elections, election months experienced remarkable increases in the index of real money in circulation.

In the 1999 elections, all the three pre-election months experienced remarkable increases in the real index of money in circulation from one month to another. The index declined in comparison to the election month in the three post-election months. Thus, the 1999 election demonstrate opportunistic cycles in the money supply in the economy for electoral profiteering.

Table 3. Monthly Real Index for Money in Circulation in Election Periods

	Elections				
	1987 Nov.	**1991 Oct.**	**1995 Dec.**	**1999 Apr.**	**2002 Nov.**
3 Months Prior to Elections	-43.59	-206.2	2566.1	2841.4	122019
2 Months Prior to Elections	-14.43	602.46	-1467.2	19981.9	-24388
1 Month Prior to Elections	124.95	-21.73	-1130.3	148524.6	37387
Election Month	-34.89	259.59	3082.52	-132489	282803
1 Month After Elections	-100.7	-75.02	-3362.4	3252.89	
2 Months After Election	86.05	-125.17	8534.4	10991.3	
3 Months After Elections	-27.33	170.22	8.89	41835.2	

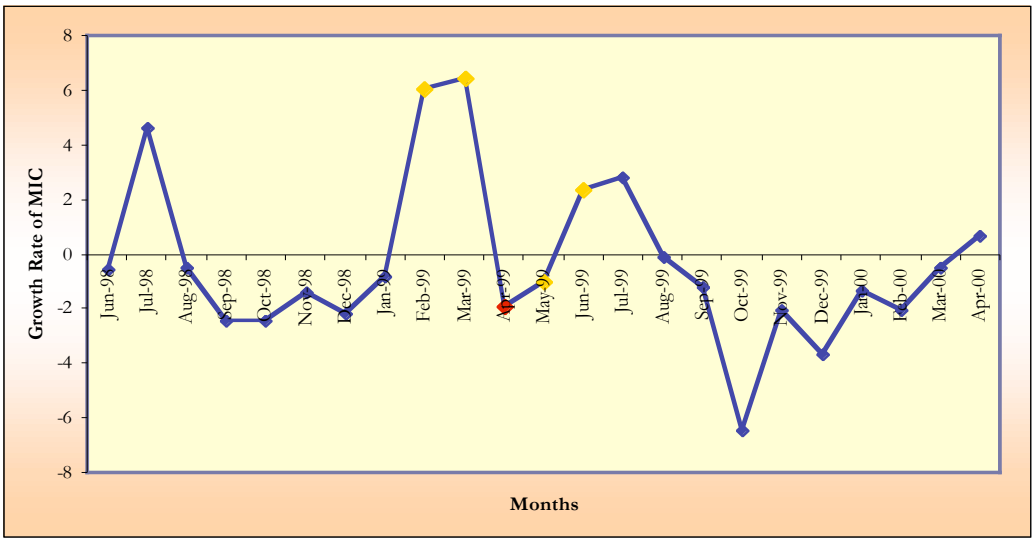
The results depicted in table 3 for the 1987 and 2002 elections imply that the index for money in circulation increased in the pre-election month in comparison to the previous month. For the 1991 elections, it demonstrated huge increases in the two-months prior to the election. In the case of the 1995 and 2002 elections, the indices for the three-months prior to the election are higher than the following months indices towards elections.

With regards to post-election behaviour, the index for money in circulation decreased for the 1987, 1991 and 1995 elections in the post-election month after elections, but increased for the 1987, 1995 and 1999 elections in the post-election two-months after the elections.

The case for the 1999 election is further examined with monthly data by estimating the monthly growth rate, which is depicted in figure 4. While it shows decline in the monthly growth rate of money in circulation in the election month, remarkable increases in the growth rate are obvious in both and two months prior to the election. The figure further illustrates the decline in the growth rate in money in circulation in the post-election month, and then the increase. However, the increase in growth rate in the second and third month after the election still remains less than the pre-election period increase in growth.

Analysis so far implies support to various degrees, but there is reasonable support for the monetary political cycles in 1987, 1999 and 2002 elections. However, in the case of the 1999 elections, it is obvious that the opportunistic cycle predictions are held. It should be noted that statistical analysis of the monetary variables included for monetary measures such as 'M1', 'M2', 'M2Y' and 'M3'. However, none of these seem to render direct and overall support for opportunistic business cycles. Instead, as in the case of money in circulation, there is particular support for particular elections, which renders direct support for the opportunistic cycles model in the case of 1999 elections.

Figure 4. Monthly Real Growth Rates of Money in Circulation during 1999 Election



Note: Red colour marked point stands for election month, and yellow colour is for pre-and post election months

7.2. Domestic Credits:

Domestic credits are another source of opportunistic cycle behaviour for the incumbent government to steer the election to increase its popularity to win the elections. As part of the Central Bank portfolio, domestic credits are extended to all public sector agencies by the Central Bank, and very often such agencies refer to the credits to overcome their short-run funding needs. This means that domestic credits are vulnerable to use for electoral purposes. Therefore, the annual growth rate of domestic credits is estimated and the summary statistics are presented in table 4.

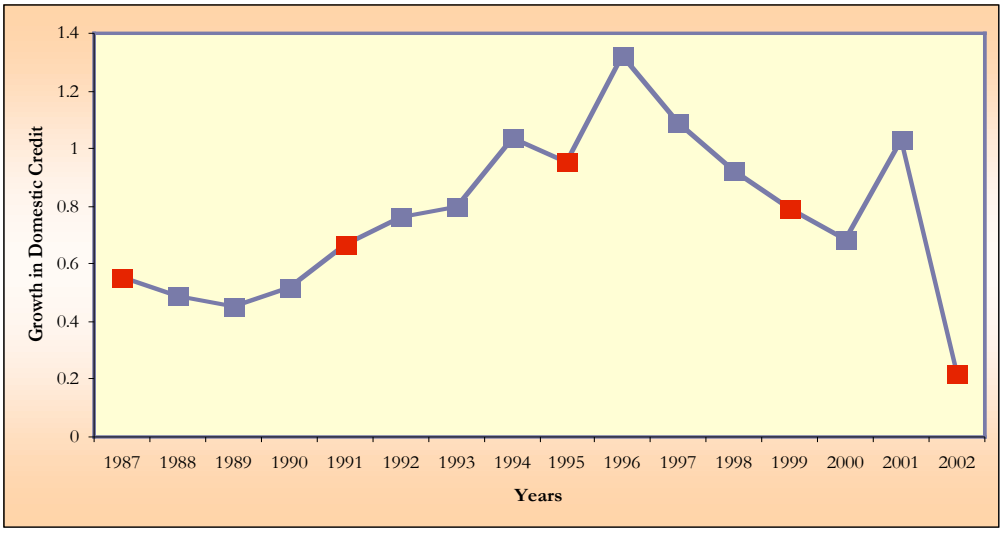
Table 4. The Annual Real Growth Rate of Domestic Credits in Election Years

Election Years	Average Growth - Years before the Election	One year before the Election	Growth in Election Year	One Year after the Election
1987			0.55	0.48
1991	0.486	0.518	0.67	0.76
1995	0.86	1.037	0.955	1.32
1999	1.11	0.92	0.80	0.68
2002	0.857	1.031	0.219	

Table 4 depicts that only in the 1987 and 1991 election years was the real growth of domestic credits higher than the previous year, and only in the case of the 1999 election was the one-year post-election real growth of domestic credit lower than the election year

as the theory predicts. It should also be noted that only the growth rate of real domestic credit in the election year is the non-election years mean in the case of the 1991 and 1995 elections.

Figure 5. Annual Real Growth Rate of Domestic Credits



Note: Red colour marked point stands for election month

This trend in the growth rate of the domestic credit is demonstrated in figure 5, which depicts that only in the case of the 1987 and 1991 elections did the peak growth rate coincided with the election year. The 1995 elections demonstrate a rough proximity to the peak point of the growth rate of domestic credits. However, the declining trend in the real growth of annual domestic credits is obvious in the last two elections, which can be explained by the stringent IMF-controlled austerity policies. The sharp increases in the growth rates in the post-elections can be attributed to the short-run financial needs of the public sector to overcome the huge spending commitments for populist reasons during the election year. Gradual increases in the growth rate from 1989 to 1993 should be attributed to other political events such as local elections and general referendums.

Table 5. Mean Real Growth Rate of Domestic Credits in Election Periods

	Mean Value of Annual Growth of Non-Interest Government Expenditures
Election Year	0.637
Non-Election Year 1	0.813
Non-Election Year 2	0.843
Non-Election Year 3	0.826
Non-Election Year Mean	0.827
Annual Overall Mean	0.768

Table 5 furthers the analysis by examining the mean value of the annual growth rates of domestic credits. The results do not provide any further support for the opportunistic cycles in domestic growth. Election years mean value remains lower than any other mean value.

To find the monthly developments in the real growth rate of the domestic credits in relation to elections, the monthly data were further broken down and the statistical summary is depicted in table 6, which demonstrates that in the case of the 1987 elections domestic credits increased enormously (16.15 times) in the two months prior to the elections. While there was a decline in the growth rate of domestic credits one month prior to elections, the growth rate was 1.14 one month-after the election.

Table 6. Monthly Real Growth Rate of Domestic Credits in Election Periods

	Elections					**Mean**
	1987 Nov.	**1991 Oct.**	**1995 Dec.**	**1999 Apr.**	**2002 Nov.**	
3 Months Prior to Elections	-0.90	-0.92	-7.65	-0.818	-0.961	-2.24
2 Months Prior to Elections	16.15	4.534	-0.478	0.352	9.615	6.03
1 Month Prior to Elections	-0.47	2.580	6.7	2.107	-0.056	2.172
Election Month	1.009	-0.488	2.027	-0.715	-1.662	0.0342
1 Month After Elections	1.147	-0.265	-0.857	1.987		0.503
2 Months After Election	-0.357	4.567	0.052	0.627		1.22
3 Months After Elections	-0.651	-0.865	1.157	-0.543		-0.225

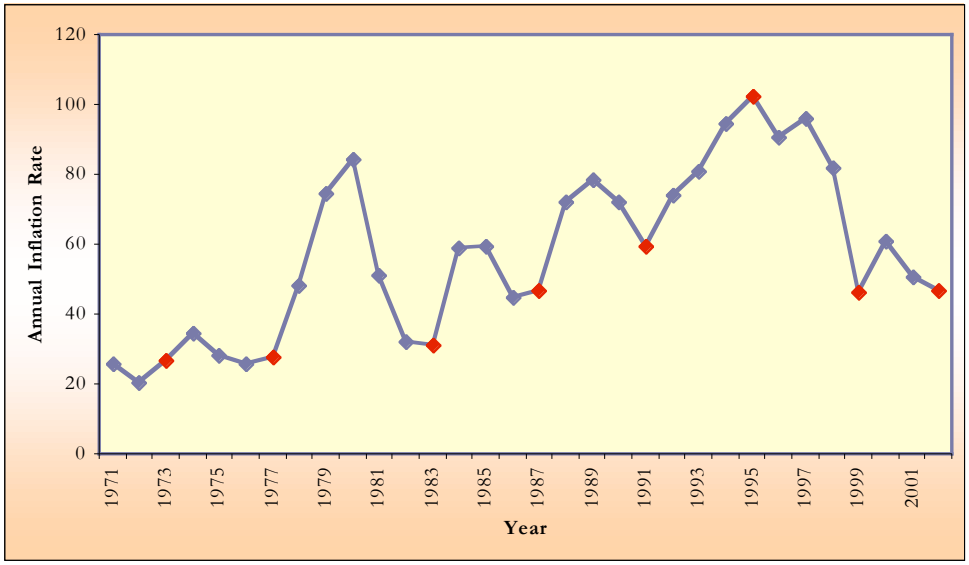
The pre-election period of the 1991 election indicates that one-month and two-months prior to the election saw high growth rates for domestic credits. At the same time it declined in the election month and the following months. In the 1995 elections, the election month and one-month prior to elections demonstrated significant increases in the growth rate of the monthly domestic credits. However, in the case of the 1999 elections, one-month prior and after the elections the growth rate was significantly higher. Two-months prior to elections in the case of 2002 elections demonstrated significant increases in the growth of domestic credit. The analysis, thus, indicates some support but not overall systematic support for the opportunistic cycles.

7.3. Inflation

Inflation is another macroeconomic variable, of which trend can be determined by political manipulation during election periods. Figure 6 depicts the inflation rates produced from the GDP deflator, which illustrates that all elections, except for the 1995 election, took place when the inflation rate was either at the lowest or close to the lowest rate. It is also interesting to see that after each election, except for the 1995 election,

inflation increased in the post-election period. This provides direct evidence for opportunistic cycles, which are particularly visible in the shape of the figure as well: an election is followed by an increase in the inflation rate, and then approaching election year and hence the decline in the inflation rate.

Figure 6. Annual Inflation Rate



Note: Red colour marked points stand for election year

As evidenced by figure 6 and table 7, the 1973, 1977 and 1987 elections took place in the increasing trends of inflation. However, inflation rates in these years were still lower than the following year, or the growth rate in relation to the previous year is very low.

Table 7. Descriptive Statistics for Annual Inflation Rate in Election Years

Election Years	Mean Inflation- Pre-Election Years	Inflation Rate- One year before the Election	Inflation Rate in the Election Year	Inflation Rate- One Year after the Election
1973	25.65	20.3	27.06	34.72
1977	29.62	25.64	27.65	48.52
1983	58.2	32.27	31.3	59.1
1987	54.45	44.79	47	72.2
1991	74.31	72.40	59.72	73.9
1995	83.2	94.65	102.5	90.68
1999	89.66	82.07	46.27	60.9
2002	55.74	50.56	46.7	

As table 7 depicts, the 1983, 1991, 1999 and 2002 elections took place in the lower inflation years in comparison to previous years. An important common point in the inflation trend is that the inflation rate demonstrates increases throughout the post-election year. This vindicates the statement made above that the consequence of suppressed prices in the election year is reflected in the relatively higher inflation rate the following year.

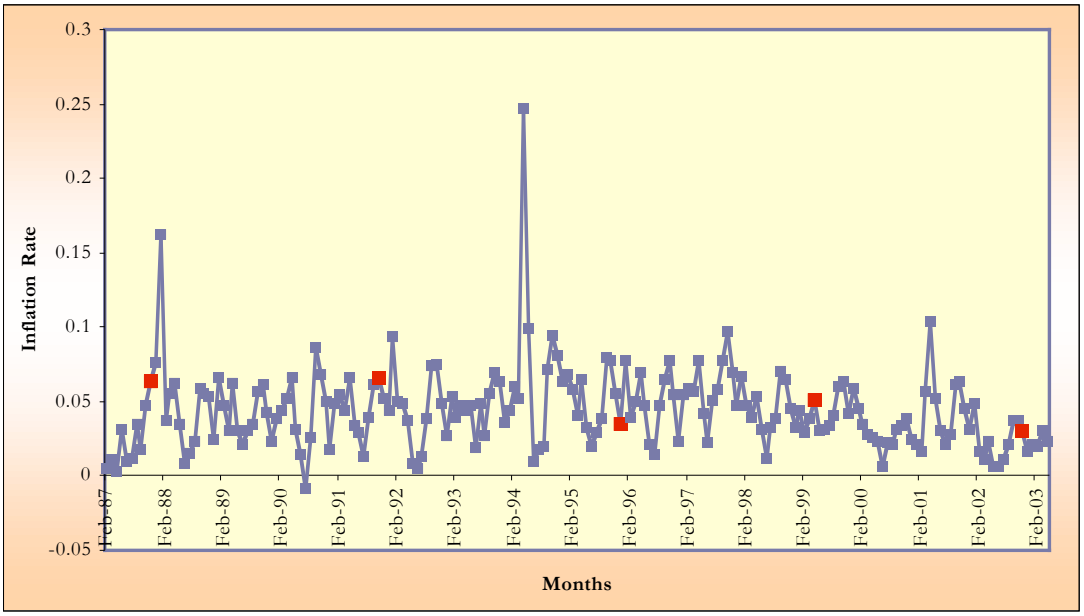
To further investigate the possible opportunistic cycles in inflation years, monthly data were utilised from the Consumer Price Index, the result is depicted in table 8, according to which in the election months of 1987, 1991 and 1999, inflation rates were higher than previous months or the other two pre-election months. However, in the case of the 1995 and 2002 elections, the inflation rate in the election month was lower than the pre-election months with the exception of the three months pre-election period for the 2002 election. Increasing inflation in the following month of the election in 1987 and 1995 elections can also be gathered from table 8.

Table 8. Monthly Inflation Rates in Election Periods

	Elections					**Mean**
	1987 Nov.	**1991 Oct.**	**1995 Dec.**	**1999 Apr.**	**2002 Nov.**	
3 Months Prior to Elections	0.034	0.013	0.079	0.043	0.020	0.0378
2 Months Prior to Elections	0.017	0.039	0.077	0.029	0.0366	0.039
1 Month Prior to Elections	0.048	0.06	0.055	0.038	0.0367	0.047
Election Month	0.063	0.065	0.035	0.051	0.03	0.048
1 Month After Elections	0.07	0.052	0.077	0.030	0.016	0.049
2 Months After Election	0.161	0.043	0.04	0.031	0.021	0.059
3 Months After Elections	0.037	0.09	0.05	0.0341	0.02	0.046
Mean Monthly Inflation Rate	0.028	0.045	0.049	0.043	0.021	

It is important to add that election month inflation rates were higher than the mean monthly inflation rate in the 1987, 1991, 1999 and 2002 elections. Post-election 3 months inflation rate is higher than the election month inflation rate in the case of 1991, 1999 and 2002 elections. Consequently, monthly data do not provide systematic statistical support but provide evidence and verification for particular elections. When the mean value of election month is compared to pre-election month mean values, it is obvious that election month mean is higher than all pre-election month mean values. Mean value of election month inflation rate throughout the election year is lower than the post-one and two months inflation mean values.

Figure 7. Monthly Inflation Rates



Note: Red colour marked points stand for election months

Depicting monthly inflation rates in figure 7 demonstrates non-systematic support for opportunistic cycles. Particularly the 1995 and 2002 elections took place in the declining inflation trend prior to election. It should be added that the increase in the inflation rate in the election month in comparison to the previous months was very low during the 1991 and 1999 elections. An important conclusion is that elections took place in the months away from peak inflation rates.

VIII. POLITICAL MANIPULATION OF MONETARY POLICY INSTRUMENTS AND OUTCOMES IN TURKEY: ECONOMETRIC ANALYSIS

In the light of the econometric analysis modelling and specifications presented in the earlier section, this section aims to present the results of the defined autoregressive regression estimates.

In the regression analyses, the following electoral variables were incorporated which were described previously: ED1(b_2), is the pre-election month(s) dummy variable; ED (b_3) stands for election month(s) dummy variable; and ED2(b_4) denotes the post-election month(s) dummy variable. The numbers of the months in the electoral variables are determined by goodness of fit test among 12 monthly models estimated for each policy instrument. It should also be reiterated that 6 of these models are for the pre-election period and the remaining are estimated for the post-election period.

8.1. Monetary Variable, M1, and the PMC

This section aims to present the results of the econometric analysis of M1, which was carried out in light of the specifications mentioned above. As mentioned, in finding the best fit or benchmark model, the model which yielded the highest R^2 is selected as the best fit. As mentioned above, the model for M1 has ARMA(3,3) structure. In addition,

the tests indicate that for finding the intervention impact of the elections on M1, the model, which consists of the two-month pre-election and six month post-election, has the best structure. However, for investigating the impact of elections on inflation, the model which covers the four month pre- and post-election periods with ARMA(1,1) structure is the best fit. As a result, the ARMA models of macroeconomic time series variables were included in the regression equation. Due to the heteroscedasticity, GARCH terms are also included into equation.

It might be useful to recall the related hypotheses, which are tested in this section: $\mathbf{H_1}$ (Money supply, $M1_p$, increases prior to elections) and $\mathbf{H_2}$ (Money supply, $M1_p$, decreases after elections)

The election dummy variables devised according to regression model expressed in equation 3 ($Y_t = b_0 + \sum_{i=1}^{4} b_t X_{it} + e_t$). The regression analysis was performed to investigate the impact of elections on monetary variable, M1. The regression results are depicted in table 9, which indicate that all the electoral variables are significant at 10%.

Table 9. M1 and Elections, 1986M1-2002M11 (Dependent variable: M1)

Independent Variables	Coefficients	t-statistics
Constant	0.9634	1.072
T (b_1)	-0.0065	-2.989[a]
ED1 (b_2)	0.4798	1.684[b]
ED (b_3)	0.7565	-1.833[b]
ED2 (b_4)	-0.3298	-1.726[b]
AR(1)	0.280	3.287[a]
AR(2)	0.171	2.854[a]
AR(3)	0.474	5.876[a]
MA(1)	-0.192	-3.675[a]
MA(2)	0.021	0.438
MA(3)	0.650	8.976[a]
ARCH(0)	0.087	1.912[b]
ARCH(1)	0.056	3.345[a]
GARCH(1)	0.899	36.567[a]

Notes: a: 1% level of significance; b: 10% level

The results produced in this section confirm the earlier conclusions reached by Asutay (2004) as regards to M1, and it establishes that election quarter and the pre-electoral quarter together with three quarter post-election period were significant. In concluding, analysis in this section provides sufficient evidence to accept the related hypotheses, namely $\mathbf{H_1}$ and $\mathbf{H_2}$. Thus, incumbent governments use money supply to manufacture PMC to enhance their popularity for electoral reasons.

8.2. Inflation, *I*, and the PMC

The model specification for investigating the PBC or PMC through the inflation rate or the consumer price index in described above in detail. It should be noted that the best-fit model selected among the monthly models covers four pre-and-post election months. Model expressed in equation 3 ($Y_t = b_0 + \sum_{i=1}^{4} b_t X_{it} + e_t$) was used to incorporate the electoral dummy variables for regression analysis in examining the impact of elections on inflation in the form of intervention or interrupted time series analysis. The regression results are depicted in table 10.

Table 10. Inflation and Elections, 1981M1-2002M11
Dependent variable: *I* (Inflation)

Independent Variables	Coefficients	t-statistics
Constant	0.087	3.674[a]
T (b_1)	0.00095	3.216[a]
ED1 (b_2)	-0.069	-1.104
ED (b_3)	0.176	-0.9567
ED2 (b_4)	-0.083	-1.698[b]
AR(1)	0.478	4.765[a]
ARCH(0)	0.005	1.689[b]
ARCH(1)	0.216	3.125[a]
GARCH(1)	0.745	20.981[a]

Notes: a: 1% level of significance; b: 10% level of significance

As the results reported in table 10 depict, inflation decreases by 0.069% during four month prior to elections, and also decreases by 0.083% in the four months succeeding the election month. However, the analysis in this section demonstrates that elections do

not particularly lead to inflation, as the pre-and-post election variables, ED1(b_2) and ED2(b_4) respectively, are not statistically significant.

As a result, hypotheses that inflation increases prior to elections (**H_5**) and decreases after (**H_6**) have to be rejected. In other words, the evidence is not sufficiently strong to accept the relationship between elections and inflation. This result coincides with the conclusions reached on an earlier study by Asutay (2004). Although analysis in Asutay (2004) managed to find that governments do manipulate inflation rates in the election quarter, the impact of elections on inflation was found to be weak.

As a consequence, hypotheses **H_7** and **H_8** which respectively state that inflation, I_t, is determined by government policy, G_t, during an election period and inflation, I_t, is determined by changes in demand condition in the private sector, P_t, during an election period have to be eliminated from the analysis. Because these two latter hypotheses are conditioned to a significant relationship between elections and inflation, which has been rejected in line with the results as depicted in table 10.

It should be noted that it is normal that the inflation does not increase in the pre-election period as prices increase in SEEs-oriented goods and services are deferred to the post-election period. Thus, this reasoning should be used to justify the results produced in this section as well, albeit it may not be consistent with the general theoretic. The important issue however is to highlight the particularities of each case, and hence inflation may follow such a pattern in relation to elections in the case of Turkey.

8.3. Monetary Instrument (M1), Government Finance and Private Credit

This section aims to investigate the impact of elections on monetary instrument, M1, through government budget deficits/surplus and private credits. This resembles the interacted or fiscal policy adjusted monetary variable analysis presented in an earlier study (Asutay, 2004). The rationale in this section, as described previously, stems from the fact that when the government is involved in the political manipulation of the economy, it has to find monetary resources to meet the additional money demands created from expansionary policies. At the same time elections are believed to necessitate additional increases in the money supply due to the election campaigns.

This section thus attempts to test **H_3** (money supply, $M1_t$, is determined by government policy, GF_t during the election period) and **H_4** (money supply, $M1_t$, is determined by fluctuations and cycles in the demand of private sector, PC_t, during the election period) in light of the empirical specifications described above. In so doing, the section estimates the equation 4 ($DY_t = c_0 + c_1 DG_t + c_2 DP_t + e_t$), which has already been defined above. The results of the analysis are depicted in table 11.

As mentioned previously, the estimated regression results in table 11 are the result of the ARMA(1,1) and ARCH(0) and ARCH(1) structures, and hence were included in the regression equation.

The results demonstrate that the independent variables are significant at 1%. The magnitude of PC (c_2) is rather low despite having the expected (+) sign. According to the result, a 1% increase in M1 is associated with 0.0027% increase in the aggregate private credit. Therefore, $\mathbf{H_4}$ which hypothesises that money supply of M1 is determined by fluctuations and cycles in the demand of private sector during election period is accepted, but caution is taken due to the very low coefficient.

Table 11. Money Supply, Governmental Finance and Aggregate Private Credit, 1986M1-2002M11 (Dependent variable: M1-Monetary Variable)

Independent Variables	Coefficients	t-statistics
CONS	0.0098	0.345
GF (c_1)	-2.078	-19.8634[a]
PC (c_2)	0.0027	13.145[a]
AR(1)	-0.362	-9.867[a]
MA(1)	0.0038	0.268
ARCH(0)	0.0362	8.321[a]
ARCH(1)	2.9875	5.289[a]

Notes: a: 1% level of significance;
GF: Government Finance; PC: Private Credit

The GF (c_2) or government finance is statistically highly significant and has the expected sign, as the hypothesis implies a M1 increase and an expansionary fiscal policy prior to elections and contractionary fiscal policy and, hence, declined M1 in the post electoral period. The magnitude of GF demonstrates the very high impact of fiscal policy on M1, as the coefficient of the GF implies that a 1% increase in M1 in the pre-election months is explained by a 2.078% increase in fiscal deficits due to election oriented government expenditure. Thus, hypothesis $\mathbf{H_3}$, which presumes that money supply is determined by government policy during the election period, is accepted.

IX. CONCLUSION

This study, similar to the earlier one (Asutay, 2004), aimed at modelling the political manipulation of monetary policy instruments by the incumbent governments to enhance their popularity for the coming elections and ensure their re-election. In short, attempts were made to model PBC/PMC in Turkey.

In the statistical descriptive section, annual and monthly data were utilised for inference and through figures for visual understanding. Depending on the nature and extent of the

available data various data sets utilised in descriptively and visually searching for PBC in Turkey.

The statistical analysis on the monetary policy instruments provides certain evidence and support in favour of PMC in Turkey. For instance, the annual growth of money in circulation provides support for the use of monetary policy in the case of the 1987, 1999 and 2002 elections. In the case of monthly data, there is reasonable support for the monetary political cycles in 1987, 1999 and 2002 elections. In particular, the 1999 elections obviously demonstrate the presence of opportunistic cycles. In the case of domestic credits, annual data provides evidence of political manipulation in the case of the 1987 and 1991 elections and a close but not certain implication of manipulations in the 1995 elections. In the monthly data, domestic credits growth rate demonstrate that in the 1987, 1999, 1995 and 2002 elections there was political manipulations.

Statistical analysis performed reasonably well in the case of annual inflation rates, as it demonstrates that except for the 1995 elections, all elections took place in a low inflation year. This may contradict the theory, but, as explained earlier, in Turkey people are more sensitive to price increases than to unemployment. With regards monthly inflation rates, the analysis provided evidence for opportunistic PBC in inflation rates in the 1987, 1991, 1999 and 2002 elections. Thus, descriptive statistical analysis renders some evidence in the case of inflation for opportunistic business cycles.

In sum, statistical analysis provides general evidence for certain election years or months according to each policy variable and indicates for the manipulation of monetary policy and their instruments. Although descriptive studies may be negated as unsystematic, it provides an understanding and a base according to which one can develop a systematic econometric analysis.

The econometric analysis, in the later section, is based on monthly data from the Central Bank of Turkey for the period January 1986 to November 2002. The data were treated for its time-series futures. Interrupted time series model was used as an empirical framework. For each dependent variable or the policy instrument autoregressive benchmark model was selected by basing on best-fit tests.

The M1 model, in the econometric model, performed well, as the elections variables are significant and indicates that M1 increases in one month prior to election and decreases in the six month proceeding the election. Hence, related hypotheses indicating the presence of PBC or PMC are accepted. By basing on the provided evidence it can be concluded that incumbent governments commence to manipulate monetary supply for their private political gains two months prior to elections. The political monetary cycle is completed six months after the election, when the governments' contraction policies set in.

In the case of inflation, the model could not yield the same kind of strong evidence. The best-fit model in the case of inflation tried to capture the election impact in the four-month pre-and-post election periods. However, the results have been inconclusive. It should be added that due to the particular features of Turkey and the impact of the government on price setting through SEEs, the results, as mentioned before, should be accepted.

In continuing to find further evidence for the existence of PMC in Turkey, the monetary policy interacted with fiscal policy and private sector credits. The analysis provided weak but significant support for the impact of an election on M1 through private sector credits, but the impact of elections through government finance on M1 was found to be

strongly significant. This directly interlinks fiscal policy manipulation to the changes taking place in M1 and hence indicates that elections stand for an intervention in the development of M1. This, therefore, requires the acceptance of the related hypotheses that M1 is determined by electioneering policies of the incumbent governments and the demands of the private sector during the election period respectively.

The econometric results, thus, provide unequivocal evidence for the existence of opportunistic type of politically manufactured policy cycles, or PBC or PMC, in Turkey during the 1986-2002. It is important to note that these results are based on pre-2003 period, which implies that the Central Bank did not have autonomy or independence and, as a result, accommodated the demands of the government by meeting its additional requirements during election periods. In addition, it provides support for the Nordhaus type of opportunistic PBC through monetary policy instruments and substantiates the earlier strong evidence produced by Asutay (2004), where the impact of elections on fiscal and monetary policy instruments in opportunistic political business cycle model was modelled.

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