ISBN: 978-88-96951-09-5

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Searching for Political Business Cycles in Albania

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MONOGRAPHY

"SEARCHING FOR POLITICAL BUSINESS CYCLES IN ALBANIA"

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Instead of a foreword

At first glance, the topic chosen by the authors seems to be outside from the present situation in Albania, since models of Political Business Cycles (PBC) have been developed for market economies with long traditions in democratic elections. The economy and society of Albania, as mentioned by the authors, was centrally directed from 1945 – 1990. Therefore it is questionable if the Phillips Curve as basically important mean for the analysis of PBC could be proven.

However, the authors have given a very convincing introduction into the problem of politically induced cycles. After the description of fundamental theoretical and empirical results in the field of PBC, they try to apply this approach to Albania. The discussion of data available for econometrics tests is followed by estimations and, finally, by the interpretation of the results. The structure of paper is clear, the parts are built on each other it is obvious that the authors have excellent knowledge in this field.

It was interesting to see, that the problems expected at the beginning of research (see above) have been reflected by the results:

- Statistically significant increase of public expenditures before elections, but
- The evidence of PBC could be shown for unemployment but not in inflation.

Due to these results I agree with the authors' interpretation: the main reason might be the Central Bank's

high degree of independence which has been observed during the years since 1997, i.e. in the fact that in Albania economic policy has been identified mainly with monetary policy.From theoretical point of view this leads to a very interesting question: If – in this analysis – the unemployment rate is highly influenced by government's spending, but the inflation rate seems to be independent on this, could or should there be for Albania horizontal (!) long- run Phillips Curve?

Both results, the independence of inflation on spending and the role of spatial conditions reflect changing structure of the Albanian economy. It would be interesting to analyze the same problem some decades later to see the development.

Dr. Dietmar Meyer

Professor of Economics

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"Searching for Political Business Cycles in Albania" combines state-of-the-art econometric techniques with the latest theories on political economy. These theories are in turn very usefully applied to Albania, a country where there are reasons to believe that politics gets involved in economic policy making to a larger extent than in many other countries. The study provides important insights into the tendency toward Political Business Cycles in Albania, in particular when it comes to public expenditure. At the same time, the same pattern could not be found for inflation, interpreted as a testimony to the increasing credibility of the Bank of Albania.

Dr. Ann-Margret Westin

International Monetary Fund

The study provides important empirical findings about public policies in a transition economy. The Albanian monetary authority appears set to do what's best for the economy in the long run, rather than engage in artificial booms to satisfy the incumbent politicians. It gives hope for improvement in the rule of law in a country, where independent institutions often strive to keep to their duties.

Ilir Vika

Central Bank of Albania

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1. Introduction

It is widely believed in Albania as elsewhere, that governments may use the means they possess, including economic policy instruments, to enhance the chances of reelection. The government may engage in expansionary economic policies prior to elections, increasing output and decreasing unemployment, in order to please voters, creating this way Political Business Cycles (PBC). No research has been conducted previously on PBC in Albania, to best of our knowledge.

The objective of this study is to search for the existence of PBC in Albania. The testing for a PBC is done by analyzing the economic policy instrument and macroeconomic outcomes. We assume that the government may follow expansionary fiscal and monetary policy to reduce unemployment and increase output before/during elections, and as a result of this expansionary economic policy, the inflation may increase during/after elections.

We analyzed data for the variables abovementioned at monthly or quarterly level, between January, 1998 and March, 2007. The period prior to 1998 was not taken into consideration because of the lack of reliable data and because the economic, political and institutional framework followed a chaotic and abnormal pattern between early 1990' and 1997. The 1996 general (parliamentary) elections were characterized by fraud while the early general 1997 elections followed the massive social, economic and political unrest (Gërxhani and Schram, 2004).

There were two parliamentary elections taking place during the analyzed period, namely the 24th of June 2001 and 3rd of July 2005 and three local elections, namely the 1st of October

2000, 12th of October 2003 and 18th of February 2007. The local elections have also been included in this study because they were seen as a test for the participating political forces and as a confidence "referendum" for the central government.

It is essential to analyze both policy instruments and macroeconomic outcomes, as it is possible having obvious attempts by the incumbent to manipulate the economy through significantly altering fiscal and monetary policy instruments, but without succeeding to significantly affect the intended macroeconomic outcomes (i.e. output, unemployment, inflation etc.) due to various reasons. Business Cycles may occur and coincide in election timing, however not necessarily caused by opportunistic economic policies, rather than other factors, such as expectations (Suzuki, 1992). In addition, there may be other cyclical phenomena that may offset the effect of policy instruments on economic outcomes. Therefore, we analyzed in this research work both types of economic instruments (fiscal and monetary) and related macroeconomic outcomes.

2. Overview of the Albanian Economy

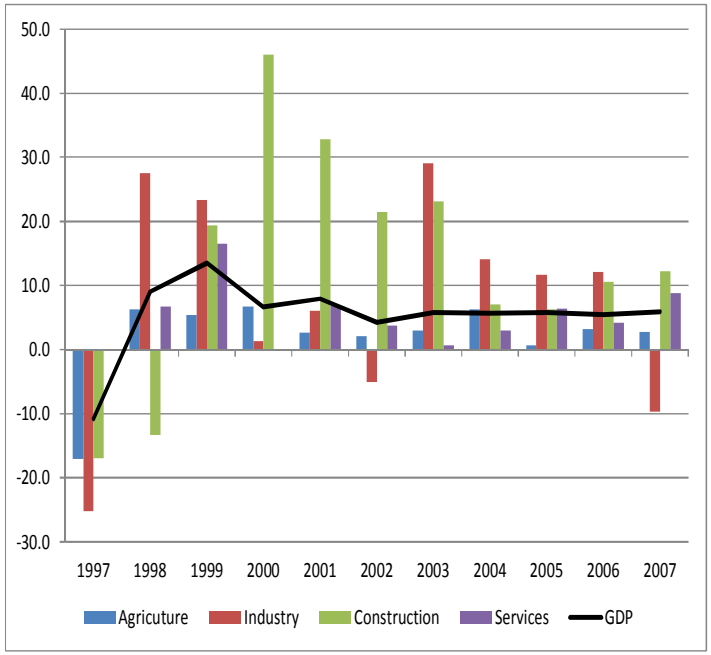
Before the Second World War Albania was an undeveloped, rural based society and after the war, it became part of the communist bloc. Private property and enterprises were nationalized. The economy became fully centralized and controlled by the single party-state system.

The country embraced democracy and market economy in early 1990s. Despite economic reforms and significant progress during the transition, Albania still remains one of the poorest countries in Europe largely due to the past communist system which left the country in a poor state. Albania still remains in

large a rural based society with almost half of the population living in rural areas and engaged in agriculture.

During the last two decades of economic and social transition, Albanian economy has undergone significant structural changes. The contribution of agriculture sector diminished significantly from around 40 percent of the GDP in the beginning of '90s to about 17 percent in 2007, shifting to construction sector, which increased to about 13 percent of the GDP from 4 percent, and services increasing to around 52 percent of the GDP from 45 percent. The share of industry has remained more or less averaging at 8.5 percent of the GDP (Figure 1).

Figure 1: Real growth of GDP by Economic Activities

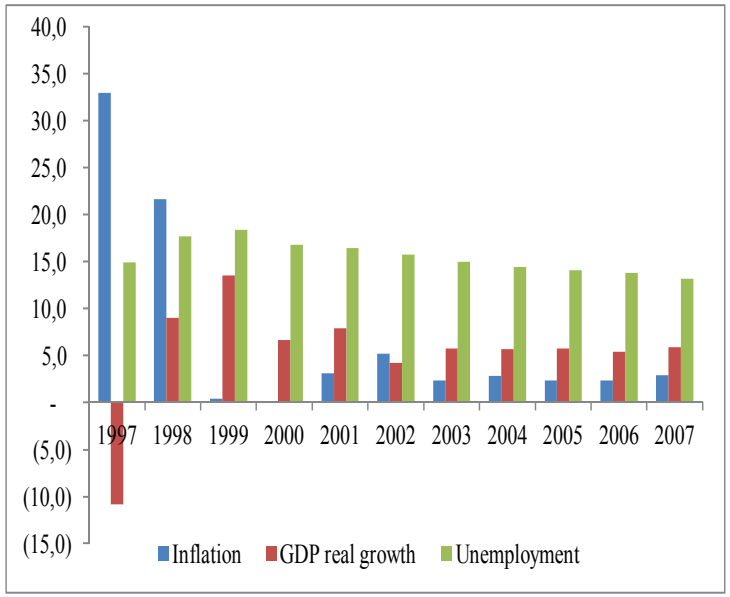


Source: INSTAT

Starting from a low base and thanks to the structural

changes, real GDP grew at a high pace throughout the transition. After the collapse of the pyramid schemes and the social, economic and political unrest in 1997, the economy marked a tremendous setback. However, the Albanian economy underwent fast recovery in late 1990' and throughout 2000. Growth was around 7 percent from 1998 till 2007 (Figure 2). In the years following 1997 crises, Albania was characterized by macroeconomic stability and relatively low inflation.

Figure 2: Unemployment, inflation and real GDP growth



Source: INSTAT

3. Political Business Cycles Theoretical Background

3.1. Nordhaus' Opportunistic Political Business Cycles Theory

3.1.1 Basis of Nordhaus' Opportunistic Political Business Cycles Theory

"It is pretty generally accepted that the popularity of political parties at election time is related to business conditions" (Tibbitts, 1931). It is obvious that the economic performance of a government determines to a large extent whether it will be reelected. Therefore, the economic factors influence political outcomes. There has been plenty of research and articles aiming at understanding and explaining the relation between economy and politics and the way the earlier affects the latter. Tibbitts (1931), states: "... political opinion is guided by the belief that elections occurring in good business years result in a demonstration of confidence in the party in power, while elections occurring in depression years tend to turn the majority party out of office". In his research of the correlation between the votes given to the party in power in different federal congressional districts and selected phases of business cycles, Tibbitts concluded that the party in power will receive more votes in elections following business expansion than in elections during business depression (Tibbitts, 1931). Tibbitts does not specify whether the "good business years" or the "depression years" affect the opinion and decision of the voters when they are only a result of respectively good and bad government performance. However, it is clear that an improved economic situation (whether it is a result of professional leadership, or just a result of other factors) is

reflected into electoral support for the incumbent, and the other way around, economic slowdown or crises (whether it is a result of bad governance, or a result of other causes, such as whether conditions or international factors), may result in a change of government in election years. The relation between economy and politics is wider and more complicated than just described by Tibbitts. There is a wide belief in Albania, and elsewhere, that politicians would use all means to remain into power. In this context, many would also believe that the incumbent would try to manipulate the economy (if possible) before elections, aiming at staying in power. However, there has been no proof (no previous research and publications) if there is (attempted) manipulation of the economy by the incumbent in Albania, and if yes, to what extend and by which mechanisms it is realized.

The phenomenon of (attempted) manipulation of the economy by the incumbent for electoral purpose is known as the Political Business Cycle (PBC), introduced by William Nordhaus in his seminal paper "The Political Business Cycle" (Nordhaus, 1975). The Nordhaus model has opened the way for many following empirical and theoretical studies and publications and it remains a point of reference. The PBC model developed by Nordhaus (1975) suggests that the incumbent attempts to manipulate the economy through the economic policies and instruments it possesses, in order to be reelected. According to Nordhaus theory, the incumbent will always attempt to generate PBC for political reasons, for the goal of winning the elections. Therefore, his model is based on rational assumptions, and supports an opportunistic approach.

The PBC model is based on several assumptions related to voters. The voters make their decisions either based on historical information (Retrospective Voting), or on their expectations of the performance of the competing parties (Rational Expectations or Prospective Voting). Prospective Voting is related to the discounted future voter utility,

whereas Retrospective Voting implies that every election is a referendum for the incumbent based on economic performance (Hibbs, 2005). According to the Retrospective Voting approach, voters tend to reelect the incumbent if there has been a good economic performance, and vice-versa. Retrospective Voting is used as a concept by Tibbitts (1931) too, and served as a basis for the Opportunistic Political Business Cycles of Nordhaus which is explained later in more details. Nordhaus focuses his empirical research on democratic countries where elections are held regularly. In his work he introduces a theoretical model based on the following assumptions:

- The economy can be represented by the Phillips Curve. The Nordhaus PBC model is based on the Phillips Curve which implies a trade-off between inflation and unemployment (to be explained later in more details). Nordhaus uses the expectations-augmented version of the Phillips Curve.

- Voters are backward-looking (retrospective) with adaptive expectations and myopic. The model assumes that voters base their decisions on the (perceived) economic performance of the incumbent, based on past and most recent values of economic outcomes, specially focusing on unemployment and inflation.

- Politicians are opportunistic. The main goal of the political parties is to be (re) elected, and therefore, the incumbent tries to manipulate the economy in order to be reelected.

- Politicians control a policy instrument. In order to manipulate the economy for electoral purposes, the incumbent controls and uses an economic instrument (fiscal or monetary policy instrument) through which may be achieved the desired outcome (lower unemployment through higher aggregate demand,

fueled by fiscal and/or monetary expansion).

- The timing of elections is exogenously fixed. Nordhaus model is based on exogenously determined election timing.

The implications of the early Nordhaus model are as follow:

- The incumbent stimulates economic growth before the elections trying to make use of the short run Philips Curve.
- Inflation increases during and/or after election because of increasing aggregate demand and economic expansion.
- The aggregate demand decreases after elections which in turn contracts the economy and reduces inflation.

3.1.2 Philips Curve

The Philips Curve was introduced in 1958 by the economist Alban William Phillips (Phillips, 1958). His assumptions and research results supported the idea that there is a negative correlation between the rate of inflation and the rate of unemployment, which implied that it could be targeted and achieved a certain rate of unemployment by accepting a corresponding rate of inflation. The government could expand the fiscal policy, resulting in higher aggregate demand and production, and consequently leading to lower unemployment but inevitably higher inflation as well.

However, this relation seems to hold only in the short term. Phelps (1967) stated that the negative relation between unemployment and inflation exists only in the short run while in the long run, the market would adjust and the level

of unemployment would reach again the level before the inflationary expansionary policy was implemented.

In general, the wages are more rigid (less flexible) than the prices of the goods and services in the short run. Therefore, an increase of the level of prices (inflation), given unchanged nominal wages (short run), results into lower real wages, in other words cheaper labor and lower costs, providing incentives for the companies to hire more employees and produce more. In the longer run, as the wages are adjusted to the level of inflation; the parameters, including the level of unemployment, move back to the initial levels.

The economic stagnation that took place in the 1970' put into serious question the Phillips curve approach, since there was a simultaneous increase of both unemployment and inflation. Although the Phillips Curve often holds on the short term horizon (demand driven inflation), it is not always the case (not applicable for supply driven inflation).

3.1.3 Endogenous versus Exogenous Setting of Election Dates

Nordhaus (1975) does not make a distinction between endogenous and exogenous election timing. Nevertheless, the way the election date is set may have a decisive effect on the predictability of the model.

In some countries, the election timing is imposed constitutionally (i.e. in US, Presidential Elections are held every 4 years). But this is not the case for many consolidated and new democracies.

According to Lachler (1982), if the elections timing is not set for a fixed date by the constitution, the incumbent can call early elections for political, economic and/or social reasons.

In this context, the incumbent has information advantage, by knowing alone when elections could take place. The government may decide to call for early elections during high economic performance (which should not necessarily be a result of good governance), and thereby benefit (i.e. win a larger majority).

As claimed by Ito and Park (1988) "the incumbent does not manipulate the economy, but waits for positive non-government sector supply shocks (high growth, low inflation) to call an election".

In the case of Albania, which is a parliamentary republic, the constitution does not set a fix date of parliamentary elections. However it imposes elections every four years and allows the incumbent to call for early elections. During Albania's short history of its fragile democracy and market economy, there has been only one case that early parliamentary elections were called (1997 crisis year).

The local elections of February 2007, however, are an interesting example. These elections were seen as very important by both incumbent and opposition parties. They were considered as a kind of referendum for the government which was elected in 2005. Although they should have been held at the end of 2006, the opposition pushed for a delay within constitutional limits, so that the election timing could converge with the electricity shortages[1], caused by both dry weather and shut down of Bulgarian reactors (opposition presented other reasons to push for this delay). The electricity shortages, caused by external major factors, resulted in dissatisfactions of households, which in some areas lacked electricity for more than 6 hours a day, higher costs for businesses, and in turn, lower economic performance. The incumbent lost local elections in larger cities. It is very hard to show statistically to what extent the elections result was

1 http://www.evropaelire.org/content/article/977821.html: Last accessed: 5 April 2012

affected by this reaction chain. However, there are good reasons to assume that the electricity crisis and its impact did influence the voting decisions.

3.2 Hibbs' Partisan Political Business Cycles Theory

Another major contribution in the PBC theory, based on empirical studies, was given by Douglas A. Hibbs, who came up with the Partisan PBC theory. The Partisan PBC theory substantially differs from the Opportunistic PBC theory of Nordhaus, because it is based upon ideological approach rather than just an opportunistic approach focused only on reelections.

Hibbs (1977) assumes that in general, political parties in most industrialized countries are distinguished to a large extent by class, income and related socioeconomic characteristics. According to him, left wing, labor oriented governments pursue different policies from right wing governments, because in general they represent different "income and occupational status groups" with different preferences towards macroeconomic variables, including unemployment and inflation. Hibbs (1977) states: "… the objective economic interests as well as the subjective preferences of lower income and occupational status groups are best served by a relatively low unemployment-high inflation macroeconomic configuration, whereas a comparatively high unemployment-low inflation configuration is compatible with the interests and preferences of upper income and occupational status groups".

In his study, Hibbs (1977) examined postwar patterns in macroeconomic policies and outcomes of left wings and right wings governments in 12 western democracies which revealed low unemployment - high inflation macroeconomic configuration in countries led by left wing governments and high unemployment - low inflation configuration in countries

led by right wing governments. In addition, analyses of postwar data for US and UK showed a higher unemployment rate during Republican and Conservative administrations than during Democratic and Labor administrations. His conclusion was that governments follow macroeconomic policies to a large extent in line with the economic interests and preferences of their main political class supporters (voters).

3.3 A Different View on PBC

Suzuki (1992) takes a very different approach and view on explaining PBC for the case of USA. Unlike most other PBC theories and studies, Suzuki focuses primarily on people's subjective economic expectations, rather than only macroeconomic variables. The research was based on survey data. There was evidence that financial and unemployment expectations, and the consumer sentiment, contained four years cycles coinciding with presidential elections calendar. Therefore, expectations cycles exist independently of economic outcome cycles.

Consequently, we may assume that PBCs may be generated not only by manipulative use of economic policies by incumbents, but to some extent by factors other than policy manipulation, such as expectations cycles. Part of the expectations cycles may be attributed to voters' pre-election psychology, which may be affected by media and other factors.

3.4. Summary of main PBC theories and models:

Alternative Approaches to the Political Business Cycle

In his paper "Alternative Approaches to the Political Business Cycle", Nordhaus (1989) makes a summary of his and others contributions for PBC theory and models. Five groups of questions are essential for PBC models:

- Voters. Which are the main factors that affect their decisions? To what extend are they affected by economic situation? Are they rational and well informed? Are they retrospective or prospective oriented?
- Parties. What motivates them? Do they have opportunistic or ideological orientation?
- Economic structure. Can the incumbent manipulate the economy and what (economic) instruments may it use?
- Shocks. What nature are the shocks to the economy and politics? Are they external (weather) or internal?
- Competence. Are the parties professional and competent?

Many or most (PBC) economic models assume that voters possess only limited information and are retrospective

(backward-looking).

Based on the answers to those questions, there may be developed 5 models of PBC:

Model 1. Opportunistic parties – irrational voters (opportunistic PBC). This model was discussed in the previous sections. Voters are not rational; they are retrospective basing their decisions on their perceived (economic) performance of the incumbent. The incumbent is opportunistic, aiming at maximizing the votes through economic policies and instruments they possess. The result is lower unemployment in the short run, associated with higher inflation simultaneously and/or time lagged.

Model 2. Ideological parties – irrational voters (ideological or partisan PBC). This model, developed by Hibbs, has also been explained earlier in this study. In this model the parties have ideological orientation and pursue economic policies in line with the ideological values/objective, whereas the voters choose the parties that best represent their interests.

Model 3. Ultra - rational voters. Voters are assumed to have the same information as the parties and are prospective oriented, and therefore cannot be manipulated by the incumbent. Therefore, the incumbent would not try to manipulate the economy, and consequently there would be no PBC. This model obviously differs substantially from the first two models, mainly because it predicts no PBC.

Model 4. External shocks to the political system. The economy and society may be affected by external shocks, such as weather or war. Ultra rational voters would understand that the incumbent is not responsible for the situation, and therefore would not change their voting decisions, whereas poorly informed voters might blame the incumbent for the shock, and vote against it.

Model 5. Differences in competence. In this model, voters are more influenced by their perceived competence rather than the ideology of the party. By competence is meant the ability of the government to manage the economy efficiently.

4. Recent Empirical Research on PBC

4.1 Political Cycles in OECD Economies during 1960'-1980'

One of the most interesting PBC research was conducted by Alesina and Roubini (1992). They analyze the data for three recent decades on 18 OECD countries investigating the relation between main macroeconomic variables and elections results. According to this study, there was no evidence of Opportunistic PBC of the Nordhaus type, neither for output nor for unemployment, except for two countries (Germany and New Zealand). However, the data showed electoral cycle on the inflation rate. The empirical findings were in line with the rational partisan theory, especially in countries with bi-partisan system, and less relevant in countries run by broad coalitions and unstable governments.

The main pattern characterizing most left wing governments is an initial expansion of the economy after the election associated with higher inflation, followed later by adjustment of the inflation expectations bringing back the economy to its natural rate of growth. On the other hand, the right wing governments tend to reduce the inflation after elections, resulting into recessions or economic slowdown. Similarly, in

the second half of the tenure the economy moves back to its natural rate of growth while the inflation remains low.

Also Krause and Méndez (2004), analyzing the data of 24 countries, found evidence which suggested higher relative preference towards stabilizing inflation from right wing governments as compared to the left wing governments.

There may be two explanations for the limited empirical support for the Nordhaus Opportunistic PBC on economy growth and unemployment. First of all, "rational" voters limit such approach, and therefore the policymakers, being aware of this fact, do not try to generate Opportunistic PBC policies. Second, it is not an easy task to generate expansions well calculated and timed for elections (Alesina and Roubini, 1992).

4.2 The Political Business Cycles of EU Accession Countries

In their study on PBC of EU accession countries, Halleberg and Souza (2000) found that the incumbent in these countries show patterns of action similar to their OECD counterparts. They found evidence of economic manipulation before elections in these countries. The policy instruments used for the economic manipulation are chosen according to the type of the exchange rate regime and the institutional framework in each country. In countries with a flexible exchange rate, the governments choose monetary expansion, whereas in countries with a fixed exchange rate, the governments rely on fiscal expansion. The level of independence of monetary institutions is related to such cycles. In countries with flexible exchange rates and with independent monetary institutions there is a reduced risk for Political Monetary Cycles, while in countries with flexible exchange rates and dependent central banks there is a higher risk for the occurrence of Political Monetary Cycles, naturally associated with higher inflation.

Evidence of PBC in EU Accession Countries is found in the higher deficits in pre-electoral periods; however, the scale of their cycles are comparable to those of EU countries before the Treaty of Maastricht (Hallerberg and Souza, 2000).

4.3 Political Business Cycles in less developed and democratic countries

Treisman and Gimpelson (2001) made research on the existence of PBC in Russia, finding evidence in support of it. It is common before elections in Russia that real minimum wages, pension's transfers, expenditures on health and education tend to increase. In the case of 1996 presidential elections in Russia, increased spending was financed through increased government borrowing during the presidential electoral campaign. Increased aggregate demand was naturally followed by inflation in the post-election months. The massive issuing of treasury bonds in 1996 led to a spike in debt service payments after elections. It was difficult to measure the impact of economic factors on the number of votes at national level. However, regarding regional elections there was evidence that in regions with higher or increased public spending the incumbent achieved better electoral results (Treisman and Gimpelson, 2001).

In his study, Asutay (2004) investigates the existence of PBC in Turkey by modeling fiscal and monetary policy instruments within traditional opportunistic Nordhaus theoretic, assuming exogenously determined election timing. The econometric time-series analysis covering the period 1980-2002 provided clear evidence for the presence of PBC in Turkey. The incumbent in Turkey used fiscal and monetary policy instruments to create PBC in order to improve the chances of being reelected.

5. Searching for PBC in Albania

5.1 Methodology

5.1.1. Theoretic modeling

We assume an Opportunistic Political Business Cycle (OPBC) model for Albania. Albanian post-communism political and governmental history has been characterized by opportunism. Socialist Party (SP) often embraced typical right wing reforms - SP continued to follow the same pattern of neoliberal economic reforms and the same approach towards privatization as Democratic Party (DP) (Kajsiu, 2008).

As we already explained in the previous chapter, Nordhaus (1975) claims that the opportunistic governments attempt to manipulate the economy by using the economic instruments they control (i.e. fiscal or monetary policy), in order to achieve macroeconomic outcomes (i.e. higher output and lower unemployment) that are attractive for the voters, so they enhance their chances of being reelected. Hence, incumbents try to engineer growth prior to elections by expanding some instruments they control and contract them after the elections, consequently causing artificial business cycles, which can be inefficient for the economy.

Inspired by this theory, we seek to statistically test if there are PBCs in Albania caused by opportunistic behavior of incumbents. We analyze if there is fiscal expansion (increase

of various types of public expenditures) and monetary expansion (increase of monetary aggregates M1 and M2) before elections as well as macroeconomic outcomes (GDP, unemployment and inflation).

Assumptions of the Nordhaus Theoretic

The assumptions underlying Nordhaus "Political Business Cycle" theory can be characterized as following:

i. The economy can be described by an expectations-augmented Phillips Curve

It is generally agreed by economists that there is often a trade-off between the level of utilization and unemployment in the economy and the rate of inflation. That is mainly the case in the short-run which makes it a reasonable assumption for short-term time horizon Nordhaus model.

Formally the economic system upon which Nordhaus (1975) builds his opportunistic political cycle model can be expressed as follows:

$$\begin{cases} \pi_w = f_0(u) + \lambda\upsilon \\ \pi = \pi_w - a \\ \dfrac{d\upsilon}{dt} = \gamma(\pi - \upsilon) \end{cases}$$

where

π_w is the change rate of nominal wages,

u is the rate of unemployment,

υ is the rate of expected inflation,

π is the actual inflation rate, and

a is the rate of productivity growth.

Solving this system and making it dynamic over time we get a more simplified macroeconomic system.

$$\begin{cases} \pi_t = f(u_t) + \lambda \upsilon_t \\ \dot{\upsilon} = \gamma(\pi_t - \upsilon_t) \end{cases}$$

where $f(u) = f_0(u) - a$

Note: there is no loss of generality in considering this simpler system.

ii. Inflation expectations of the voters are adaptive

$$\upsilon_t = \pi_{t-1} + \lambda(\upsilon_{t-1} - \pi_{t-1}) \qquad 0 < \lambda < 1$$

Nordhaus (1975) assumes that voter expectations on inflation are 'adaptive' based on past deviations of expected and actual inflation rate. As Alesina et al (1999) point out an important feature in this assumption is that voters' expectations depend only on past observations of inflation. They do not take into account all the available information; in particular, they do not depend on the public expectations of the policymakers future policies. For this reason, voter expectations on inflation are not rational (Alesina at al, 1999). This underlying assumption seems an appropriate description for "new" free market economies/countries, as in the case of Albania.

iii. Voters are retrospective and myopic

The model assumes that voters judge the incumbent by evaluating positively low unemployment and low inflation during his term. Nordhaus (1975) introduces the possibility that voters have a decaying "memory" of past events. Voters heavily discount the past and therefore on Election Day, the memory of recent events looms larger than that of old (bad) times. In addition, Nordhaus PBC model emphasizes that voters are "myopic" in the sense that they take into considerations only those economic outcomes that have taken place during the last tenure the incumbent has been in power. Voters do not assess more historic evidence (do not make comparisons with previous government policies / outcomes) or any expectations about incumbent performance in the future, if it was going to remain in power. This assumption is also generally a feature of "new" democracies, as in the case of Albania.

iv. Politicians are identical. They are opportunistic in the sense that they prefer to be in office rather than out of office.

The model assumes that the only goal of every incumbent in each term is to remain in power. They make their economic policy decisions to accomplish this goal. All incumbents aim to maximize the same objective function (the likelihood of reelection).

Depending on the specifications of the model employed, incumbents may maximize several target variables. Generally and most realistically is assumed that incumbents aim to maximize the probability of being reelected (Alesina et al, 1999). Among other things, the probability of being reelected is a function of the economic performance while the incumbent was in office. That can be formally written as:

$$P_t = P(u_t, \pi_t, u_{t-i}, \pi_{t-i}, ..., Z); \quad i = 1, 2, ..., n$$

This equation formally specifies the probability P that the incumbent will be reelected in the elections held at period t (in the end of his tenure), as a function of unemployment and inflation rate resulted in the past n different periods (i.e. n years), where n is the number of periods (i.e. years) the

incumbent's last tenure. As argued above, voters attribute declining weights over time to economic performance of incumbent, so that past economic outcomes have less importance on their voting decisions than the recent ones. This incumbent's maximization function underlines that incumbent faces some uncertainly about electoral outcome, given certain economic conditions (i.e. given certain values of unemployment and inflation rate during incumbent tenure) as modeled by Z, which is a vector of noneconomic variables affecting voters decisions. Therefore, given certain policies chosen by the incumbent as the optimal set of economic policies which maximize their probability to be reelected, this maximization function still allows for the possibility of an incumbent loss. Introduction in the theoretical model of "the unknown factor" (uncertainty of incumbent about the final electoral outcome) constitutes a reasonable representation of reality, as it is almost always the case that at least either the economy (i.e. the links between policy choices and economic outcomes) or the polity (i.e. the reaction of electorate to economic outcomes) bear considerable "unknowns" in reality. Nevertheless, despite these uncertainties surrounding final electoral outcomes, the opportunistic PBC model points out that all the incumbents do is to maximize the probability of being reelected represented by the equation above. During its tenure, the incumbent aims to choose a set of economic policies (i.e. fiscal and /or monetary policy) that would bring about the combination of economic outcomes (i.e. unemployment and inflation rate) in each period of the tenure (where the outcomes in the recent years have a higher importance that the past ones) which maximize the objective function, given the constrains of how the economy works (i.e. the trade-off between different economic outcomes), represented by an expectations-augmented Philips curve as argued above.

v. Incumbents control a policy instrument

To be able to manipulate the economy for electoral purposes and achieve the combination of economic

outcomes which maximizes their objective functions, the model realistically assumes that governments control some policy instruments, such as fiscal and/or monetary policies, which can deterministically alter aggregate demand and by implication have a direct impact on macroeconomic outcomes (i.e. unemployment and inflation rate) in the short run.

vi. The timing of elections is exogenously fixed

Nordhaus opportunistic PBC model is based on exogenously determined election timing, but as we have already argued in the previous chapter, this may not always be the case.

Under these assumptions the implications of the opportunistic PBC model are as following:

- All governments follow the same policy
- The incumbent stimulates economic growth before the elections. Economic growth will be higher than normal (potential growth) before each election and unemployment below normal (natural) rate of unemployment. While inflation will rise only moderately before elections
- A substantial increase in inflation will take place immediately after elections, which is soon reduced, however, with an economic downturn or recession.
- This politically created economic (business) cycle is obviously suboptimal as economic volatility takes place without any gain in efficiency.
- In addition, this opportunistic PBC could also raise average inflation rate without any gains in average growth or unemployment.

5.1.2 Variables and Data specifications

We investigated for opportunistic behavior of incumbent in Albania, if it manipulates instruments of economic policy, creating PBC. We statistically tested for the presence of election related cycles in fiscal and monetary policy instruments, as well as in the related main economic outcomes: unemployment, output and inflation.

Based on the Opportunistic PBC theory we expect the governments to follow expansionary fiscal and monetary policy to reduce unemployment and increase output before/ during elections. As a result of these expansionary economic policies, the inflation may increase during/after elections, which constrains the governments to engage in contracting economic policies after elections.

The fiscal policy related set of instruments (variables) that we analyzed in this study are: *(i)* government expenditures on compensation of employers; *(ii)* expenditures on unemployment insurance benefits; *(iii)* expenditures on social assistance; *(iv)* and expenditures on social insurance outlays, which are all classified as current expenditures. We also analyzed *(v)* expenditures on public investments, which are classified as capital expenditures.

The monetary policy related variables that we analyzed are: *(i)* monetary aggregate M1; *(ii)* and monetary aggregate M2.

We analyzed also the following macroeconomic outcomes: *(i)* Gross Domestic Product (GDP); *(ii)* unemployment; and *(iii)* inflation as measured by Consumer Price Index (CPI).

The data for fiscal and monetary policy variables and inflation subject to our analysis are monthly time series beginning from January 1998 to March 2007, including 111

observations. While the data on GDP and Unemployment have quarterly frequency comprising 37 observations. The data were collected from the Ministry of Finance, Bank of Albania (central bank) and Albanian Institute of Statistics (INSTAT).

The period before 1998 was not considered primary for two reasons. First, there is a lack of reliable data. Second, elections, economic, political and institutional framework followed a chaotic and abnormal pattern during those years. Furthermore the inclusion of the extreme year 1997, might affect the nature of time series analyses.

The analyzed period covered two parliamentary elections, in June 24, 2001 and July 3, 2005 and three local elections, respectively in October 2000, October 2003 and February 2007. The local elections were also considered relevant in our analysis as generally are they seen as a test for the participating political forces, as mentioned in the introduction.

5.1.3. Specifications of empirical tests

Based on the literature of empirical works on this field, we used the Intervention Analysis (Box and Tiao, 1975) to test our hypothesis on this study. Many other well-known researchers on the field such as McCallum (1978), Hibbs (1987), Alesina and Sachs (1988), Alesina and Roubini (1992) have used this econometrical approach in empirical studies of this kind. The rationale for using this econometrical setting is that the political manipulation of fiscal and monetary instruments can be considered as an intervention in the variable of interest, which yields cyclical shifts in its inherent pattern. In this regard, Intervention Analysis approach makes possible to test whether elections can render additional explanations in the time process of relevant fiscal and monetary policy instruments and macroeconomic outcomes. As stated by Box and Tiao, the fundamental of Intervention Analysis is “Given a

known intervention, should be investigated if there is evidence of change in the series of the kind expected, and, if so, what can be said of the nature and magnitude of the change" (Box and Tiao, 1975). Or as McCleary and Hay (1980), state using statistical terminology: "A test of the null hypothesis that a postulated event caused a change in the social processes measured as a time-series".

We tested the hypothesis that significant changes due to elections occur in the analyzed fiscal and monetary instruments as well as macroeconomic outcomes, as implied by Nordhaus theory. Basically the test proceeds by subjecting the monthly (or quarterly) variables of interest to a Box-Tiao (1975) intervention analysis. The latter consists in modeling a time series as a sum of an autoregressive-moving average (ARMA) process and an intervention term; here the intervention term models the time distance to the election day and aims to capture the elections impact on the variable of interest. Hibbs (1977) offers a good introduction to Box-Tiao Intervention Analysis technique.

A simple formal representation of the intervention analysis is:

$$z_t = \mu + I_t + N_t$$

where μ denotes the mean level,

the term I_t denotes the intervention effect

and N_t represents the natural pattern of the variable of interest modeled by an appropriate ARMA(p,q) model:

$$N_t = \phi_1 N_{t-1} + \ldots + \phi_p N_{t-p} + E_t - \theta_1 E_{t-1} + \ldots + \theta_p E_{t-q}$$

where E_t denotes an independent error sequence.

The simplest term, which corresponds to the t-test in a non-time series setting, is the intervention term I_t:

$$I_t = \omega_0 P_t^{(T)}$$

where $P_t^{(T)}$ is a pulse function:

$$P_t^{(T)} = \begin{cases} 0 & t \neq T \\ 1 & t = T \end{cases}$$

The parameter ω_0 measures the change caused by the intervention and is estimated along with the ARMA model components. The estimation procedure provides an estimate of ω_0 and a confidence interval for the parameter.

In this study, the dependent variable of interest z_t represents the fiscal or monetary instrument or the macro-economic outcome (variable) that is assumed to be affected by incumbents because of elections.

The intervention variable I_t is a binary variable (dummy variable) indicating a specific time point prior to election, as defined below. The noise component of each specific dependent variable of interest, N_t, is modeled by an appropriate ARIMA (p,d,q) tentatively found based on Box and Jenkins (1970) Methodology, as explained latter.

We defined six political variables (I_t) to capture the impact of the election on fiscal and monetary policy instruments and also on macroeconomic outcomes. In line with Nordhaus theoretic, the first four political variables aim to model and test for the alleged manipulation of the economic policy instruments by the opportunistic incumbent before elections. The fifth and sixth political variables aim to test for the expected contraction of these variables after elections after

elections.

Note: For convenience we denoted the pulse intervention term $P_t^{(T)}$ with PD, standing for Political Dummy.

The six employed Political Dummy variables are defined as following:

$$PD\,1 = \begin{cases} 1 - for\ the\ three\ months\ \ prior\ to\ election \\ 0 - otherwise \end{cases}$$

$$PD\,2 = \begin{cases} 1 - for\ the\ six\ months\ \ prior\ to\ election \\ 0 - otherwise \end{cases}$$

$$PD\,3 = \begin{cases} 1 - for\ the\ nine\ months\ \ prior\ to\ election \\ 0 - otherwise \end{cases}$$

$$PD\,4 = \begin{cases} 1 - for\ the\ twelve\ months\ \ prior\ to\ election \\ 0 - otherwise \end{cases}$$

$$PD\,5 = \begin{cases} 1 - for\ the\ three\ months\ after\ the\ election \\ 0 - otherwise \end{cases}$$

$$PD\,6 = \begin{cases} 1 - for\ the\ six\ months\ after\ the\ election \\ 0 - otherwise \end{cases}$$

Note: We have shown here the definition of PD variables in monthly terms as most variables of interest we have analyzed consist of monthly time-series. We made the appropriate modifications to PD variables in the case of quarterly dependent variables. We tested separately for the effects that each kind of elections, parliamentary and local, might have on every single variable of interest.

In line with Nordhaus opportunistic theory, our expectation was that the pre-election dummy variables, PD1, PD2, PD3, and PD4, should have positive signs implying an expansion of

economic policy instruments and macroeconomic outcomes before elections. On the other hand, post-election variables PD5 and PD6 are expected to have a negative sign, implying contraction of the economy in the post-election period. While in the case of inflation, Nordhaus theory implies that post-election dummy variables should have positive signs as a result of engaging in expansionary economic policies before elections.

5.1.4. Estimation of the empirical model

Recent developments in time series econometrics have yielded significant implications for econometrics application. A crucial point of these developments has been the robustness of Ordinary Least Square (OLS) estimators. Due to econometric time series properties of social processes the OLS estimates may yield spurious regression (Granger and Newbold, 1974). As shown by Price (1998), most macroeconomic time series follow a long-run trend. One explanation for such an occurrence can be the trend and a changing variance inherent in these time series processes. Hence, the implication for this would be the invalidity of the significance test applied on OLS estimates. The existence of a time trend and a changing variance in a time series process is widely known as non-stationarity. If a time series is modeled by an autoregressive moving average model (ARMA), as required by the Intervention Analysis technique, such a time series must first be transformed into a stationary one (Box and Jenkins, 1970).

We have conducted a two stages-process to estimate the empirical models for each of the variables subject to our analysis. First we find and estimate an appropriate ARMA model for each of the depended variables time series and then we individually implement the political dummy variables and re-estimate the entire statistical model. For each of the variables of interest we estimate six models referring to

parliamentary elections and six to local elections. Each of the models has the same ARMA(p,q) structure and embodies only one of the PD_i variables, (i=1,2,…,6). PD variables aim to capture the elections' effects on fiscal and monetary policy instruments and on the macroeconomic outcomes.

In the first stage, we precisely followed the Box-Jenkins (BJ) Methodology (1970). First, we removed the seasonal patterns when they were present in any of the time series by making the appropriate seasonal adjustments. Next, we carefully investigated on the stationary of each specific time series. In case a time series appeared to be non-stationary, the appropriate transformations were made. Whenever non-stationarity was detected in a time series, we performed first order difference transformation on the original series (i.e. there was no case of non-stationary time series around a deterministic trend that would have required transformation by detrending). Augmented Dickey Fulles test and other formal test were employed to formally test on the stationary of each time series. Next we identifed the "best" ARMA (p,q) benchmark model for each of the time-series variables. Following the Box-Jenkins methodology (1970), we conducted an iterative process of identification, estimation and diagnostic checking of several ARMA models until we found the most plausible one, deemed as the "best" statistical model for each time series' variables of interest.

In the second stage we individually incorporated each of the political dummy variables in the ARMA model tentatively found in the first stage and re-estimated the whole model with an additional incorporated PDi. The political dummy variables aim to capture the impact of elections on the variable of interest. Thus, the impact of elections is considered to be an intervention or shock to the value of dependent variable, forcing it to shift during the intervention or shock periods (i.e. during election). The statistical significance of the political dummy variables is tested by t-test. If the coefficient of one or some political dummy variables are statistically significant and

have the expected sign, it can be inferred that there is political manipulation of the analyzed economic policy instruments, in line with opportunistic Political Business Cycles theory (Nordhaus 1975).

5.2. Empirical Results of PBC Analyses in Albania

5.2.1. Analyses of Fiscal Policy Instruments

We analyzed monthly public expenditures by category from January 1998 to March 2007. Based on the statistical methodology as explained in the previous section, we investigated the significance and sign of political dummy variables (PDi) to explain any change in different items of public expenditures during parliamentary and local elections. Our statistical analysis covers the effect of the 2001 and 2005 parliamentary elections, and 2000, 2003, 2007 local elections.

Public investment expenditure in parliamentary (general) and local elections

We detected an obvious seasonal pattern in public investment time series. We seasonally adjusted this time series and we checked for its stationarity. The seasonally adjusted time series of public investments resulted stationary by all formal tests or other judgmental techniques employed (i.e. Augmented Dickey-Fuller test, ACF, PACF). The most appropriate ARMA model we tentatively found for this time series was ARMA(0,1) (or a pure moving average with a lag one, MA(1)). Then we introduced individually each PD variable and re-estimated all ARMA(0,1) models with each additional PD variable. The p-significance values of the political dummy variables indicate the significance level of these variables.

As shown in Table 1, all the PD pre-parliamentary election variables, PD1, PD2, PD3 and PD4 coefficients had the expected sign (as predicted by theory). PD1 was significant at 5% level, implying that the governments "use" this instrument under their control by significantly increasing the amount of capital expenditures nearly before parliamentary elections. PD4 estimated coefficient is also positively significant at 10% level, implying that during the last year preceding parliamentary elections there was a higher public investment spending adding up to the natural long term pattern of this variable (Table 1).

On the other hand, post-election variables PD5 and PD6 were significantly negative, implying that the government shrinks budged capital expenditures immediately after parliamentary elections to offset higher opportunistic expenditures before elections, in line with the prediction of the Opportunistic PBC theory.

Public investment, in addition to the direct benefits to the potential voters, can be utilized to make campaign shows by the incumbent (it is common to see ministers and mayors before elections inaugurating new roads, schools, etc.).

Table 1: Public investment in parliamentary elections

Political dummy variable	Estimate	SE	T	Sig.
PD1**	1100.974	513.583	2.144	0.034
PD2	661.915	410.642	1.612	0.110
PD3	560.079	353.518	1.584	0.116
PD4*	574.314	318.535	1.803	0.074
PD5**	-399.683	172.636	-2.315	0.023
PD6**	-248.250	98.404	-2.523	0.013

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Public investments during local elections exhibited a similar behavior as in parliamentary ones (Table 2). All PD variables prior to local elections had positive coefficients as expected, with PD2 significant at 5% and PD4 at 10 %. Whereas post-election variables, PD5 and PD6 were not significant at conventional levels despite having negative signs, implying that the expansionary pattern seen before local elections stops afterwards, still broadly in compliance with the theory and supporting the hypothesis of this study.

Table 2: Public investment in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	425.369	428.390	0.993	0.323
PD2**	795.179	334.050	2.380	0.019
PD3	481.406	300.553	1.602	0.112
PD4*	527.785	278.578	1.895	0.061
PD5	-685.113	466.679	-1.468	0.145
PD6	-390.292	392.728	-0.994	0.323

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Expenditure on compensation of employees in parliamentary and local election.

Note: Compensation of employees is the sum of wages and social insurance fund paid to the public administration employees.

The characteristics of the final time series modeled and analyzed are as following:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(0,1)

All the dummy variables coefficients modeling the time before the parliamentary elections resulted with the expected positive sign and the coefficients of PD2, PD3, PD4 were statistically significant at 5% level (Table 3). The post-elections variable coefficients seem to be statistically significant at conventional levels. These statistical results imply that governments try to get political advantage through opportunistic alteration of compensation of employees' expenditures by significantly increasing this budget expenditure item prior to parliamentary elections and stopping such an increase shortly after elections, broadly complying with the theory.

Table 3: Compensation of employees in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	32.743	42.557	0.769	0.443
PD2**	48.875	23.784	2.055	0.042
PD3**	38.689	16.915	2.287	0.024
PD4**	34.909	14.440	2.417	0.017
PD5	6.471	43.619	0.148	0.882
PD6	-22.67	26.287	-0.862	0.390

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Contrary to the evidence shown during the parliamentary elections, all the pre-local elections variable coefficients resulted non-significant and/or have opposite signs to what predicted by opportunistic PBC theory (Table 4). This implies that governments do not attempt to politically manipulate this instrument during local elections, in line with Nordhaus theoretic predictions. The reason for that may be that the incumbents do not consider the local elections as important as the parliamentary elections, or because they may focus more on other instruments, which may be more efficient for local elections, such as public investments (i.e. constructing

roads) in the targeted municipalities.

Table 4: Compensation of employees in local election

Political dummy variable	Estimate	SE	t	Sig.
PD1	-50.919	36.266	-1.404	0.163
PD2*	-41.841	22.825	-1.833	0.070
PD3	-25.522	18.463	-1.382	0.170
PD4	-20.238	16.705	-1.211	0.228
PD5*	68.165	39.297	1.735	0.086
PD6**	48.029	22.802	2.106	0.038

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Subsidies in parliamentary and local elections

The characteristics of time series:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(0,1)

Most pre-elections variable coefficients had positive signs; however they were not statistically significant at conventional levels, implying that subsidies have not been used by the incumbent as a "tool" prior to parliamentary elections. The same empirical results revealed in the case of local elections and the same implications could be drowning (Table 5 and 6)

Table 5: Subsidies in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-10.572	91.65	-0.115	0.908
PD2	0.893	50.967	0.018	0.986
PD3	20.792	36.197	0.574	0.567
PD4	27.558	28.892	0.954	0.342
PD5	18.317	89.196	0.205	0.838
PD6	28.592	48.793	0.586	0.559

Table 6: Subsidies in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	121.702	82.123	1.482	0.141
PD2	55.448	45.456	1.220	0.225
PD3	33.238	34.030	0.977	0.331
PD4	19.332	29.096	0.664	0.508
PD5	134.592	88.112	1.528	0.130
PD6	47.425	49.133	0.965	0.337

Unemployment insurance benefits in parliamentary and local elections

The characteristics of time series:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(0,1)

Regarding parliamentary elections, almost all pre- and post-elections PD variables revealed the expected signs but only PD6 was significant at almost 5% level of significance (Table 7). Consequently, we could not imply anything with statistical certainty on opportunistic manipulation of this instrument.

Table 7: Unemployment insurance benefits in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-7.508	6.569	-1.143	0.256
PD2	-3.815	4.062	-0.939	0.350
PD3	0.494	3.045	0.162	0.871
PD4	1.473	2.565	0.574	0.567
PD5	-9.568	6.263	-1.528	0.130
PD6*	-6.905	3.494	-1.976	0.051

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Contrary to parliamentary elections, unemployment insurance benefits revealed different pattern in local elections. The pre-elections PD coefficients were positive as expected and statistically significant at conventional levels. Two of them, PD2 and PD4 were significant at 5% level (Table 8). Post-elections political dummy coefficients, PD5 and PD6, had positive signs with PD5 significant at 5%, contrary to theoretic expectations. Therefore, in overall these results implied that governments tend to increase this kind of expenditure prior to local elections in order to attract voters, and naturally may find it difficult/impossible to reduce them back to the previous levels immediately after elections.

Table 8: Unemployment insurance benefits in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1*	10.289	5.476	1.879	0.063
PD2**	6.430	3.070	2.094	0.039
PD3*	4.042	2.363	1.710	0.090
PD4**	4.692	1.976	2.374	0.019
PD5**	17.331	6.267	2.765	0.007
PD6	4.670	3.963	1.178	0.241

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Social assistance in parliamentary and local elections

The characteristics of time series:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(0,1)

Broadly the same pattern was evident for social assistance expenditures in both types of elections. There was no statistically significant increase in parliamentary elections while there was statistically significant increase in local ones (Table 9 and 10). The post-elections variables coefficients, PD5 and PD6, appeared with negative signs as predicted by theory, however they were not significant at conventional levels. The implications deriving from these empirical results are the same as in the case of "Unemployment insurance benefits".

Table 9: Social assistance in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-51.763	40.330	-1.283	0.202
PD2	-36.982	23.252	-1.591	0.115
PD3	-19.989	17.478	-1.144	0.255
PD4	-12.587	14.725	-0.855	0.395
PD5	-40.200	41.563	-0.967	0.336
PD6	-18.650	23.893	-0.781	0.437

Table 10: Social assistance in local elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	43.349	37.576	1.154	0.251
PD2**	40.174	19.563	2.054	0.042
PD3**	30.434	14.290	2.130	0.035
PD4*	23.994	12.260	1.957	0.053
PD5	-5.815	42.222	-0.138	0.891
PD6	-4.250	23.968	-0.177	0.860

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Fiscal deficit in parliamentary and local elections

The characteristics of time series:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(0,1)

The pre-elections PD variable coefficients were not

statistically significant in parliamentary elections. In local elections as well, these variable coefficients were not significant (Table 11 and 12). The empirical evidence led to the implication that governments do not engage in significantly higher deficits prior to parlamentary or local elections. One explanation for this attitude may be the restrictions posed by the IMF under the governments - IMF agreements. Therefore, one conclusion might be that although governments significantly increase some of the main budgetary expenditures items in before elections, they remainded restrained regarding fiscal deficit. An interesting result is that PD5 and PD6 resulted on a positive sign and significant at 5% level after parliamentary elections.

Table 11: Deficit in parliamentary elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	231.521	255.312	0.907	0.367
PD2	115.717	138.007	0.838	0.404
PD3	67.392	100.185	0.673	0.503
PD4	42.772	82.315	0.520	0.604
PD5**	596.026	248.287	2.401	0.018
PD6**	284.675	134.583	2.115	0.037

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Table 12: Deficit in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-52.269	269.807	-0.194	0.847
PD2	-208.171	141.801	-1.468	0.145
PD3	-163.551	100.486	-1.628	0.107
PD4	-124.341	82.955	-1.499	0.137
PD5	137.980	268.440	0.514	0.608
PD6	28.225	143.564	0.197	0.845

5.2.2. Analyses of Monetary Policy Instruments

The empirical results on the dynamics of main monetary variables or economic outcomes directly affected by monetary policy led us to the conclusion that the incumbents does not manipulate Monetary Policy during elections. That cannot be considered a coincidence if one takes into account the widely accepted view that Central Bank of Albania bears a relatively high level of independence.

Monetary aggregate M1 in parliamentary and local elections

The characteristics of time series:

- Seasonally adjusted
- First-order difference stationary
- Best model: ARMA(1,0)

We found no empirical evidence of movements of the kind predicted by opportunistic PBC theory in monetary aggregate M1. Almost all political dummy variables (PD) were not statistically significant at conventional levels neither in parliamentary nor local elections. Only PD5 coefficient resulted statistically significant and positive in parliamentary elections, (Table 13 and 14).

Table 13: Aggregate M1 in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	722.349	1506.563	0.479	0.633
PD2	471.981	1239.116	0.381	0.704
PD3	958.017	1084.528	0.883	0.379
PD4	1066.100	986.999	1.080	0.283
PD5**	3581.670	1438.102	2.491	0.014
PD6	1911.075	1205.447	1.585	0.116

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Table 14: Aggregate M1 in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-569.428	1239.887	-0.459	0.647
PD2	-1090.030	1029.541	-1.059	0.292
PD3	-521.029	924.560	-0.564	0.574
PD4	-1003.748	857.327	-1.171	0.244
PD5	-894.896	1342.753	-0.666	0.507
PD6	301.634	1164.620	0.259	0.796

Monetary aggregate M2 in parliamentary elections

The characteristics of time series:

1. Seasonally adjusted
2. First-order difference stationary
3. Best model: ARMA(0,0) (white noise time process)

Note: First – order difference of M2 appeared to be a white noise time process. Although this time series cannot be modeled by any ARMA(p,d) model, the outcomes of Intervention Analysis bear the same validity.

Similarly to M1, monetary aggregate M2 was not showing any statistically significant alteration during parliamentary or local elections. All PD coefficients resulted not statistically significant at 10% level of significance or less (Table 15 and 16). These results indicate that Central Bank of Albania is not engaged in engineering PBC, which is in line with the general view that monetary authority in Albania is relatively independent by the executive power.

Table 15: Monetary aggregate M2 in parliamentary elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	1133.401	959.908	1.181	0.240
PD2	612.291	701.255	0.873	0.385
PD3	627.280	589.951	1.063	0.290
PD4	844.766	524.936	1.609	0.110
PD5	-335.381	965.545	-0.347	0.729
PD6	-115.524	703.638	-0.164	0.870

Table 16: Monetary aggregate M2 in local elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	908.403	795.646	1.142	0.256
PD2	275.426	592.438	0.465	0.643
PD3	241.407	509.255	0.474	0.636
PD4	86.003	467.490	0.184	0.854
PD5	-909.412	894.481	-1.017	0.312
PD6	-532.319	677.661	-0.786	0.434

5.2.3. Analyses of Macroeconomic Outcomes

We have analyzed the main macroeconomic outcomes: GDP, inflation (Consumer Price Index) and unemployment. In line with Nordhaus theory, our hypothesis is that the incumbents attempt to manipulate the economy by engineering an increase in output and reduction in unemployment before/during elections, through fiscal and/or monetary expansion. In addition to the (possible) achievement of intended outcomes (lower unemployment and higher output), expectedly such policies will result into higher inflation after elections.

Unemployment in parliamentary elections

The characteristics of time series:

1. Seasonally adjusted
2. First-order difference stationary
3. Best model: ARMA(0,0) (white noise time process)

Note: unemployment data have quarterly frequency spanning from 1998Q1 to 2007Q1

The empirical analysis revealed that unemployment rate reduced before both types of elections, as predicated by the theory and in support of our hypothesis. However, the reduction of unemployment was statistically significant at conventional levels only before parliamentary elections as indicated by PD2 and PD3 (Table 17 and 18).

Table 17: Unemployment in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-0.409	0.340	-1.202	0.238
PD2*	-0.434	0.242	-1.796	0.081
PD3**	-0.403	0.202	-1.998	0.054
PD4	-0.304	0.184	-1.649	0.108
PD5	-0.091	0.347	-0.263	0.794
PD6	-0.125	0.252	-0.496	0.623

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Table 18: Unemployment in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	-0.039	0.288	-0.137	0.892
PD2	-0.283	0.208	-1.363	0.182
PD3	-0.211	0.180	-1.172	0.249
PD4	-0.167	0.166	-1.002	0.323
PD5	-0.144	0.346	-0.416	0.680
PD6	-0.322	0.247	-1.303	0.201

- **GDP in parliamentary and local elections**

The characteristics of time series:

1. Seasonally adjusted
2. First-order difference stationary
3. Best model: ARMA(0,0) (white noise time process)

Note: the data for QGDP are quarterly data from 2001Q1-2006Q4 (Experimental estimations- INSTAT)

The signs of PD coefficients were in line with theory predictions in all the cases, both in parliamentary and local elections. Nevertheless, they were not statistically significant except for two cases, PD5 in parliamentary and PD2 in local elections (Table 19 and 20). It is likely that non-significance of PD coefficients might be related to the small sample size, given the limited number of observations (only 23 used observations).

Table 19: QGDP in parliamentary elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	4127.090	5797.001	0.712	0.484
PD2	337.693	4907.747	0.069	0.946
PD3	537.943	4359.559	0.123	0.903
PD4	1695.807	3990.489	0.425	0.675
PD5*	-9884.783	5455.593	-1.812	0.084
PD6	-5060.014	4219.041	-1.199	0.244

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Table 20: QGDP in local elections

Political dummy variable	Estimate	SE	t	Sig.
PD1	3434.959	8071.059	0.426	0.675
PD2*	7925.393	4593.514	1.725	0.099
PD3	5438.034	3827.890	1.421	0.170
PD4	4365.419	3463.906	1.260	0.221
PD5	-10181.668	7795.342	-1.306	0.206
PD6	-1915.667	5851.628	-0.327	0.747

** significant at 5 % level of confidence ** significant at 10 % level of confidence*

Consumer Price Index (CPI) in parliamentary and local elections

The characteristics of time series:

1. Seasonally adjusted
2. First-order difference stationary
3. Best model: ARMA(0,1)

Statistical results indicated that CPI does not significantly shift before and after parliamentary or local elections. This stability and unaffectedness of consumer prices could be attributed to the "mature" policies followed by the central bank. No political dummy variable was statistically significant at conventional levels (Table 21 and 22).

Table 21: CPI in parliamentary elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	0.396	0.291	1.362	0.176
PD2	-0.004	0.222	-0.016	0.987
PD3	0.185	0.189	0.979	0.330
PD4	0.094	0.170	0.551	0.583
PD5	-0.190	0.294	-0.646	0.520
PD6	-0.031	0.224	-0.136	0.892

Table 22: CPI in local elections

Political dummy variable	Estimate	SE	T	Sig.
PD1	-0.087	0.244	-0.355	0.723
PD2	0.050	0.187	0.266	0.791
PD3	-0.026	0.162	-0.162	0.872
PD4	-0.050	0.149	-0.337	0.737
PD5	0.250	0.257	0.972	0.333
PD6	-0.029	0.206	-0.140	0.889

6. Conclusions

We found convincing evidence that the incumbents in Albania try to manipulate the economy, supporting the hypothesis of existing opportunistic PBC in Albania. There is a statistically significant increase in the main components of public expenditures before elections. Empirical evidence indicated that incumbents attempt to improve the overall economic situation through public investments or directly trying to please voters through increased transfers to the population (i.e. unemployment and social insurance benefits).

Regarding macroeconomic outcomes, we found evidence of PBC in unemployment but not in output (GDP) and inflation (CPI). Very small number of observations might be a confounding factor in case of GDP analysis. The lack of any empirical evidence showing politically opportunistic shifts in inflation or main monetary aggregates (M1 and M2) might be attributed to the

mature monetary policies conducted by the central bank in Albania. It is not a coincidence that the incumbent does not engage in Monetary PBC, because the Central Bank of Albania enjoys a relatively high level of independence.

Implementation of expansionary policies by incumbents may not necessarily lead to statistically higher output and lower unemployment. In this study, although expansion in the main budgetary instruments which typically have a high multiplier on aggregate demand was significant, alterations of these macroeconomic outcomes, despite resulting in the expected directions as predicted by theory, they were not statistically significant. There might be several explanations. First, the economic structure and the transmission mechanism may not be appropriate to transmit fiscal expansion into significantly higher output and lower unemployment. Second, there might be other factors that may offset or counterbalance the effect of expansionary economic policies. Consumer and private enterprises' perceptions may be characterized of cycles which are contemporary with elections cycles. Before parliamentary elections, "the economic uncertainty" among many/most consumers and private companies might increase, because in the case of Albania where a relatively weak institutional framework is in place, it is common that political rotation or governmental changes of the same political force are generally associated with huge changes in the public administration staff, sometimes going down to police and high school teachers. Moreover, the new government officials may try to "favor" supportive client businesses and "punish" businesses associated with the other political forces. Consequently, investments, household consumption and the overall aggregate demand might get subdued, which may offset the stimulating effects of expansionary fiscal policies.

It is necessary to find the ways (i.e. appropriate institutional framework) to minimize the potential of incumbents to manipulate the economy for its political interest. Three ways are suggested, in line with Nordhaus (1975), as follows:

1. Increase access to information for the voters. Consequently, voters will be less likely to become "victims" of the manipulation attempts by the incumbent. Nowadays, given the progress of information technology, it is becoming easier and cheaper to transfer/access information. However, Albanians still have limited access to modern means of communication such as internet.

2. Transfer some important economic policy decisions to professionals and institutions that enjoy a high level of independence from political forces. The Bank of Albania is considered to a large extent a relatively independent institution and shows a good example that positive policy outcomes are delivered when an economic institution is not affected by opportunistic political interests. Nonexistence of Political Monetary Cycles is the case in several other countries with independent central banks. The risk of Political Fiscal Cycles may be reduced if the relevant medium or long term fiscal policy objectives would be regulated and implemented within appropriate institutional framework established with a wide political consensus.

3. Involvement of political opposition and other relevant players in decisions and policy making. If the government includes in the decision making the opposition and representatives of labor and business groups, there will be a lower risk for PBC. This may prove difficult in reality, especially in Albania, where there is a traditionally lack of consensus between position and opposition.

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Appendix

Table 1: Public investments in parliamentary elections												
Depended variable: Public Investments (PubInv)												
Model Type	*Model 1*		*Model 2*		*Model 3*		*Model 4*		*Model 5*		*Model 6*	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	2855.64	0.000	2845.17	0.000	2826.09	0.000	2793.09	0.000	42.09	0.039	48.08	0.029
PubInv (MA1)	-0.49	0.000	-0.46	0.000	-0.45	0.000	-0.45	0.000	0.84	0.000	0.83	0.000
PD1	1100.97	0.034										
PD2			661.92	0.110								
PD3					560.08	0.116						
PD4							574.31	0.074				
PD5									-399.68	0.023		
PD6											-248.25	0.013
Diagnostic tests												
Stationary R-squared	0.180		0.180		0.179		0.185		0.274		0.281	
R-squared	0.180		0.180		0.179		0.185		0.274		0.281	
RMSE	1011.194		1011.194		1011.623		1008.233		1062.524		1058.110	
MAPE	32.175		32.175		32.084		31.419		189.786		155.250	
MaxAPE	743.186		743.186		739.979		734.499		2619.343		2480.665	
MAE	624.809		624.809		625.503		610.424		643.019		621.381	
MaxMAE	4320.017		4320.017		4329.072		4344.156		5728.633		5692.211	
Normalized BIC	13.965		13.965		13.966		13.959		14.065		14.057	
Ljung-Box	4.084		4.084		4.562		5.021		10.806		9.536	

Table 2: Public investments in local elections												
Depended variable: Public Investments (PubInv)												
Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	2882.06	0.000	2790.23	0.000	2800.67	0.000	2746.63	0.000	2961.50	0.000	2962.57	0.000
PubInv (MA1)	-0.47	0.000	-0.43	0.000	-0.45	0.000	-0.46	0.000	-0.47	0.000	-0.47	0.000
PD1	425.37	0.323										
PD2			795.18	0.019								
PD3					481.41	0.112						
PD4							527.79	0.061				
PD5									-685.11	0.145		
PD6											-390.29	0.323
Diagnostic tests												
Stationary R-squared	0.168		0.202		0.180		0.188		0.176		0.167	
R-squared	0.168		0.202		0.180		0.188		0.176		0.167	
RMSE	1018.903		997.839		1011.371		1006.545		1013.545		1019.059	
MAPE	33.694		34.264		33.939		33.438		33.726		33.796	
MaxAPE	812.662		907.325		832.898		828.450		761.654		760.379	
MAE	650.860		646.389		652.428		643.206		653.103		656.529	
MaxMAE	4196.963		3822.581		4010.004		4033.447		4269.971		4277.829	
Normalized BIC	13.980		13.938		13.965		13.956		13.970		13.981	
Ljung-Box	5.416		7.219		5.092		5.498		5.886		5.788	

Table 3: Compensation of employees in parliamentary elections												
Depended variable: Compensation of employees (ComEmp)												
Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	20.60	0.005	16.96	0.010	15.96	0.008	14.63	0.019	22.07	0.004	24.97	0.001
ComEmp (MA1)	0.59	0.000	0.63	0.000	0.68	0.000	0.68	0.000	0.56	0.000	0.59	0.000
PD1	32.74	0.443										
PD2			48.87	0.042								
PD3					38.69	0.024						
PD4							34.91	0.017				
PD5									6.47	0.882		
PD6											-22.67	0.390
Diagnostic tests												
Stationary R-squared	0.222		0.243		0.242		0.246		0.218		0.223	
R-squared	0.222		0.243		0.242		0.246		0.218		0.223	
RMSE	170.884		168.559		168.594		168.202		171.253		170.732	
MAPE	221.078		212.370		207.269		192.236		229.774		229.785	
MaxAPE	3397.456		4161.794		2195.982		1860.938		3116.770		2734.876	
MAE	120.559		118.224		118.895		117.318		121.221		121.824	
MaxMAE	738.425		741.478		739.071		743.041		738.666		728.790	
Normalized BIC	10.410		10.383		10.383		10.379		10.414		10.408	
Ljung-Box	15.742		15.759		18.898		21.091		16.406		14.104	

Table 4: Compensation of employees in local elections

Depended variable: Compensation of employees (ComEmp)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	26.42	0.001	29.17	0.000	28.67	0.001	29.08	0.002	18.37	0.007	16.92	0.008
ComEmp (MA1)	0.56	0.000	0.57	0.000	0.57	0.000	0.57	0.000	0.61	0.000	0.65	0.000
PD1	-50.92	0.163										
PD2			-41.84	0.070								
PD3					-25.52	0.170						
PD4							-20.24	0.228				
PD5									68.16	0.086		
PD6											48.03	0.038
Diagnostic tests												
Stationary R-squared			0.232	0.242	0.232	0.229		0.237		0.242		
R-squared			0.232	0.242	0.232	0.229		0.237		0.242		
RMSE			169.698	168.630	169.752	170.083		169.233		168.694		
MAPE			231.911	222.062	219.173	220.094		230.309		218.295		
MaxAPE			2497.171	2105.332	2177.688	2117.224		3769.639		3862.415		
MAE			121.414	119.995	118.935	119.029		119.332		117.452		
MaxMAE			728.955	722.187	770.403	767.119		740.530		739.646		
Normalized BIC			10.396	10.384	10.397	10.401		10.391		10.384		
Ljung-Box			14.910	14.659	14.864	16.294		18.087		21.208		

Table 5: Subsidies in parliamentary elections

Depended variable: Subsidies (Sub)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	1.64	0.844	0.87	0.921	-2.98	0.738	-6.08	0.506	-0.12	0.988	-2.41	0.784
Sub (MA1)	0.91	0.000	0.91	0.000	0.92	0.000	0.92	0.000	0.91	0.000	0.91	0.000
PD1	-10.57	0.908										
PD2			0.89	0.986								
PD3					20.79	0.567						
PD4							27.56	0.342				
PD5									18.32	0.838		
PD6											28.59	0.559
Diagnostic tests												
Stationary R-squared		0.450	0.450	0.452		0.455		0.450		0.452		
R-squared		0.450	0.450	0.452		0.455		0.450		0.452		
RMSE		658.448	658.471	657.282		655.415		658.384		657.726		
MAPE		410.387	407.741	392.121		381.478		410.295		421.664		
MaxAPE		11447.361	11453.283	11257.463		10954.201		11611.427		12183.398		
MAE		248.217	248.797	249.689		251.186		250.191		254.619		
MaxMAE		5869.259	5860.961	5839.604		5835.520		5838.311		5767.117		
Normalized BIC		13.108	13.108	13.104		13.099		13.108		13.106		
Ljung-Box		16.729	16.882	17.092		17.015		16.889		16.701		

Table 6: Subsidies in local elections

Depended variable: Subsidies (Sub)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	-7.96	0.329	-7.45	0.403	-6.81	0.489	-5.18	0.639	-7.99	0.330	-5.29	0.545
Sub (MA1)	0.92	0.000	0.92	0.000	0.92	0.000	0.92	0.000	0.92	0.000	0.92	0.000
PD1	121.70	0.141										
PD2			55.45	0.225								
PD3					33.24	0.331						
PD4							19.33	0.508				
PD5									134.59	0.130		
PD6											47.42	0.337
Diagnostic tests												
Stationary R-squared	0.462		0.458		0.456		0.453		0.462		0.455	
R-squared	0.462		0.458		0.456		0.453		0.462		0.455	
RMSE	651.650		653.707		655.306		656.923		651.251		655.455	
MAPE	333.966		341.957		345.060		341.946		359.509		374.385	
MaxAPE	10234.480		10200.623		10254.131		10501.744		10728.870		11074.962	
MAE	242.527		244.600		246.649		245.475		245.852		246.783	
MaxMAE	5891.344		5901.313		5905.863		5900.661		5851.593		5842.030	
Normalized BIC	13.087		13.094		13.098		13.103		13.086		13.099	
Ljung-Box	17.221		18.549		18.032		16.997		16.392		17.566	

Table 7: Unemployment insurance benefits in parliamentary elections

Depended variable: Unemployment insurance benefits (UnempInsBen)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	-0.20	0.820	-0.20	0.833	-0.73	0.460	-0.98	0.337	-0.07	0.929	0.18	0.827
UnempInsBen (MA1)	0.77	0.000	0.76	0.000	0.76	0.000	0.76	0.000	0.78	0.000	0.79	0.000
PD1	-7.51	0.256										
PD2			-3.82	0.350								
PD3					0.49	0.871						
PD4							1.47	0.567				
PD5									-9.57	0.130		
PD6											-6.91	0.051
Diagnostic tests												
Stationary R-squared	0.464		0.462		0.457		0.459		0.468		0.474	
R-squared	0.464		0.462		0.457		0.459		0.468		0.474	
RMSE	34.909		34.959		35.121		35.066		34.777		34.563	
MAPE	114.669		111.296		109.510		109.423		119.922		117.994	
MaxAPE	682.828		505.926		608.384		809.501		1307.607		931.880	
MAE	21.881		21.913		21.976		22.032		21.919		21.826	
MaxMAE	194.748		194.508		195.515		192.789		194.688		193.794	
Normalized BIC	7.234		7.237		7.246		7.243		7.226		7.214	
Ljung-Box	19.625		19.310		20.062		20.489		19.365		19.772	

Table 8: Unemployment insurance benefits in local elections

Depended variable: Unemployment insurance benefits (UnempInsBen)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	-1.38	0.093	-1.61	0.057	-1.58	0.080	-2.14	0.023	-1.68	0.050	-1.19	0.199
UnempInsBen (MA1)	0.79	0.000	0.80	0.000	0.80	0.000	0.80	0.000	0.77	0.000	0.77	0.000
PD1	10.29	0.063										
PD2			6.43	0.039								
PD3					4.04	0.090						
PD4							4.69	0.019				
PD5									17.33	0.007		
PD6											4.67	0.241
Diagnostic tests												
Stationary R-squared	0.473		0.476		0.469		0.481		0.493		0.464	
R-squared	0.473		0.476		0.469		0.481		0.493		0.464	
RMSE	34.595		34.490		34.719		34.323		33.931		34.891	
MAPE	103.021		98.080		103.175		108.774		112.310		112.254	
MaxAPE	761.651		698.271		545.789		668.750		726.958		813.854	
MAE	21.364		20.932		21.320		21.323		22.170		22.167	
MaxMAE	188.883		190.821		193.841		194.466		160.302		188.011	
Normalized BIC	7.216		7.210		7.223		7.200		7.177		7.233	
Ljung-Box	19.342		16.634		16.613		16.708		20.985		20.455	

Table 9: Social assistance in parliamentary elections

Depended variable: Social assistance (SocAss)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	10.02	0.037	11.41	0.028	10.57	0.051	10.03	0.078	9.43	0.059	9.32	0.079
SocAss (MA1)	0.84	0.000	0.84	0.000	0.84	0.000	0.83	0.000	0.83	0.000	0.82	0.000
PD1	-51.76	0.202										
PD2			-36.98	0.115								
PD3					-19.99	0.255						
PD4							-12.59	0.395				
PD5									-40.20	0.336		
PD6											-18.65	0.437
Diagnostic tests												
Stationary R-squared	0.345		0.351		0.344		0.340		0.341		0.339	
R-squared	0.345		0.351		0.344		0.340		0.341		0.339	
RMSE	252.984		251.850		253.287		254.009		253.812		254.229	
MAPE	304.409		278.415		288.993		291.566		336.733		349.947	
MaxAPE	7046.533		3275.795		3802.239		5844.412		11845.285		11778.249	
MAE	112.620		112.729		112.536		113.361		114.182		115.024	
MaxMAE	1597.225		1590.206		1593.125		1595.790		1603.853		1606.788	
Normalized BIC	11.195		11.186		11.197		11.203		11.201		11.205	
Ljung-Box	5.277		4.939		5.269		5.552		4.646		4.633	

Table 10: Social assistance in local elections

Depended variable: Social assistance (SocAss)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	3.78	0.450	0.67	0.889	-0.52	0.914	-1.08	0.833	-0.83	0.887	0.22	0.974
SocAss (MA1)	0.84	0.000	0.86	0.000	0.87	0.000	0.87	0.000	0.86	0.000	0.85	0.000
PD1	43.35	0.251										
PD2			40.17	0.042								
PD3					30.43	0.035						
PD4							23.99	0.053				
PD5									18.43	0.115		
PD6											13.36	0.258
Diagnostic tests												
Stationary R-squared	0.344		0.360		0.362		0.358		0.351		0.344	
R-squared	0.344		0.360		0.362		0.358		0.351		0.344	
RMSE	253.233		250.070		249.762		250.451		251.864		253.297	
MAPE	350.936		393.335		389.512		399.201		386.661		368.791	
MaxAPE	8683.537		6625.583		5477.843		4899.816		5136.744		6120.628	
MAE	118.469		122.844		124.107		123.185		121.461		119.810	
MaxMAE	1587.184		1522.038		1516.687		1528.138		1548.870		1571.802	
Normalized BIC	11.197		11.172		11.169		11.175		11.186		11.197	
Ljung-Box	5.471		5.668		5.812		5.653		5.743		6.069	

Table 11: Fiscal deficit in parliamentary elections

Depended variable: Deficit (Def)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	10.89	0.536	11.06	0.561	12.77	0.538	14.92	0.509	-11.71	0.480	-8.61	0.616
Def (MA1)	1.00	0.000	1.00	0.016	1.00	0.000	1.00	0.002	0.99	0.000	1.00	0.102
PD1	231.52	0.367										
PD2			115.72	0.404								
PD3					67.39	0.503						
PD4							42.77	0.604				
PD5									596.03	0.018		
PD6											284.68	0.037
Diagnostic tests												
Stationary R-squared	0.369		0.369		0.367		0.366		0.392		0.387	
R-squared	0.369		0.369		0.367		0.366		0.392		0.387	
RMSE	2138.887		2139.546		2142.379		2144.486		2100.067		2108.483	
MAPE	263.108		266.828		276.288		284.737		243.311		248.359	
MaxAPE	8476.985		8511.058		8646.437		8731.619		7177.457		7671.338	
MAE	1243.243		1246.108		1257.810		1266.439		1193.878		1200.716	
MaxMAE	14739.094		14724.793		14700.630		14693.593		14931.468		15037.951	
Normalized BIC	15.464		15.465		15.468		15.470		15.428		15.436	
Ljung-Box	18.195		18.854		19.351		19.522		13.670		14.436	

Table 12: Fiscal deficit in local elections

Depended variable: Deficit (Def)

Model Type	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
ARMA(0,1)	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.	Coeff.	Sig.
Constant	29.93	0.175	57.96	0.015	64.27	0.011	65.22	0.018	63.04	0.015	60.57	0.019
Def (MA1)	0.99	0.000	1.00	0.001	1.00	0.474	1.00	0.068	1.00	0.058	1.00	0.078
PD1	-52.27	0.847										
PD2			-208.17	0.145								
PD3					-163.55	0.107						
PD4							-124.34	0.137				
PD5									137.98	0.608		
PD6											28.23	0.845
Diagnostic tests												
Stationary R-squared	0.362		0.374		0.378		0.378		0.374		0.378	
R-squared	0.362		0.374		0.378		0.378		0.374		0.378	
RMSE	2149.965		2130.502		2122.970		2123.855		2130.502		2123.855	
MAPE	307.241		317.547		307.237		289.490		317.547		289.490	
MaxAPE	9499.018		11776.050		11230.035		9345.742		11776.050		9345.742	
MAE	1273.976		1263.646		1264.404		1269.125		1263.646		1269.125	
MaxMAE	14751.456		14517.136		14407.747		14405.792		14517.136		14405.792	
Normalized BIC	15.475		15.456		15.449		15.450		15.456		15.450	
Ljung-Box	18.666		16.717		16.568		16.611		16.717		16.611	

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