

## POLİTİK KONJONKTÜR TEORİLERİ: TÜRKİYE'DEN KANITLAR

### ÖZ

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*Son dönemlerde yapılan çalışmalar iktidarların politik nedenlerle özellikle de yeniden seçilebilmek amacıyla ekonomiyi manipüle ettiklerini belirtmektedirler. Yeni politik iktisat literatüründe bu durum politik dalgalanmalar tarafından yaratılan makroekonomik dalgalanmalar, bir diğer deyişle “Politik Konjonktür Teorileri” olarak adlandırılmaktadır. Politik Konjonktür Teorileri “Geleneksel Fırsatçı Politik Konjonktür Teorisi”, “Geleneksel Partizan Politik Konjonktür Teorisi”, “Rasyonel Fırsatçı Politik Konjonktür Teorisi” ve “Rasyonel Partizan Politik Konjonktür Teorisi” olarak dört farklı teori ile incelenmektedir. Bu modellerden “Geleneksel Partizan Politik Konjonktür Teorisi”, “Rasyonel Fırsatçı Politik Konjonktür Teorisi” ve “Rasyonel Partizan Politik Konjonktür Teorisinin” varsayımları Türkiye için uygun olmadığından bu çalışmada “Geleneksel Fırsatçı Politik Konjonktür Teorisi” test edilmiştir. Çalışmada 1987- 2012 dönemi için çeyrek yıllık GDP, enflasyon, dolaşımdaki para (M0), para arzı (M1) serileri Mevsimsel Box-Jenkins Modelleri ile analiz edilmiştir. Elde edilen sonuçlara göre ilgili dönemde hiçbir seride politik konjonktür dalgalanmaları gözlenmemiştir. Bu bulguyu Geleneksel Fırsatçı Politik Konjonktür Teorisi'nin Türkiye için geçerli olmadığı şeklinde yorumlamak mümkündür.*

**Anahtar Sözcükler:** *Politik Konjonktür Teorileri, Geleneksel Fırsatçı Politik Konjonktür Teorisi, Box-Jenkins Modelleri, Türkiye.*

**JEL Sınıflandırması:** *D72, E62, H62*

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## POLITICAL BUSINESS CYCLES THEORIES: EVIDENCE FROM TURKEY<sup>1</sup>

### ABSTRACT

*The studies that have been conducted in recent years suggest that incumbent governments manipulate the economy for political reasons, in particular, with the aim of re-election. In new political economy literature, this situation is known as the Political Business Cycle; a macroeconomic cycle induced by the political cycle. The theory of PBC is studied under four theories called “The Traditional Opportunistic PBC Theory”, “The Traditional Partisan PBC Theory”, “The Rational Opportunistic PBC Theory” and “The Rational Partisan PBC Theory”. From these theories, the assumptions of the “The Rational Opportunistic PBC Theory”, “The Traditional Partisan PBC Theory” and “The Rational Partisan PBC Theory” do not seem to be valid in the Turkish context; hence testing of these models would not be meaningful. Therefore, in this study, “The Traditional Opportunistic PBC Model” is examined. In the study, the quarterly series of GDP, inflation, money in circulation (M0), money supply (M1) for the period of 1987- 2012 are analyzed with “Seasonal Box-Jenkins Models”. According to the results obtained from this study, political business cycles hasn't been observed in any series. This means that The Traditional Opportunistic PBC Theory isn't valid for Turkish context.*

**Key words:** *Political Business Cycle Theories, The Traditional Opportunistic PBC Theory, Box-Jenkins Models, Turkey.*

**Jel Classification:** *D72, E62, H62*

### 1. INTRODUCTION

The Political Business Cycle Theory, which emerged as one of the basic areas of discussion in Positive Public Choice Theory, was based on the studies of Kalecki (1943) and Akerman (1947) in the 1940s. Political Business Cycle Theory is examined under two main topics of “*Traditional Political Business Cycle Theory*” and “*Rational Political Business Cycle Theory*”. While Traditional Political Business Cycle Theories are classified in two groups as “*Traditional Opportunistic Political Business Cycle Theory*” and “*Traditional Partisan Political Business Cycle Theory*”, the Rational Political Business Cycle Theories are separated as “*Rational Opportunistic Political Business Cycle Theory*” and “*Rational Partisan Political Business Cycle Theory*”.

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<sup>1</sup> This study is generated from the Author's PhD thesis entitled “Politik Konjonktür Teorileri Işığında Türk İktisat Politika Çıktılarının Analizi”

While voters are assumed to have adaptive expectations in Traditional Political Business Cycle Theory, they are accepted as being rational in Rational Political Business Cycle Theory. Another model of differentiation of the relationships in Political Business Cycle Theory is the “*opportunistic*” or “*partisan*” relationship. In the opportunistic model, it is assumed that the single aim of the governing parties, which are accepted as equally formed, is to apply policies which would maximize their chances of winning the elections. In partisan models, the governing parties are not similar, and are in fact at different ends of the ideological spectrum at the right and left wings (Alesina and Roubini, 1990; Alesina, Roubini and Cohen, 1991).

In this study, the Traditional Opportunistic Business Cycle Theory of Nordhaus (1975) was tested the quarterly series of GDP, inflation, money in circulation (M0), money supply (M1) for the period of 1987- 2012 are analyzed with “*Seasonal Box-Jenkins Models*” that used in studies by Alesina, Cohen ve Roubini (1991, 1992, 1997) for OECD countries and industrial countries.

The rest of the paper is structured as follows: Initially, in the second section, Traditional Opportunistic Political Business Cycle and related assumptions would be assessed. In the third section, the literature review on the subject matter would be explained, and in the fourth section of data and methodology, the data utilized and findings of the study would be presented. Finally, conclusions would be discussed in the fifth section.

## **2. TRADITIONAL OPPORTUNISTIC POLITICAL BUSINESS CYCLE THEORY**

There are two different approaches considered in the modeling of the relationship between political process and macroeconomic policies. Initially, following the work of Downs (1957), it could be argued that the sole purpose of political parties is to stay in the government. These government parties usually do not consider the effects of their policies on the economy much as long as these do not affect the preferences of the electorate in the elections. This hypothesis means that, with a given voting function and a two party system in the economic structure, the government parties present the same platform to the voters and implement the same policies. Thus, this result would be consistent as long as both parties have the same information about the voters, even though their information on the preferences and tastes of the voters are far from accurate. The most significant example of this approach was the traditional opportunist political cycle approach implemented by Nordhaus (1975) and MacRae (1977) (Alesina, 1987: 651). In an article, which had profound effects on the literature, Nordhaus (1975) formulated the *Traditional Opportunistic Political Business Cycles Theory* (Nordhaus, 1975: 172), and addressed the behavior of voters and politicians in a democratic political system instead of class struggle in his analysis of political business cycles (Erdoğan, 2004: 53). In Nordhaus’ model, it was stressed that government parties are rational and opportunistic and the constituency decides based on the past performances, in other words the electorate has adaptive expectations (Nordhaus, 1990: 4). The fundamental hypothesis of this model is that the politicians try

to manipulate the economy using the economic policies to be reelected (Alesina, Cohen ve Roubini, 1991: 1). Thus, government parties try to invigorate the economy in pre-election periods, benefiting from the unemployment and inflation trade-off in the Phillips curve, and assuming that the myopic voters would vote for them (Nordhaus, 1975: 171).

In the beginning of the new era, in other words after the elections, the inflationist effects of the expansion created would be eliminated by a recession. Thus, contractionary policies that would be implemented by the post-election government party would be required to reduce the inflation and inflationist expectations, and therefore moving the Phillips curve towards the bottom. Hence, in Nordhaus' model, expansionist policies are prevalent in the pre-election period, and the short term trade-off between the inflation and unemployment is exploited (Bahçe, 2006: 100).

### 2.1. The Hypotheses of the Traditional Opportunistic Political Business Cycle Theory

The hypotheses by the Nordhaus model are as follows:

1. *It is identified by a Phillips curve that includes the economic expectations. The Philips curve formulation is displayed below :*

$$y_t = \bar{y} + \gamma(\pi_t - \pi_t^e); \quad \gamma > 0 \quad (1)$$

where  $y_t$  depicts GNP growth rate,  $\pi_t$  is the inflation rate,  $\pi_t^e$  is the prospective inflation rate, and  $\bar{y}$  is the natural growth rate;  $\gamma$  is a parameter assumed to be positive. Philips curve could be rewritten with respect to unemployment rate as well:

$$u_t = \bar{u} - \gamma'(\pi_t - \pi_t^e); \quad \gamma' > 0 \quad (2)$$

where  $u_t$  is the actual unemployment, and  $\bar{u}$  is the natural unemployment. When it is assumed that  $\gamma' = 1$ , equation (1) would transform into the basic form below:

$$y_t = \bar{y} + \pi_t - \pi_t^e \quad (3)$$

Equation (3) was derived from a model based on wage agreement. The fundamental characteristics of this construct are the fact that wage agreements are signed in intermittent periods and agreements take the prospective inflation into account. If the actual inflation exceeds the expected inflation, the decrease in real wages increases the labor demand, decreasing the inflation and increasing the growth rate (Alesina, Roubini and Cohen, 1997: 17–21; Alesina and Roubini, 1990: 4–5; Alesina, Cohen and Roubini, 1992: 3–4; Telatar, 2004: 393–397). This trade-off in the Philips curve is significant in the long term as opposed to the short term (Bahçe, 2006: 105). However, a more appropriate interpretation for the analysis here would be the “Lucas supply function,” where the misconception of the relationship between the general price levels and the individual prices faced by

the decision-making units lead to a similar relationship between unpredicted inflation and the real variables.

It is obvious that the equation (3) could be transformed into a more realistic structure by, for instance, adding one or more autoregressive growth term,  $y_{t-1}, y_{t-2}, \dots, y_{t-m}$ . Although it is not possible to deny the importance of a dynamic specification for empirical analyses, to clarify the subject theoretically, it could be argued that the basic model given in equation (3) is sufficient (Alesina, Roubini and Cohen, 1997: 17–21; Alesina and Roubini, 1990: 4–5; Alesina, Cohen and Roubini, 1992: 3–4; Telatar, 2004: 393–397).

2. *It has an adaptive structure for inflationary expectations:*

Based on this hypothesis, voter expectations are adaptive and adapt themselves according to the performance of the government. In other words, economic expectations are formed based on the past experiences and the actual situation, and do not include the expectations of the voters about the future. Furthermore, according to this model, the voters do not give equal weight to past and current experiences. Their recent observations are weighed more when compared to their past experiences. The government party, aware of this situation, during the second half of the election period, in other words when the elections draw closer, expands the economy since it assumes that the voters would not remember the first period of their government. Thus, voters are considered as *myopic*, or *irrational* in the model (Sezgin, 2005: 49).

$$\pi_t^e = \pi_{t-1} + \lambda(\pi_{t-1}^e - \pi_{t-1}); \quad 0 < \lambda < 1 \quad (4)$$

Equation (4) expressed that, if the expectations of the previous term was realized, the current inflation would be equal to the inflation in the past.  $\lambda$  parameter reflects the magnitude of current reactions to the prediction mistakes done in the past. For instance, when  $\lambda$  value is low, whatever the past expectations would be, it reflects that current inflationary expectations would be almost equal to the actual inflation rate of the previous term. Here, the most important point is that expectations are dependent only on the past inflation observation values. Voters ignore all existing information, especially the *expectations towards the future policies* of political authorities. Thus, expectations are not rational. As a result of consecutive substitution operations, the following basic expectations formula is obtained:

$$\pi_t^e = (1 - \lambda)[\pi_{t-1} + \lambda\pi_{t-2} + \lambda^2\pi_{t-3} \dots] \quad (5)$$

Based on equations (5) and (2), the expression below is obtained:

$$y_t = \bar{y} + \pi_t - (1 - \lambda) \sum_{j=0}^{\infty} \lambda^j [\pi_{t-j-1}] \quad (6)$$

Equation (6), given the past inflation, demonstrates that the political authority could create the desired growth rate by selecting a suitable inflation rate for today.

3. *Political parties have identical preferences: They prefer to be the government instead of not being the government.*

Political parties know about the voter preferences well (Bahçe, 2006: 105). It is assumed that politicians are opportunistic, and only interested in staying in the government, thus they do not have “partisan” goals (Alesina and Roubini, 1990: 5). Government parties follow contractionary policies during the first term of their government and expansionist policies during the second term of their government to be reelected. These behavior increase their chances for reelection (Alesina, Roubini and Cohen, 1997: 17–21; Alesina and Roubini, 1990: 4–5; Alesina, Cohen and Roubini, 1992: 3–4; Telatar, 2004: 393–397; Sezgin, 2005: 50).

4. *There are only two candidates (parties) in every election: Government party and an opposition party.*
5. *Voters enjoy economic expansion, but they dislike inflation and unemployment*

The reason for the people to dislike unemployment is the fact that they lose income when unemployed. People do not desire inflation for three reasons. First is the fact that inflation creates problems in the balance of payments; second, the inefficient allocation of resources; and finally, the arbitrary redistribution of income (Sezgin, 2005: 51). Thus, individuals prefer low unemployment and inflation (Bahçe, 2006: 105). Consequently, they are more interested in the total unemployment rate (Nordhaus, 1975: 171). Voters are also *retroactive* on their voting decisions; they vote for the government party as long as the economy functions well during the term of the governments (low inflation, low inflation and high growth). Since the voters decide retroactively, the economic performance just before the elections has a greater impact on their decisions than the one in the further past .

The last three hypotheses express that the governments, independent of the party that is in the government, have identical behavior patterns. When in government, all political parties try to maximize the same objective function (the possibility of reelection), therefore follow identical policies. Government party faces voters that behave according to a predictable voting pattern. In other words, economic preferences of voters reflected in their voting behavior is consistent.

The most realistic approach for the government party is to accept the possibility of reelection, in addition to other factors, as a function of its economic performance during its term in service. This result derives from the hypothesis number (5). Thus,  $Q_t$ , the possibility of reelection of the government party at the end of term  $t$  could be written as follows:

$$Q_t = Q(\pi_t, u_t, y_t, \pi_{t-i}, u_{t-i}, y_{t-i}, \dots, Z) \quad i=1, \dots, n \quad (7)$$

where  $n$  denotes the length of the current political government, and  $Z$  is the vector of non-economic factors that could affect the election results.

As mentioned above, the weight that the voters assign to the economic performance decreases in time; therefore the weight that economic results of the distant past carry on the voting decisions of today is lower than the weight assigned to the results of the recent past. The reduction in these weights in time demonstrates the rate of memory loss among the voters.

Equation (7), under given economic conditions, stresses that political authorities face a certain amount of uncertainty about the election results. If the government party knew the number of votes they would receive as a result of certain policies, it would always choose the policy combination that would guarantee the victory in elections. For the possibility of the government party to lose to be included in the model, the element of uncertainty should be included in the economic situation (i.e. the relationship between their policy preferences and economic outcome) or in the political process (i.e. voters reactions to the economic outcome). Equation (7) reflects the situation where the voter preferences are not known with a certainty. Therefore, given certain policies of the government party, it could be stated that election results could not be predicted with a certainty (Alesina, Roubini and Cohen, 1997: 17–21; Alesina and Roubini, 1990: 4–5; Alesina, Cohen and Roubini, 1992: 3–4; Telatar, 2004: 393–397).

*6. Political authorities control a political instrument that has a deterministic relationship with the level of total demand. Politicians could use a monetary or fiscal variable as a political instrument.*

Based on this hypothesis, governments could influence the level of output and unemployment systematically by using macro-economic policies. Systematic influence of the government parties on unemployment and inflation levels could be explained by two methods. First is the assumption that voters are not informed about the economic structure of the country. In other words, voters do not care about the economic structure of the country and could not grasp the relationship between inflation and unemployment, thus could not relate today's low unemployment and the high inflation of the future.

Second, the expectations of voters are adaptive, i.e. their knowledge is based on past experiences. They do not include their information about the future in their expectations, since they do not know how to gather, or interpret the information about the future, or how to include this knowledge in their expectations. If the voters were rational, they could predict the government party policies, and therefore politicians would not be able to use inflation and unemployment systematically and would not have the ability to manipulate the economy. There could be two reasons behind the irrational behavior of the voters. First, gathering, interpretation, and usage of the information about the future of the economy cost time, money and energy for the voter. Second, since most of the voters

believe that their vote has a minimal effect on the outcome of the elections, they find it useless to gather and evaluate information about the economic conditions (Sezgin, 2005: 51–52).

7. *Election dates are determined externally.*

Election times are determined externally means that government parties do not have initiative to determine the election date and the elections are determined by the rules. The fundamental hypothesis that could be derived from the above assumptions is that the governments would utilize their control over the economy to increase their chances of reelection. Since voters have “*established preferences*” about high income and growth, low unemployment and inflation, it was expected from the government parties to try to create results that suit the preferences of the voters before each election (Alesina and Roubini, 1990: 4–5; Alesina, Cohen and Roubini, 1992: 3–4; Alesina, Roubini and Cohen, 1997: 17–21; Telatar, 2004: 393–397).

### 3. LITERATURE REVIEW

To test the Traditional Opportunistic Political Business Cycle Theory, Nordhaus (1975) utilized 1947 – 1972 unemployment data for Austria, Canada, France, Germany, Japan, New Zealand, Sweden, the United Kingdom, and the United States. He found that the hypothesis of the theory was valid for certain countries, and was not for others. He concluded that the theory was valid for Austria, Canada, Japan, and the United Kingdom, whereas it was invalid for France and Sweden (Nordhaus, 1975).

Following the study by Nordhaus (1975), Mac Rae (1977) tested the theory for 1957 – 1972 data for the USA. As a result of his dynamic analysis using inflation and unemployment data, Mac Rae stated that political business cycles were encountered in the findings (Mac Rae, 1977). Later on, McCallum (1978) failed to obtain results that supported the theory in the study that utilized USA unemployment data for 1949 – 1974 period.<sup>2</sup>

In an analysis by Alesina and Roubini (1992) conducted in 18 OECD countries, results on inflation were in consistence with the theory, however findings on economic growth were not consistent with the theory (Alesina and Roubini, 1992).

Onur (2001) tested Nordhaus’ (1975) theory using GNP growth, unemployment and inflation data as political outputs and monetary supply growth, taxes, transfers, and government spending variables as policy tools. Onur’s (2001) study determined that elections had especially caused an increase in consolidated budget deficit (Onur, 2001: 180 – 181).

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<sup>2</sup> For other studies that tested the Traditional Opportunist model see: *Lachler (1978, 1982), Paldam (1979, 1981), Golden and Poterba (1980), Maloney and Smirlock (1981), Beck (1982), Thompson and Zuck (1983), Soh (1986), Ames (1987), Lewis-Beck (1988), Haggard and Kaufman (1990), Schultz (1995), Veiga (1999), McCallum and Nelson (2000), Khemani (2000), Treisman and Gimpelson (2001), Spakanos (2001), Block (2002, 2003), Persson (2002), Khemani (2004), Potrafke (2012).*



Akçoraoğlu and Yurdakul (2004) tested Nordhaus' model with quarterly GDP, inflation, and budget deficit figures in Turkey for 1987:1 – 2003:1 period. Results of their analysis demonstrated political business cycle fluctuations on budget deficits, while it was found that there were no political business cycle fluctuations on inflation and growth (Akçoraoğlu and Yurdakul, 2004).

Ergun (2000) used GDP, inflation, M0, M1, M2, M2Y, 3-month TLY savings interest rate, 3 month USD savings rate, nominal and real treasury bid interest rate and interbank interest rate, total public revenues for financial policy, tax revenues, direct and indirect revenues, portfolio, interest and income revenues, total public expenditures, primary expenditures, personnel and investment expenditures for monetary policies in the 1987 – 1999 period in Turkey. Study findings demonstrated no political business cycle effects on GDP, while the results were not conclusive for inflation and M0. In other variables, political business cycle fluctuations were observed in consistence with Nordhaus' model. According to another finding of the study, governments manipulated the economy using monetary aggregates before the elections, and then attempted to fix the economy by utilizing the interest rates (Ergun, 2000).

Özatay (1999) tested M0 and CB net domestic assets as monetary policy indicators, and primary public transfer expenditures, and other public transfer expenditures as financial policy indicators for 1982:01 – 1996:01 period in Turkey. The study concluded that Nordhausian model was not valid for M0 and primary public transfer expenditures, however it was valid for CB net domestic assets and other public transfer expenditures (Özatay, 1999).

Teleatar (2000) tested whether there were political business cycle fluctuations that support Nordhaus' model on inflation rates for 1986:01 – 1997:10 period in Turkey. The study reported that, unlike the expectations, there were no political business cycle fluctuations on inflation rates during the period of interest (Teleatar, 2000).

Bakırtaş and Koyuncu (2005) investigated whether Nordhausian model was valid for inflation, GDP, M1, interbank interest rates, and final public consumption expenditures for 1987:01 – 2003:06 period in Turkey. It was reported that the theory was valid for GDP and final public consumption expenditures, but it was not valid for inflation, interbank interest rates, and M2 (Bakırtaş and Koyuncu, 2005: 65).

In a study by Asutay (2005) conducted with annual and monthly data for 1986 – 2011, it was determined that monetary policies were manipulated by the governments before the elections in Turkey to win these elections. In other words, it was concluded that Nordhaus' model was valid for Turkey (Asutay, 2005: 32 – 34).

According to a study conducted by Altun (2014) using autoregressive moving averages estimation method, Traditional Opportunist Political Cycles Theory was valid in Turkey. Based on the findings of the above-mentioned study, public spending tended to increase before the elections

between 1950 and 2010 in Turkey. In other words, during the related period government parties increased public spending to be reelected (Altun, 2014: 66).

Koç (2015) analyzed the validity of Traditional Opportunist Political Business Cycles Theory for all general and local elections in the post-1990 period based on economic and financial indicators. The results of this study showed that while there was evidence for election economics in almost all of the general and local elections, no conclusive positive evidence was found for post-2002 general and local elections (Koç, 2015: 39)<sup>3</sup>

#### 4. DATA AND METHODOLOGY

The series addressed in the study were aimed to be modeled with Box-Jenkins methodology. A dataset of quarterly GDP, inflation, money in circulation (M0), and money supply (M1) series collected for 1987 – 2012 period was used. This dataset consisted of Republic of Turkey Central Bank (TCMB) electronic data distribution system, General Directorate of Budget and Fiscal Control (BUMKO), and International Financial Statistics (IFS) data. Explanation on the data and implemented processes are detailed below:

- **Gross Domestic Product (GDP):** The GDP series expressed in 1987:Q1 – 2012:Q4 current prices rendered real using GDP deflator, and then LGDP series were formed by taking its logarithm. Since a seasonal effect is observed in the series, its differential was taken; and since it had a non-seasonal unit root, first differential of the series was taken.
- **Inflation (INF):** Two series that were collected for 1987:Q1 – 2012:Q4 period and logarithm was taken for 1987 and 2003 base years, were arranged for 2003 base year. Logarithm of the mentioned series was taken to obtain LINF series. Since it had a non-seasonal unit root, first differential of the series was taken.
- **Money in Circulation (M0):** The series for 1987:Q1 – 2012:Q4 period was realized using 2003 based INF series. Later on logarithm of the series was taken to obtain LM0 series.
- **Money Supply (M1):** The series for 1987:Q1 – 2012:Q4 period was realized using 2003 based INF series. Later on logarithm of the series was taken to obtain LM1 series.

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<sup>3</sup> For studies about the validity of political business cycle theories in Turkey, see Şen (2006), Karakaş (2013), Akalın and Erkişi (2007), Akarca (2013, 2014), Akarca and Tansel (2004, 2006, 2012), Aslan and Bilge (2009), Asutay (2004, 2006), Aytun (2012), Bakırtaş (1998), Erdoğan and Bozkurt (2009), Eren and Bildirici (1999, 2001), Heckelmen and Berument (1998), Kanca (2011, 2012), Karaca (2003), Kuşat and Dolmacı (2011), Kuzu (2001), Onur (2002, 2003, 2004), Özkan and Tarı (2011), Parlaktuna and Bahçe (2006), Savaşan and Dursun (2006), Sayan and Berument (1997), Sezgin (2007, 2010), Şanlısoy and Kök (2010), Telatar (2001), Tutar ve Tansel (2000), Hazama (2003, 2006, 2009), Başlevent (2005), Başlevent et al. (2009), Gayğusuz (2012), Arslan (2011), Çinko (2005, 2006), Çarkoğlu and Hinich (2006), Çarkoğlu (1998, 2002, 2008, 2012, 2011), Çarkoğlu et al. (2014), Toros (2011), Bacık (2007), Varım (2000).

7 general election periods realized between 1987 and 2012 including November 29 1987, October 20 1991, December 24 1995, April 19 1999, November 3 2002, July 22 2007, and June 12 2001 elections were taken into account in the study. To determine whether there were significant differences in analyzed dependent variables during the election periods and after the elections, dummy variables for GDP, inflation, M0, and M1 series were derived. These dummy variables; E87D, E87S, E91D, E91S, E95D, E95S, E99D, E99S, E02D, E02S, E07D, E07S, E11D, and E11S, were defined as follows:

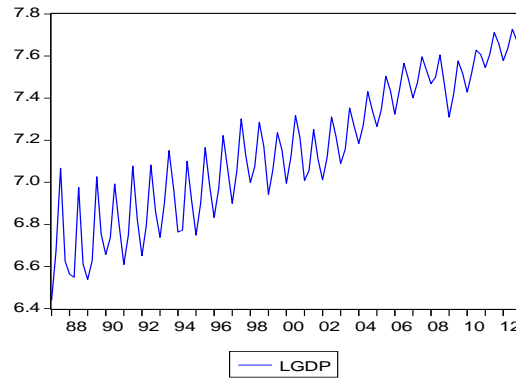
- **E87D:** One year before the 1987 election period
- **E87S:** Nine months after the 1987 election period
- **E91D:** One year before the 1991 election period
- **E91S:** Nine months after the 1991 election period
- **E95D:** One year before the 1995 election period
- **E95S:** Nine months after the 1995 election period
- **E99D:** One year before the 1999 election period
- **E99S:** Nine months after the 1999 election period
- **E02D:** One year before the 2002 election period
- **E02S:** Nine months after the 2002 election period
- **E07D:** One year before the 2007 election period
- **E07S:** Nine months after the 2007 election period
- **E11D:** One year before the 2001 election period
- **E11S:** Nine months after the 2011 election period

During the model designation process, correlograms related to the series were used as auxiliary tools. In this process, studies continued to select the most appropriate model by taking the condition of “the lowest AIC information criterion” into account for the alternative ARIMA model prediction results. To apply the Box-Jenkins Methodology to the quarterly series utilized in the study, the series should be clear of both seasonal effect and the unit root. There are several tests that were developed to determine unit roots in time series with seasonal effect. The test developed by Hylleberg, Engle, Granger and Yoo (1990) and called “HEGY Test” in the literature is used to analyze seasonal characteristics of the series. In addition to determining the seasonal effect in the series, this test examines the stationarity condition of the series. Thus, seasonal differential should be taken for the series with seasonal effects, while differential should be taken for the series with unit root to render them stationary. In this context, initially it was deemed necessary to assess time path diagrams of the related quarterly series. Time path diagrams are significant to have a preliminary idea about the stationarity of these series. However, the final results on stationarity could be only obtained through

the stationarity analysis. Thus, following the time path diagrams, “HEGY seasonal unit root test” results would be presented.

#### 4.1. Diagrams and HEGY Seasonal Unit Root Test Results for the Series

Level graph plotted for GDP series that was first transformed into real form using GDP deflator, and then its logarithm was taken is given in Figure 1.



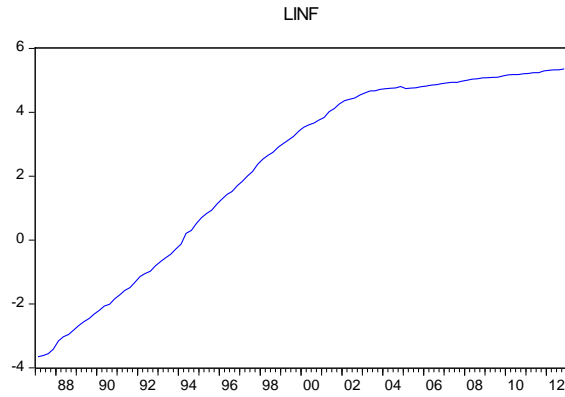
**Figure 1. Level Graph for Real GDP Series**

The upward positive trend observed in Figure 1 most probably hints the non-stationary structure of the series. HEGY (1990) seasonal unit root test results for the GDP series are given in Table 1. Critical values for the test results were obtained from HEGY (1990) table.

**Table 1. HEGY Seasonal Unit Root Test Results for LGDP Series**

Aux. regr.	t1 '	t2 '	t3 '	t4 '	F3&4 '	LM-sign
-	-0.474	-6.080	-3.556	-5.510	26.954	0.368
<b>I</b>	-3.300	-6.387	-4.284	-5.095	29.136	0.880
<b>I, SD</b>	-3.253	-6.267	-4.204	-5.015	28.181	0.860
<b>I, Tr</b>	-3.311	-6.365	-4.285	-5.058	28.934	0.823
<b>I, SD, Tr</b>	-3.264	-6.245	-4.205	-4.977	27.973	0.798

Test results displayed in Table 1 demonstrates that there were both non-seasonal and one year seasonal unit roots in the series. Thus, first differential of the series was taken to remove the non-seasonal unit root, and then seasonal differential was taken to remove the seasonality effect. The level graph for the inflation series, which was structured for 2003 base year and logarithm was taken is given in Figure 2.



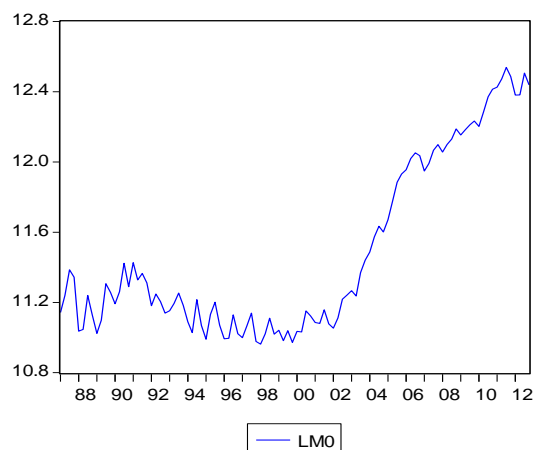
**Figure 2. Level Graph for Inflation Series**

Figure 2 demonstrates an upward positive trend. It was considered that the inflation series probably did not have a stationary structure as well. Seasonal unit root test results for this series are presented in Table 2.

**Table 2. HEGY Seasonal Unit Root Test Results for LINF Series**

Aux. regr.	t1 '	t2 '	t3 '	t4 '	F3&4 '	LM-sign
-	-1.122	-1.692	-3.711	-0.231	6.943	0.115
I	-0.064	-1.663	-3.671	-0.208	6.786	0.113
I, SD	-1.091	-4.373	-6.969	-0.593	24.759	0.105
I, Tr	-1.665	-1.658	-2.992	0.006	4.475	0.142
I, SD, Tr	-2.651	-4.485	-7.166	-0.455	26.030	0.172

The results displayed in Table 2 shows that the series did not contain seasonality but had non-seasonal unit root. Thus, the first differential of the series was taken to render the series stationary. Figure 3 shows the M0 series after it was realized and its logarithm was taken.



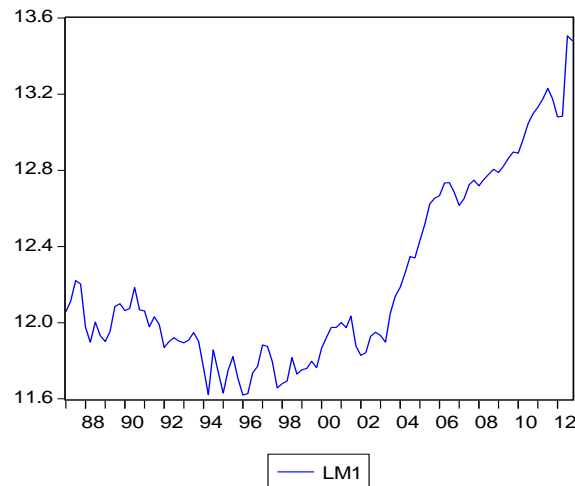
**Figure 3. Level Graph for Real Money in Circulation Series**

Figure 3 shows that real LM0 had a positive upward trend during the 2000's. Similar to the inflation series, M0 had an upward trend and it is possible that it was not a stationary series. Table 3 presents the seasonal unit root test results for M0.

**Table 3. HEGY Seasonal Unit Root Test Results for LM0 Series**

Aux. regr.	t1 '	t2 '	t3 '	t4 '	F3&4 '	LM-sign
-	1.335	-1.796	-2.666	-1.103	4.134	0.881
I	-0.224	-1.780	-2.648	-1.097	4.079	0.877
I, SD	0.606	-5.486	-6.600	-4.605	46.253	0.550
I, Tr	-1.316	-1.773	-2.634	-0.975	3.915	0.623
I, SD, Tr	-0.961	-5.439	-6.581	-4.362	43.692	0.449

Based on the results listed in Table 3, it was determined that the M0 did not contain seasonality but had a non-seasonal unit root. Thus, first differential of the series was taken to make it stationary. Figure 4 shows the M1 series after it was rendered real and its logarithm was taken.



**Figure 4. Level Graph for Real Money Supply Series**

Figure 4 demonstrates that Real LM1 series has a positive upward tendency starting from the 2000's. An upward tendency shows that the series is not stationary. Table 4 lists the seasonal unit root test results for M1 series.

**Table 4. HEGY Seasonal Unit Root Test Results for LM1 Series**

<b>Aux. regr.</b>	<b>t1 '</b>	<b>t2 '</b>	<b>t3 '</b>	<b>t4 '</b>	<b>F3&amp;4 '</b>	<b>LM-sign</b>
-	1.335	-1.796	-2.666	-1.103	4.134	0.881
<b>I</b>	-0.224	-1.780	-2.648	-1.097	4.079	0.877
<b>I, SD</b>	0.606	-5.486	-6.600	-4.605	46.253	0.550
<b>I, Tr</b>	-1.316	-1.773	-2.634	-0.975	3.915	0.623
<b>I, SD, Tr</b>	-0.961	-5.439	-6.581	-4.362	43.692	0.449

The results presented in Table 4 show that M1 series did not contain seasonality, however it had a non-seasonal unit root. Thus, the series was rendered stationary by taking its first differential.

#### **4.2. Findings**

Before the series utilized in the study was modeled, to test whether there was an internality problem between the election periods and the series, Hausman's (1978) single equation F-test, was used as is done by Heckelmen and Berument (1998). Hausman test statistics determined that there was no internality problem between the macroeconomic variables and election dates. Thus, as per the literature, "manipulative hypothesis" is valid for Turkey, while "opportunistic elections hypothesis" is not. In other words, the governments in Turkey preferred to manipulate macroeconomic variables instead of preferring snap elections during the times when the economy goes well during the related period.

It was decided that the most suitable autoregressive models for the quarterly GDP, inflation, money in circulation (M0), and money supply (M1) series that covered 1987 Q1 – 2012 Q4 period were ARIMA (0, 1, 0) (0, 1, 1), ARIMA (0, 1, 1) (1, 0, 0), ARIMA (0, 1, 0) (0, 0, 1) ve ARIMA (0, 1, 1) (0, 0, 1), respectively. Autoregressive model results for the above mentioned series are presented in Table 5.

**Table 5: Autoregression Analysis Results for the Series**

	GDP		INF		M0		M1	
	Coef.	t	Coef.	t	Coef.	t	Coef.	t
<b>E87D</b>	-0.578327	-2.523187	-0.063617	-1.565297	0.009262	0.239569	0.008099	0.174654
<b>E87S</b>	0.105583	1.857997	0.009695	0.280769	-0.081709	-2.381342	-0.096176	-2.226329
<b>E91D</b>	0.006435	0.176467	-0.009877	-0.367116	-0.031334	-1.159751	-0.051423	-1.465092
<b>E91S</b>	0.010371	0.220136	-0.030489	-1.034061	-0.071973	-2.179184	-0.052048	-1.234143
<b>E95D</b>	0.014462	0.394724	-0.013522	-0.488685	-0.030175	-1.106349	-0.040914	-1.145983
<b>E95S</b>	0.006012	0.127344	-0.026904	-0.892976	-0.036127	-1.094415	-0.006712	-0.158505
<b>E99D</b>	0.002536	0.069148	-0.007766	-0.285695	-0.03263	-1.206038	-0.017849	-0.504399
<b>E99S</b>	0.013411	0.283359	0.019955	0.672741	-0.012903	-0.39187	0.024203	0.572315
<b>E02D</b>	0.020097	0.553661	-0.010258	-0.369961	0.007396	0.270046	-0.027943	-0.771963
<b>E02S</b>	0.00354	0.072819	-0.012656	-0.420437	0.038785	1.179540	0.045046	1.067361
<b>E07D</b>	0.012942	0.347698	-0.001599	-0.059915	-0.015369	-0.569633	-0.021848	-0.627746
<b>E07S</b>	-0.000843	-0.018046	0.017305	0.588757	0.00125	0.038025	0.000783	0.0186
<b>E11D</b>	0.012418	0.339171	-0.001458	-0.052675	0.037495	1.388831	0.038241	1.099249
<b>E11S</b>	-0.01028	-0.207827	0.009826	0.313631	-0.055716	-1.698338	-0.016698	-0.395871
<b>AR(1)</b>			0.993248	51.27963				
<b>MA(1)</b>			-0.798467	-9.748748	-0.529723	-5.501530	-0.603504	-4.964791
<b>SMA(1)</b>	-0.997465	-9.800513					0.460803	3.644771

According to the Traditional Opportunistic Political Business Cycles Theory (TOPBCT) by Nordhaus, government parties that want to be reelected, attempt to expand the economy to convince the voters that the economy is going well and try to get their votes prior to the elections. The party that wins the elections on the other hand, to erase the effects of manipulative economic policies, applies contractionary economic policies. *Thus, TOPBCT expects an increase in GDP before the elections, and a reduction after the elections.* In this respect, the parameter prediction results displayed in Table 5 demonstrates that, although the dummy variables for 1987 election period GDP variable, i.e. E87D and E87S, were statistically significant, they were not significant economically. In other words, it was observed that E87D dummy variable was negative, although it should have been positive theoretically, while E87S dummy variable was positive, although it should have been negative theoretically. *This demonstrated that GDP was manipulated by the governments in Turkey during the election periods between 1987 and 2012.* Thus, *political business cycles (PBC)* were not observed on



GDP during the related election periods. It could be argued that the Gulf War could be the factor that prevented manipulation just before the 1991 elections in Turkey. Also, it was not possible for the governments to induce an increase in GDP during the 1995 and 2002 elections due to the 1994 crisis, and November 2000 and February 2001 crises, respectively. During the 1999 elections, an increase in GDP during the pre-election period was not possible due to political and economic instabilities that the Turkish economy and the country in general experienced and the negative effects of 1997 Asian and 1998 Russian crises. 2007 election was a snap election, which was a product of the debate over Presidential elections. In that period, AKP had a strong conviction that they would win the elections due to both economic and political stability, and the perception of being the wronged party in the Presidential elections in the eyes of the people. Thus, AKP did not implement any elections economy practices before the 2007 elections. It was also widely accepted that AKP did not implement elections economy practices before the 2011 elections, as well.

According to the TOPBCT assumption by Nordhaus, while there are *inflationary* expectations before the elections (or right after the elections) due to the expansionist policies of the government parties to convince the voters and to win the elections again, a reduction in inflation is expected due to contractionary policies after the elections. On the other hand, it is difficult to determine whether the inflation started to increase right before or right after the elections as a result of expansionist policies implemented during the election periods. Because, due to the latent nature of inflation variable, the increase in inflation could occur right before or right after the elections. Thus, the studies using inflation variable should pay more attention to the fact that inflation rates could start to increase right after the elections and could immediately commence to decrease due to the effects of contractionary policies. It was not possible for the present study to interpret the data based on this characteristic, since all coefficients related to the inflation variable were statistically insignificant in the study. Finally, all dummy variable results obtained for the inflation variable were statistically insignificant. *As a result, there were no political business cycles on inflation during the elections conducted in Turkey between 1987 and 2012.* The reason for the non-existence of PBC in inflation during the related election periods in Turkey was probably the structure of the inflation process. Very long-standing chronic inflation problem experienced in Turkey during the pre-2001 era could be considered as a factor that limited the efforts by the governments to reduce the inflation in pre and post-election periods, and this result also means that governments could not completely manage or control the economy in Turkey as well. Also, since Turkey faced numerous economic crises during the related period, it is highly possible that this fact could have affected the capability of governments to influence the economy. It could also be argued that both government and the Central Bank had common ultimate objectives as a result of open inflation targeting fixed below 10%, which was initiated in 2006, was effective in the nonexistence of PBC in the inflation series.

According to the TOPBCT that the present study tested, the governments that aim to be reelected increase the money supply (M1) before the elections to create better economic conditions. And after the elections, to repair the deteriorated balance, they would prefer contractionary policies, reducing the money supply. *Thus, an increase in the pre-election period, and a decrease in the post-election period in the money supply are expected according to TOPBCT.* The results on money supply (M1) exhibited in Table 5 show that E87S dummy variable was both statistically and economically significant. This means that there was a decrease in M1 after the 1987 elections. However, it could also be observed that other dummy variables were not statistically significant. *These findings demonstrated that it was not possible to talk about a political business cycle effect in money supply in the related period in Turkey.* The money supply was not increased by the governments before the elections during 1987 – 2012 period in Turkey. As mentioned above, factors such as snap election nature of 1991 elections, poor economic conditions before the 1995, 1999, and 2002 elections, and liberalization of the Central Bank as a result of the new Central Bank Code of 2001, prevented the governments to manipulate monetary policy tools such as M0 and M1 during the 2007 and 2011 elections. *This result negates the argument that Turkish governments used the Central Bank to be reelected. In other words, Central Bank was not actively the reason for the political business cycles.*

Again, according to the TOPBCT hypothesis, to be able to talk about a political business cycle effect in money in circulation (M0) series, it should exhibit an increase in pre-election period and a decrease in post-elections. The governments that are keen to win the elections would implement expansionist policies before the elections, increasing the amount of money in circulation in that period. After the elections, the elected government would implement contractionary policies to correct the impaired balances during the pre-election period, decreasing the amount of money in circulation. The findings depicted in Table 5 about the money in circulation (M0) variable demonstrated that E87S and E91S variables were both statistically and economically significant. This concluded that there were decreases in money in circulation after both 1987 and 1991 elections, consistent with the TOPBCT hypothesis. In other words, governments implemented contractionary monetary policies after the elections during the related period. However, the dummy variables for the other election periods demonstrated that there were no political business cycles in money in circulation both pre-election and post-election periods. *Thus, it would be accurate to argue that there were not powerful political business cycles in money in circulation during the related period in Turkey.* This fact could be explained by the reduction of the interventions on the economy by governments and the establishment of the required legal and institutional framework in the economy. A bill was enacted in May 2001 in Turkey which liberalized the Central Bank significantly. As a result, the behavior of the governments to manipulate the economy via monetary policies to win the elections was limited at a great extent.

## 5. CONCLUSION

According to the political business cycles theories, since Turkish electorate have adaptive expectations (myopic), it is not possible to test Rational Political Business Cycle theories for Turkey. Furthermore, both Traditional and Rational Partisan Political Business Cycle theories are not suitable for Turkey. Because, parties have different ideological dispositions in both partisan theories. However, it is not possible to distinctively differentiate the economic policies of political parties ideologically in Turkey. Furthermore, it is not easy to determine the ideological attributions of economic policies implemented during the coalition government periods in Turkey. Thus, the hypotheses of partisan theories are not suitable for Turkey.

As a result of factors mentioned above, the most suitable theory for Turkish economy, Nordhaus' Traditional Opportunistic Political Business Cycles theory was tested using "Seasonal Box-Jenkins Modeling" for GDP, inflation, money in circulation (M0), and money supply (M1) series. Since studies in Traditional Opportunistic Political Business Cycle literature that conducted macroeconomic analyses utilized these variables, the same were selected for the present study as well. *The findings demonstrated that there were no political business cycles in any of the variables during both pre-election and post-election periods. Thus, Traditional Opportunistic Political Business Cycles theory was not valid for Turkey.* Because, it was observed that in the related period, the increasing or the decreasing cycles in GDP, inflation, money in circulation (M0), and money supply (M1) series that were assumed by the Traditional Opportunistic Business Cycles theories were not significant. *The probable reasons for that were the fact that governments did not implement or had difficulties implementing expansionist policies during the election periods, and contractionary policies during the periods after the elections.* It is possible to implement the results of the present study that there were no political business cycles in the macroeconomic level in Turkey.

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