

Political budget cycles at the municipal level in Croatia

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Abstract

This paper examines the existence of the political budget cycle (PBC) at the local unit level in Croatia. The research was focused on a sample of 19 county centres, the City of Zagreb and Pula in the period from 2002 to 2011. During that time three parliamentary (in 2003, 2007 and in 2011) and two local elections (in 2005 and in 2009) were held and all the results are calculated at the level of the selected cities. The results do not confirm the existence of opportunistic PBCs, either when the analysis takes in all five elections or when it considers only the parliamentary polls. They do however indicate the restructuring of total expenditures based on second-best strategies and institutional constraints. Analysis of local elections alone indicates the existence of Rogoff's model of information asymmetry. The paper also presents various theoretical models of the PBC together with a survey of empirical research regarding the existence of PBCs in the developed, transitional and developing countries.

Keywords: political-budget cycles, elections, dynamic panel data analysis

1 INTRODUCTION

In the context of the path transition has taken in Croatia since the 1990s the problem with budget deficits at all government levels (national, regional and local) indicates the importance of analysing political constraints in the processes of both budget and economic policy formulation and implementation. Political constraints are the result of heterogeneity of preferences among economic agents as defined by public choice theory (politicians, voters, bureaucrats and interest groups) and their mutually confronting interests. They arise due to self-interest on the behalf of incumbents and their re-election motives. In other words, they are shown in a sub-optimal allocation of budget resources and in the creation of budget deficits. Thus, a wider perception of these constraints can be beneficial both for economic policy makers as well as for researchers, voters and other economic agents as defined by public choice theory. Additionally, the size and the influence of the state in the economy (measured as the percentage of GDP that is distributed through political decisions) is of too great an importance to keep the focus strictly on the analysis of market decisions and to claim that politicians and their preferences are exogenous.

The political-budget cycle (PBC) has been vigorously studied in the literature, from both theoretical (e.g. Rogoff and Siebert, 1988; Rogoff, 1990; Shi and Svensson, 2002; Drazen and Eslava, 2006) and empirical aspects (e.g. Persson and Tabellini, 2002; Brender and Drazen, 2004; Alt and Lassen, 2006; Schneider, 2010) with various country samples and methodological instruments. Despite the importance of political constraints in the formulation and implementation of optimal economic policies, PBCs in Croatia represent an area of research where scientific empirical literature has been rather silent, especially at the local level.

PBC models represent one of the most active branches of research within the new (positive) political economy (NPE). Due to their theoretical foundations and empirical validation they have almost entirely replaced previous research focused on political business cycles. PBC models can be defined as periodical fluctuations in fiscal policy induced by the electoral cycle. With respect to the model, fluctuations can take the form of a budget deficit or a change in the magnitude (increase) and composition of public spending or a reduction in public revenues. From this originates the primary goal of this paper, namely to establish which of the theoretical political budget cycle models is suitable for Croatia.

The main hypothesis of the paper is that in Croatia PBCs do exist at the municipal level and an additional hypothesis is that any party ideology shared at the municipal and national level is likely to be visible in public spending. More directly, public spending will rise if municipal and national incumbents share the same party ideology. To the best of the author's knowledge, there is no scientific empirical paper in the domestic literature that has tested the existence of PBCs at the municipal level. The fundamental contribution of this paper to the existing literature is in providing an empirical analysis of the results of combined parliamentary and local elections, and an analysis of separately held local and separately held parliamentary elections on a sample of Croatian cities.

Results that refer to joint parliamentary and local elections and to solely parliamentary elections do not confirm the main and the additional hypothesis. In election years, total spending decreases, which results in a lower budget deficit. Due to the institutional limitations set on the size of public debt at the local level, incumbents use opportunistic manipulations within public spending items. In other words, they cut capital and increase current spending. The analysis of solely local elections confirms the existence of PBCs at the municipal level and suggests that Rogoff's model of asymmetric information is optimal. The increase of the budget deficit in election years in combination with an increase in the average number of employees in the local bureaucracy and budgetary users corresponds with the theoretical predictions of the stated model. Both results indicate opportunistic behaviour on the part of the incumbent and the rent-seeking role of the local bureaucracy in the election process.

The article is organised as follows. The next section presents basic terms from the NPE and from public choice theory (PCT) that serve as the common ground on which both political business cycle and PBC models were developed. Section 3 presents three key PBC models: asymmetric information, moral hazard and the model of incumbent asymmetric preferences (pork barrel cycles), which constitute the theoretical basis of the empirical analysis. A survey of the empirical literature on PBC models in developed, transition and developing countries is presented in section 4. Data, methodology and the empirical results obtained are

presented in section 5. Finally, conclusions are reported in section 6 together with the directions that future research might take.

2 THE NEW POLITICAL ECONOMY AND PUBLIC CHOICE THEORY

The roots of the NPE as a research area can be traced to the theory of macroeconomic policy (Lucas' critique), rational choice theory and public choice theory (PCT) (Persson and Tabellini, 2000:2-3). Although founded on PCT grounds (methodological individualism¹ and utility maximisation) the NPE is primarily interested in the analysis of the economic effects of politics. In other words, the NPE takes the current institutional framework as a given constraint in the optimisation process without having any explicit intention of changing it.

Drazen (2000:7) argues that actual policies are often quite different from optimal policies due to technical, informational and political constraints. The NPE explains the choice of policies and thus economic outcomes that differ from optimal policies, and the outcomes those policies would imply. In this light the two following propositions are important for the NPE. First, heterogeneity and conflicts of interests among economic agents are a necessary condition for political constraints to exist. And second, the effect of politics on economics follows from the mechanisms by which these conflicts are resolved. It is the latter that is the key focus of the NPE.

The economic effects of political behaviour, within the existing literature, are divided between political business cycle and the PBC. Both theoretical and empirical researches into these phenomena stem from PCT. As an interdisciplinary research area, PCT unites theoretical paradigms of economics and political science and applies it in the analysis of behaviour of key economic agents within the theory itself (politicians, voters, bureaucrats and interest groups). PCT can be defined as a special form of "economic imperialism"², as an economic theory of politics or based on Buchanan (2005:8) as "politics without romance". PCT is based on three assumptions: of self-interest, exchange and methodological individualism (Udehn, 2003:154). From these assumptions follows the behaviour of economic agents that aim to maximize their utility with respect to the given constraints.

Elections play a twofold role in this process. First, they include politicians and their preferences in economic models which in turn make them "richer" and more real. In that way, by incorporating the interactions of all economic agents, the economic models include conflicts due to incompatible preferences. Finally, through the election process, voters decide on the collective action (i.e. its start/end, intensity, etc.).

¹ The term highlights that it is the individual and his (rational) choices that are in the centre of the analysis. Arnsperger and Varoufakis (2006) suggest that methodological individualism implies the idea that all socio-economic explanations should be sought at the level of individual economic agent.

² The term is derived in the works of Tullock (1972), Stiegler (1984) and Udehn (2003).

The relationship between economic agents within PCT is best described through the agent-principal model in which preferences, in most cases, do not coincide. For instance, the agent (politician) can trick his principal (voter) due to information asymmetry prior, during or even after the election period. Once the elections are held, economic agents start negotiating and voting on various public policies. The policies chosen are then delegated to bureaucrats who are in charge of implementing them. During this whole process, interest groups apply pressure in order to bring about an outcome of the collective action that is in their favour.

McLean (1997:39, 41) analyses politicians as entrepreneurs that provide specific public goods and as “ideological entrepreneurs”. The first are responsible for producing and trading public goods, but are also characterised by their tendency to trade private goods also. It is their role as entrepreneurs that represents the basis for their re-election aspirations in front of the electorate. On the other hand we see “ideological entrepreneurs” who are genuinely interested in the contents of politics and the political. They ensure public goods regardless of the free rider problem. “Ideological entrepreneurs” do not expect to be compensated and consider their work as their calling.

Voters represent rational and self-interested economic agents that can be compared to consumers in the market. Their act of voting serves as a means to maximize their utility function. The biggest problem in the analysis of voter behaviour is that voters actually do not know how to vote for their own interests. The cost of acquiring information, in a (pre)election period, is too high for a rational *homo economicus*. Additionally, if information does not exist or is asymmetric the optimal strategy for every voter is to act as a rational ignoramus.³ In such a case, a rational voter ignores all pre-election events and votes ideologically. In return, it is exactly the combination of rational ignorance, ideological voting and the so called “problem of full supply”⁴ that stimulates politicians in their sub-optimal behaviour.

According to Niskanen’s model of bureaucracy, bureaucrats will aim to maximize their own budget due to the fact that they cannot maximize profit (McLean, 1997:100-101). Since they are monopolistic suppliers of their own goods this represents the only way in which they can ensure compensation through various privileges: bigger offices, higher salaries, public reputation, etc. Most theoreticians of public choice claim that during this process bureaucrats will tend to produce more than the politicians (and probably voters) would like them to do or that they will do it at a higher price (Lemieux, 2004:27). The literature also emphasises the role of information asymmetry or the power of bureaucracy to determine the agenda (Mueller, 2003:333, 342-343).

³ But rational ignorance is also asymmetric, with the essential role of interest groups and incumbents in that process.

⁴ The situation in which none of the programs offered to voters fully reflects their preferences.

Interest groups represent groups of individuals with common interests that conduct collective actions: caveats, lobbying, financing political party campaigns, etc. Their goal is to influence the outcome of collective actions that very often have the characteristics of a public good. Their activities rarely come to the tight bonding to those political options that would, in their opinion, best represent their interests in exchange for their support in the elections. Promoting the joint interest of their members, at the expense of others, is the main reason why interest groups enter into politics.

3 POLITICAL BUDGET CYCLES

Political decisions have economic outcomes that are visible in movements of economic variables and instruments. Political business cycle models represent election driven cycles in (macro)economic variables: unemployment rates, inflation rates and production. With respect to the rational expectations hypothesis and incumbents' motives (opportunistic vs. partisan) the existing political business cycle models can be divided into four large groups: adaptive opportunistic, adaptive partisan, rational opportunistic and rational partisan political business cycle models (Alesina, 1988:16). Drazen (2000:259) supplemented Alesina's division with "Hibb's model of changing objectives", which represents a synthesis of previous models in an environment characterised by rational expectations.

PBC models represent a periodical fluctuation in governmental fiscal policy induced by the cyclicity of elections (Shi and Svensson, 2003:67), that is, an increase in public spending (total or in certain items), budget deficit creation and a decrease in public revenues in election year. The key difference between PBC and political business cycle models is that the former focus on the analysis of instruments that are under the direct control of politicians. Various PBC models study the effects of political pressures aimed at increasing public spending and creating budget deficits. Just as in the political business cycle models, political pressures can take two forms: opportunistic and partisan. In the first case, opportunistic politicians can increase either total spending or individual budget items aimed at certain groups in order to improve their chances of re-election. Alternatively, incumbents might be beholden to a partisan constituency that gains from certain kinds of expenditure (Lohmann, 2006:534).

According to Mueller's ethical voter hypothesis that focuses on economic voting, the voter has an objective function, which he tries to maximize, with the two following variables: personal and social welfare.⁵ In PBC models, voters value only personal, direct benefit from governmental programmes. Since information is asymmetric, their voting is labelled as rational retrospective, meaning that it

⁵ Mueller (2003:298-299) denotes these two terms as egotropic and sociotropic variables in the objective function that the voter is trying to maximize. Egotropic variables measure voter expectations regarding the effect of the government's policies on the voter's own income, employment status, and so on. Sociotropic variables measure voter expectations regarding the effect of the government's policies on the economy at large, that is, on the welfare of all citizens.

follows from the incumbents' observed results during their term in the office (Alesina et al., 1997). In this way, voters are trying to determine exactly how much the incumbents contribute to their objective utility functions. In so doing, a rational voter will react to pre-election manipulation, e.g. when an incumbent tries to signalise its high level of competence through increased public spending and lower taxes or when it changes the structure of public spending in the (pre)election period. Under these conditions, the incentives faced by the politicians to manipulate budget items and to create budget deficits primarily depend on the fiscal preferences of voters (whether they prefer "high spending" or "low spending" politicians) and on the transparency of the budget process.

Shi and Svensson (2003:69-70) distinguish two types of PBC models: signal models (adverse selection-type models), that are based on asymmetric information regarding the politicians' level of competence, and models based on moral hazard. Drazen and Eslava (2006:16) expand this division with their own model of incumbents' asymmetric preferences (pork barrel cycles) in which alongside the overall level of expenditures one also observes the structure of expenditures among voters.

The key reason for analysing PBC models is in their empirical confirmation, which is stronger in the case of macroeconomic instruments than in that of macroeconomic results (Drazen, 2000:242-244). At the same time, empirical results clearly indicate that the manipulation of instruments by incumbents who wish to improve their re-election chances through opportunistic economic policies is more evident in the case of fiscal than in the case of monetary policy (Snowdon and Vane, 2005:536). This follows from Rogoff's concept of conservative central banker whose primary goal is price stability (Snowdon and Vane, 2005:552). Cycles that arise are shorter and have lower intensity, but the empirical advantage of PBC models is that they permit research into cycles at both national and local levels.

3.1 MODEL BASED ON ASYMMETRIC PREFERENCES

This model is based on signals that incumbents have sent to their electorate in the form of lower taxes and/or higher expenditures. The goal of incumbents in the (pre)election period is to present themselves as more competent than they really are. In that way, they create the illusion that they can provide a given level of public services with lower levels of public revenues.⁶

The basic argument of the model is that voters prefer public expenditures, but constantly undervalue their tax costs, i.e. they suffer from "fiscal illusions". The problem increases if the costs are postponed so voters support incumbents who

⁶Rogoff and Siebert (1988:2) define competence as the minimum amount of public revenues needed to ensure the given levels of public services.

can provide high levels of public expenditures, financed through public debt, and remove those who cannot.

3.1.1 Rogoff and Siebert PBC model

The PBC model by Rogoff and Siebert in 1988 assumes that each politician has a competence level (high or low) which is only known to him and not to the electorate. As a consequence, during elections, voters form their rational expectations based on observable current fiscal policy outcomes. A high-type incumbent will attempt to signal his type by engaging in expansionary fiscal policy, which leads to a pre-election budget deficit. A low-type incumbent will avoid this manoeuvre. The reason for this originates from the theoretical predictions of the model, in which both types of politicians put equal weights on re-election and social welfare.

Elections are held every two years and the incumbent provides a well-known, fixed level of public services financed through distortive (e.g. bond issuance) and non-distortive tax, depending also on the competence level of the incumbent (Rogoff and Siebert, 1988:5). Incumbents' competence is shown in the level and the structure of public revenues and it follows an MA(1)⁷ process indicating that competence will not be signalled outside the election period. Voters vote taking into account the increase/decrease of their individual utility functions. Since they are all identical we are observing a representative voter who will, other things being equal, prefer a high-type incumbent who can finance public goods solely through non distortive taxes that do not further decrease voters' income level.

At the beginning of each election period, voters receive a signal from the incumbent in the form of a non-distortive tax. Only after the elections are held do voters infer the second signal, which is loss of income (e.g. costs of debt financing). This enables incumbents to signalise a higher level of competence, i.e. to provide more public goods for a given level of (non-distortive) taxes, in the election period through budget deficit creation (Rogoff and Siebert, 1988).

3.1.2 Rogoff's PBC model

In Rogoff's PBC model of 1990 public goods are divided into "consumption" and "investment" goods. Pre-election manipulations are shown in the structure of public expenditures that decreases capital expenditures for "investment" goods and increases transfers and current spending. The model also incorporates an ego rent for the incumbent that represents a non-monetary benefit for holding office (e.g. honour), but which "does not exclude a possibility of rent seeking behaviour" (Rogoff, 1990:2).

⁷MA(1) denotes a moving-average model which is conceptually a linear regression of the current value of the series against current and previous (unobserved) white noise error terms or random shocks.

According to Rogoff's 1990 model an incumbent's competence follows the MA(1) process and we analyse the public goods production function, but in *per capita* amounts. The production of public goods depends on the level of (non-distortive) tax and incumbent's (administrative) competence,⁸ indicating that a competent incumbent is able to provide a given level of public goods at a lower level of taxes. Since the level of taxes and the amount of public "consumption" goods can be inferred by voters in time period t , which is the election period, the incentive for the incumbent to increase the amount of public "consumption" goods is evident. The exact level of the incumbent's competence will be clear in time period $t + 1$, once the production of public "investment" goods is noted. Thus in the election period voters do not know whether the increased amount of goods and services is a sign of higher competence or a result of a fiscal manipulation.

3.2 MODEL BASED ON MORAL HAZARD

In a PBC model based on moral hazard it is assumed that neither the electorate nor the politician can observe the politician's competence contemporaneously. A competent politician is defined by their ability to produce public goods without raising taxes. The easiest way to do this is through short-term excess borrowing, which voters infer only after the elections. Thus all politicians, regardless of their level of competence, will incur excessive pre-election budget deficits.

The supply of public goods depends on the incumbent's level of competence, taxes, excessive short-term borrowing and the cost function of public debt. The incumbent's competence also follows the MA(1) process, implying that the same level of competence does not last more than two periods. Exactly after these two periods, the elections are held.

At the beginning of period t incumbent decides on the level of taxes and excess short-term borrowing. During the observed time period there is shock in the incumbent's level of competence. The result of this shock is the *ex ante* uncertainty of the incumbent of his ability to convert revenues into public goods, i.e. his own competence. Since the elections are held at the end of the period, voters' ability correctly to evaluate the incumbent's decisions depends on the level of information. A share of the informed voters σ will know exactly the levels of taxes, public debt and public goods at the time of the election. A share of the uninformed voters $(1 - \sigma)$ will only have information on variables that directly affect their level of utility (public goods and tax levels). Thus it follows that incumbents will more easily manipulate fiscal instruments when the level of uninformed voters is bigger. The model implies that countries with lower levels of voter awareness and higher "ego" rents will have higher levels of public debt, but also that "ego" rents will decrease with the development of institutions and higher transparency of budget process (Shi and Svensson, 2006:1376-1377).

⁸ Rogoff (1990:23) identifies competence of politicians with the level of administrative intelligence quotient.

3.3 MODEL OF INCUMBENT'S ASYMMETRIC PREFERENCES: PORK BARREL CYCLE

Drazen and Eslava (2006) developed a PBC model in which incumbents influence voters by targeting government spending to specific group of voters at the expense of other voters or other expenditures. Using targeted spending, aimed at more “useful” voters, enables electoral manipulation with no effect on total spending and/or budget deficit. This is especially important for so called “old” democracies, where empirical research confirms that voters are “fiscal conservatives” who punish incumbents who generate budget deficits (Eslava, 2011:22). In the model, voters exactly know how the increase of spending is financed. Their only interest is in whether this structure of spending will continue to favour them once the elections are over. Total spending takes the three following forms in the model:

- geographically concentrated investment projects (a more narrow definition of “pork barrel spending”),
- expenditures and transfers targeted to specific demographic groups,
- tax cuts benefiting certain sectors.

A key innovation that enables the creation of PBCs is so called “policy” preferences of the incumbent over different voting groups that are not revealed to the electorate. Voters try to detect them by monitoring public goods spending over regions in the previous term. At the same time it is assumed that the incumbent has unobserved preferences concerning groups of voters or types of expenditure, which have some persistence over time. Monitoring the level of expenditures on public goods in one region enables the voter to infer the importance of that region in the time period t (election year) for the incumbents and their likely preferences in the future. In other words, a voter can rationally evaluate all future benefits if the incumbent remains in office (Drazen and Eslava, 2006).

4 SURVEY OF EMPIRICAL RESEARCH ON THE POLITICAL BUDGET CYCLE

This part of the paper presents 8 studies which empirically test the existence of PBC in OECD countries. All the papers are theoretically founded either on the asymmetric information or the moral hazard basis. Methodologically, research has been conducted via a static or a dynamic panel model. Six studies have been conducted at the local and the remaining two at the national level. The results in four studies confirm the existence of PBCs, while research undertaken by Rose (2006) indicates that PBCs are conditional on institutional constraints within the observed federal states of USA. Studies on federal states in the former West Germany yield interesting results. Seitz (2000) and Schneider (2010) reject the hypothesis that PBCs exist, while Galli and Rossi (2002) confirm it. Table 1 contains all the mentioned studies and lists: author names, methodology, variables and conclusions.

TABLE 1

Empirical research on PBC in developed countries

Authors	Methodology	Variables	Conclusion
Seitz (2000): 11 federal states of West Germany, 1970-1996	Fixed-Effect estimator (static panel data)	Primary budget balance, total expenditures, capital expenditures, federal grants, unemployment expenditures, total revenues, tax revenues	Partisan PBC model not confirmed.
Pettersson-Lidbom (2000): Sweden, 288 municipalities, 1974-1998	Anderson-Hsiao estimator (dynamic panel data)	Total spending, income tax rate, aggregate growth of the Swedish economy	In accordance with Rogoff's model, spending is raised and taxes are cut in election year, in the post-election year spending is higher and taxes are lower for re-elected than for newly elected governments, re-elected governments spend less and tax more in the post-election year as compared to the election year, conditional on taxes, spending is positively related to electoral success.
Galli and Rossi (2002): 11 federal states of West Germany, 1974-1994	Fixed-Effect estimator (static panel data)	Total expenditure, surplus/deficit, public administration, health care, education, roads and social security	Opportunistic PBC model confirmed, government spending increases in an election period.
Rose (2006): 43 federal states of USA, 1974-1999	GMM estimator (dynamic panel data)	Budget balance, taxes, expenditure, federal grants (<i>per capita</i>)	Fiscal restrictions on borrowing in federal states limits politically-motivated fiscal volatility.
Alt and Lassen (2006): 19 OECD countries, 1990-1999	GMM estimator (dynamic panel data)	Budget balance (% GDP), fiscal transparency index	Politically more polarized and fiscally less transparent countries record cycles in budget balance in the election years.
Veiga and Veiga (2006): 278 municipalities in Portugal, 1979-2001	GMM estimator (dynamic panel data)	Budget balance, taxes and total expenditures (<i>per capita</i>)	Opportunistic behaviour of local governments consistent with asymmetric information models, in pre-election periods they increase total expenditures and change their composition favouring items that are highly visible to the electorate.
Schneider (2010): federal states of West Germany, 1970-2003	Fixed-Effect estimator (static panel data)	Growth rates of deficit/surplus, total expenditure and social benefits	Due to institutional constraints incumbents manipulate budget structures, but there is no cycle in budget balance and total expenditure.
Katsimi and Sarantides (2012): 19 OECD countries, 1972-1999	Fixed-Effect estimator (static panel data)	Budget balance, total expenditures and revenues	Moral hazard PBC model was tested, only the negative effect of elections on revenue attributed to a fall in direct taxation was statistically significant.

Source: The author.

TABLE 2
Empirical research on PBC in transition and developing countries

Authors	Methodology	Variables	Conclusion
Hallerber and de Souza (2000): 10 new EU member states, 1990-1999	Time series analysis	Budget balance, money supply and exchange rate	Countries with fixed exchange rate exhibit an increase of budget deficit around 1.5% of GDP in pre-election period, while countries with flexible exchange rates exhibit an increase in money supply around 0.14 % of GDP in pre-election period if the central bank is not independent.
Akhmedov and Zhuravskaya (2004): Municipal level in Russia, 1996-2003	Fixed-Effect estimator (static panel data) and LOGIT	Total expenditures, social expenditures, education expenditures, expenditures on culture, health care expenditures, media expenditures, expenditures on industry, share of social expenditures, share of media expenditures, total revenues, tax revenues, deficit, transfers, growth, inflation, wage	Rogoff's type of PBC model is confirmed, existence of an opportunistic cycle in the level and structure of total expenditure in election period is confirmed (current expenditures rise), the magnitude of cycle decreases with institutional development and over time, pre-electoral manipulation increases incumbents' chances for re-election.
Maurel (2006): 25 EU countries, Bulgaria, Romania and Croatia, 1990-2005	Fixed-Effect estimator (static panel data)	Budget balance, total expenditures, total revenues, money aggregate M3	Increase in total expenditures and budget deficit in the election period in both "old" ad "new" member states.
Klašnja (2008): 25 post-communist countries, 1990-2006	Fixed-Effect estimator (static panel data)	Budget balance, total expenditures and revenues, social transfers and "local public goods" (current and capital expenditures, personnel expenditures, i.e. instruments that can be socially or geographically targeted) (% GDP)	Increase in budget deficit of 1.05% and in total expenditures of 0.82% in an election period, within total expenditures there is an increase of 0.63% on social transfers in an election and 0.45% in a post-election period, countries with presidential democracy and majoritarian election system exhibit cycles in social transfers with simultaneous cuts in tax revenues that are not recorded in countries with parliamentary democracy and proportional election system.
Vucković (2010): Croatia, 1995-2008	Time series analysis	Budget balance, total expenditures, total revenues (% GDP)	Opportunistic cycles in the total expenditures (increase in last quarter prior to elections and decrease in first quarter after elections).
Schuknecht (2000): 24 developing countries, 1973-1992	Fixed-Effect estimator (static panel data)	Budget balance, total expenditures, total revenues, capital and current expenditures and personnel expenditures	Total expenditures increase in pre-election period, together with an increase in capital as compared to current expenditures in pre-election period.

Authors	Methodology	Variables	Conclusion
Gonzalez (2002): Mexico, 1957-1997	Time series analysis	Budget balance, total expenditures and revenues, capital expenditures and social transfers	Capital expenditures in infrastructure and social transfers confirm the existence of an opportunistic PBC model.
Persson and Tabellini (2002): 60 countries, 1960-1998	Fixed-Effect estimator (static panel data)	Total expenditures, total revenues, deficit/surplus, social expenditures	Taxes decrease in pre-election period in both parliamentary and presidential democracies, but only the latter exhibit expenditure cuts and tax increases in a post-election period.
Khemani (2004): 14 federal states in India, 1960-1994	Time series analysis	Budget balance, public investment, total expenditures, total revenues	Election year is positively correlated with public investments and negatively correlated with certain consumption taxes, there is no cycle in budget deficit.
Brender and Drazen (2004): 68 countries, 1960-2001	Fixed-Effect estimator (static panel data)	Budget balance, total expenditures, total revenues (% GDP)	Both expenditures and budget deficits increase in election years in countries labelled as "new" democracies.
Drazen and Eslava (2005): Columbia (municipal level), 1992-2000	GMM estimator (dynamic panel data)	Current expenditures, capital expenditures, investment, debt service	There is no increase in total expenditures in the election period, rather a change in the structure of total expenditures, current expenditures decrease and capital expenditures increase with an increase in personnel expenditures for permanent personnel.
Shi and Svensson (2006): 85 developed and developing countries, 1975-1995	GMM estimator (dynamic panel data)	Budget balance as a percentage of GDP	Budget deficit increases around 1% in election year, stronger effect exhibited in developing countries due to weaker institutional variables and lack of access to information.
Brender and Drazen (2009): 74 countries, 1970-2003	LOGIT	BALCH_term (change in balance/GDP ratio in the period of 2 years prior to elections compared to balance/GDP ratio in the period of 2 years prior to that) and BALCH_ey (change in balance/GDP ratio in the election year compared to change in balance/GDP ratio in the year prior to election year)	Budget deficit in the election year decreases or does not have a statistically significant effect on re-election chances.
Naruhiko Sakurai and Menezes-Filho (2011): Brazil, 1989-2005	GMM estimator (dynamic panel data)	Budget balance, total expenditures (current and capital), tax revenues of local municipalities	Existence of opportunistic and partisan cycles at the local level in accordance with Rogoff's PBC model, budget deficit increase due to increase of current expenditures and decrease of local tax revenues in the election period.

Source: *The author.*

A survey of empirical studies of the existence of PBCs in the sample of transition and developing countries encompasses 13 studies, out of which 10 confirm the existence of PBCs. Methodologically, research was also conducted via static or dynamic panel models on a large sample of countries, but also via time series analysis. Brender and Drazen (2009) did not test for existence or statistical significance of budgetary variables in election period rather whether opportunistic creation of cycles helps boost re-election chances for the incumbent with LOGIT regression.⁹ Also Akhmedov and Zhuravskaya (2004) use LOGIT regression but combine it with static panel analysis. Methodology, variables and conclusions of surveys are presented in table 2 in chronological order. First are listed surveys in transition countries and after them surveys for developing countries, also in chronological order.

5 RESEARCH ON POLITICAL BUDGET CYCLES AT THE MUNICIPAL LEVEL IN CROATIA

5.1 DATA

The model encompasses 21 cities (19 county centres plus the City of Zagreb and Pula) in time period from 2002 till 2011. In the observed time period 3 parliamentary elections (2003, 2007 and 2011) and 2 local elections (2005 and 2009) were held, with all results calculated and shown at the municipal (local) levels. The sample encompasses all the county centres and the City of Zagreb, but instead of Pazin, in Istarska County, it includes Pula. Since Pula represents the economic, financial, cultural, transportation, health and educational hub of Istarska County, the choice was obvious. These 21 cities, out of the 33 that have taken over decentralised functions, were selected because of their size and due to the fact that they are generators of trends in fiscal variables at the local level. Furthermore, the NPE is based on a Hamiltonian approach to political economy which emphasises not just the importance of economic incentives, but also of political constraints, in its analysis of economic outcomes. The latter are shown in the symbolic value of holding office in the selected cities for all political parties. From that, it clearly follows that political constraints will significantly influence economic outcomes.

Data used in the model come from Ministry of Finance local budget archives, the State Election Committee and the Croatian Bureau of Statistics. As the starting year of the analysis, 2002 was chosen, because it was the year when the fiscal decentralisation process started and local-level data became available.

Dynamic panel regressions with dependent variables taken from local budgets are used in the model. Stated dependent variables in the model are:

- 1) Budget balance (% of total revenues),
- 2) Total expenditures (% of total revenues),

⁹LOGIT or logistic regression is a special form of regression analysis in which the dependent variable is a binary variable (Hair et al., 1995:130). In survey conducted by Brender and Drazen (2008) dependent variable takes the value of 1 if incumbent remains in office and 0 otherwise.

- 3) Current expenditures (% of total revenues),
- 4) Other expenditures (% of total revenues),
- 5) Capital expenditures (% of total revenues),
- 6) Average number of employees in local bureaucracy (% of total population),
- 7) Average number of employees in budgetary users (% of total population),
- 8) Personnel expenses for local bureaucracy (% of total revenues),
- 9) Personnel expenses for budgetary users (% of total revenues).

Model also includes 6 binary/dummy variables:

- 1) *Election year* (which takes the value of 1 in election year and 0 otherwise),
- 2) *Pre-election year* (which takes the value of 1 in pre-election year and 0 otherwise),
- 3) *Post-election year* (which takes the value of 1 in post-election year and 0 otherwise),
- 4) Partisan compatibility between national and local incumbents *IDEO* (which takes the value of 1 if national and local incumbent share the same party membership and 0 otherwise),
- 5) *Margin* (which takes the value of 1 if the percentage spread of votes received by the electoral winner is less than 5% compared to the runner up and 0 otherwise),
- 6) *Crises* (which takes the value of 1 in the period 2009-2011 and 0 otherwise).

The paper shares and uses the assumption that elections take place every second year, as stated in theoretical PBC models of asymmetric information.¹⁰ The goal of the paper is to empirically test whether total expenditures and budget deficits increase in an election period, i.e. is there an opportunistic cycle at the municipal level in Croatia.

The dummy variable *IDEO* is used to test whether partisan alliances at national and local level result in an increase of total expenditures in an election period. Results are compared to Naruhiko Sakurai and Menezes-Filho (2011) who tested for a similar effect on fiscal variables in their paper.

In accordance with Brender and Drazen (2009) the paper includes following control variables as an additional control of business cycle: *GDP per capita* and *GDP gap*.¹¹ This is primarily due to the fact that the revenue side of the local budget depends on revenues from the central budget through shared taxes. As in Pettersson-Lidbom (2000) we also add population as a final control variable.

¹⁰ Having elections every two years follows from the assumption of incumbent's competence, which follows the structure of the MA (1) process, meaning it lasts exactly two periods after which it needs to be signalled again.

¹¹ GDP gap was calculated in EViews 7 with Hodrick-Prescott's filter (l=100).

5.2 METHODOLOGY

As a research method, dynamic panel data analysis is applied in economic research in which the current value of a variable, for example, total expenditure budget, depends on the previous values of the same variable (Baltagi, 2008:135). Since autocorrelation is not included in the static panel model assumptions, the optimal choice is a dynamic panel model. Otherwise, the estimated parameters will be consistent, but inefficient, and the standard error of the estimated parameters will be biased (Škrabić, 2009:28). The advantage of dynamic panel analysis is also reflected in its wider economic application. Using the dependent variable with one or more lags, regardless of whether the estimated coefficients are of direct interest, significantly affects the consistent assessment of other parameters in the model (Bond, 2002). A dynamic panel model, which contains a dependent variable with $t - 1$ lag and K independent variables x_{itk} , $k = 1, \dots, K$, is written as:

$$y_{it} = \mu + \gamma y_{i,t-1} + \beta_1 x_{it1} + \beta_2 x_{it2} + \beta_K x_{itK} + \alpha_i + \varepsilon_{it}, \quad i = 1, \dots, N, t = 1, \dots, T, \quad (1)$$

where N denotes the number of units of observation, T the number of periods, and x_{itk} , $k = 1, \dots, K$ denotes the value of k independent variables in period t . The parameter α is a random or fixed effect, and β_1, \dots, β_K parameters are exogenous variables to be estimated in the model. It is assumed that the idiosyncratic shocks ε_{it} are $IID(0, \sigma_\varepsilon^2)$.

Since the lagged dependent variable $y_{i,t-1}$ is included in the model, it is correlated with the individual-specific effect α_i . If the above model is estimated using least squares, OLS estimators of model parameters would be biased and inconsistent, even in the case where ε_{it} are mutually uncorrelated, random variables. Arellano and Bond (1991:277-297) propose a new GMM (generalized method of moments) estimator for dynamic panel models.¹² Given this, the first difference of equation (1) can be written as follows:

$$y_{it} - y_{i,t-1} = \gamma(y_{i,t-1} - y_{i,t-2}) + \beta_1(x_{it1} - x_{i,t-1,1}) + \beta_2(x_{it2} - x_{i,t-1,2}) + \beta_K(x_{itK} - x_{i,t-1,K}) + (\varepsilon_{it} - \varepsilon_{i,t-1}); \quad i = 1, \dots, N, t = 1, \dots, T. \quad (2)$$

In order to ensure that parameter estimator of γ was consistent in dynamic panel model we need to include additional instruments. The valid instruments for $(y_{i,t-1} - y_{i,t-2})$ are lagged values of the dependent variable in level $(y_{i1}, y_{i2}, \dots, y_{i,t-2})$. Through the introduction of additional instruments for the independent variables, the GMM procedure solves the problem of endogenous variables and reverse causality. Valid instruments for values of independent variables in first differences $(x_{i,t-1,k} - x_{i,t-2,k})$, $k = 1, 2, \dots, K$ are lagged values of independent variables in level $(x_{i1k}, x_{i2k}, \dots, x_{i,t-2,k})$, $k = 1, 2, \dots, K$.

¹² Arellano-Bond estimator is optimal in the analysis of panel data, which are characterized by large N (number of units of observation) and small T (number of periods), as is the case in this paper.

Validity of chosen instruments for parameters estimation can be tested using the Sargan test. If a null hypothesis is accepted by the Sargan test it means that all chosen instruments are valid, that is, the dynamic panel model is adequately specified. Arellano and Bond (1991:282) developed two additional diagnostic tests for serial correlation: m_1 and m_2 . The second-order autocorrelation in the differenced residuals would imply that the estimates are inconsistent.

The advantage of using a two-step GMM estimator is because a one-step estimation assumes the error terms to be independent and homoscedastic across countries and over time. A two-step estimator relaxes the assumption of independence and homoscedasticity by using the residuals obtained from the first step estimation to construct a consistent estimate of the variance-covariance matrix. Thus, when the error term ε_{it} is heteroscedastic the two step estimator is more efficient (Višić and Škrabić Perić, 2011:178).

When interpreting the model, special attention was given to the dummy variables and their estimated parameters β_1, \dots, β_K . In the first step, we are interested in whether they are statistically significant and at what levels of significance. In the second step, we are interested in the sign of their coefficient, i.e. whether the sign corresponds to the theoretical predictions stated in PBC models.

5.3 EMPIRICAL RESULTS

The dynamic panel model used in the paper is written as follows:

$$BV_{it} = \alpha + \gamma BV_{i,t-1} + \beta_1 GDP_PC_{it} + \beta_2 GDP_GAP_{it} + \beta_3 TOT_POP_{it} + \beta_4 IDEO_{it} + \beta_5 ELE_YEAR_{it} + \beta_6 CRISES_{it} + \beta_7 MARGIN_{it} + \varepsilon_{it}, \quad (3)$$

where BV_{it} represents one out of nine budget variables and $BV_{i,t-1}$ the value of the dependent variable in the previous period. Control variables are: GDP_PC_{it} , GDP_GAP_{it} and TOT_POP_{it} , while the dummy variables $IDEO_{it}$ and ELE_YEAR_{it} are used in order to test the existence of ideological alliances and opportunistic cycles, respectively. In the sub-samples that examine local and parliamentary elections separately, the model was expanded by two additional dummy variables: $ELE_YEAR(-1)_{it}$ and $ELE_YEAR(+1)_{it}$. The former represent the pre-election and latter the post-election year. Finally, the model also includes two dummy variables: $CRISES_{it}$ and $MARGIN_{it}$.

Nine different models are estimated in the paper using a two-step GMM Arellano Bond estimator. All calculations were made in the statistical program Stata/SE 11.

Appendix contains descriptive analysis together with the correlation matrix. At a 5% significance level we see that the independent variables are not strongly correlated, which indicates that in the estimated models there are no problems of multicollinearity. Estimated models that test the existence of PBC are shown in tables 3-5.

TABLE 3
The results of dynamic panel data analysis: joint parliamentary and local elections

Dependent variable	Budget balance (SAL)	Total expenditures (UR)	Current expenditures (TC)	Other expenditures (TC_OST)	Capital expenditures (RNFI)	Average number of employees in local bureaucracy (ZPT)	Average number of employees in budgetary users (ZPK)	Personnel expenses for local bureaucracy (RZT)	Personnel expenses for budgetary users (RZK)
<i>GDP gap</i>	-0.351355 (.1123043)	.173179*** (.1026024)	-3.18688* (.1088477)	.0704949** (.0355532)	.2981087* (.0821392)	-1.1470291* (.0242799)	-2.935822* (.0747549)	-2.167674* (.02405)	.0381303 (.0648817)
<i>GDP pc</i>	2.29e-09* (4.57e-10)	-3.29e-09* (6.22e-10)	7.63e-10*** (4.10e-10)	-5.18e-10* (1.98e-10)	-2.26e-09* (4.80e-10)	-6.20e-11* (2.71e-12)	-1.63e-10* (6.25e-12)	6.02e-11 (8.06e-11)	3.58e-10** (1.13e-10)
<i>Total population</i>	4.52e-06* (1.20e-06)	-7.46e-06* (1.54e-06)	-2.08e-06** (8.08e-07)	-3.37e-07 (4.23e-07)	-4.83e-06* (9.60e-07)	-9.60e-08* (4.06e-09)	-2.39e-07* (1.60e-08)	-1.11e-07 (2.23e-07)	-4.53e-08 (1.91e-07)
<i>IDEQ</i>	5.02e-06 (3.90e-06)	-1.00e-05** (4.00e-06)	4.40e-07 (2.22e-06)	3.23e-06*** (1.89e-06)	-0.000102* (3.23e-06)	1.34e-07* (2.82e-08)	5.88e-07* (1.28e-07)	-3.03e-07 (3.71e-07)	-8.11e-07 (1.23e-06)
<i>Election year</i>	.0198274 (.0128713)	-.0460624* (.008964)	.0040866 (.0068872)	.0114179** (.004935)	-.0253755** (.0098597)	-8.69e-06 (.0000835)	-.0001955 (.0001803)	-.0004434 (.0030327)	-.0055763 (.0062833)
<i>Crises</i>	.0186727* (.0054602)	-.0278911* (.0079538)	-.0093125 (.0038173)	.0093686* (.002925)	-0.136125*** (.0077923)	-.0005339* (.000027)	-.001467* (.0001072)	.0027968* (.0009586)	-.0056405* (.0007756)
<i>Margin</i>	-.0854314* (.0132365)	.100419* (.0155893)	.0846415* (.0128869)	.0011065 (.0166741)	.0026573 (.0166741)	.0017613* (.0000767)	.0039293* (.0001801)	.0117726* (.0030927)	.0190663* (.0036976)
<i>-cons</i>	.0008164 (.0115389)	.0138415 (.0165515)	-.0154585*** (.0093059)	-.0025566 (.0042739)	.0307741** (.014926)	.0003067* (.0000482)	.0006735* (.0002458)	-.0038908 (.0025652)	-.0061244** (.0027036)
<i>Sargan test (p-value)</i>	-.7211676** (.3229327)	2.338167* (.3242469)	1.060523* (.2795429)	-1.524102 (.1705197)	1.672986* (.2824686)	-.0029356 (.0030242)	-.0354755** (.0150286)	.085889** (.0411293)	.2049066 (.1281029)
<i>AR(1) test</i>	N 168	168	168	168	168	168	168	168	168
<i>AR(2) test</i>	0.9996	1.0000	0.9995	0.9998	0.9997	0.9955	0.9904	0.9988	1.0000
	0.0154	0.0060	0.1256	0.0403	0.0055	0.0001	0.0089	0.0387	0.2438
	0.8070	0.8419	0.1000	0.0988	0.3446	0.7807	0.0694	0.5722	0.4396

Note: *, **, *** denotes statistical significance at the level of 1%, 5% and 10%. Standard errors in parentheses.

Source: Calculated by author.

Tax autonomy of cities is enabled because the total revenues of the majority of cities refer to tax revenues which again come mostly from taxes shared with the central government.¹³ Papers by Bajo and Jurlina Alibegović (2008) and Rogić Lugarić (2010) also confirm this statement. Accordingly the revenue side of the budget has not been analysed and all other budgetary variables are presented as a proportion of total revenue. The other two variables, the average number of employees in local bureaucracy and in budgetary users, are expressed as a percentage of total population in the city selected in the reference year.

Results presented in tables 3-5 indicate that all three diagnostic tests for the validity of the estimated dynamic models are satisfied. Based on the results of Sargan's test, we can conclude that the instruments used are well chosen. The basic premise of dynamic panel models and the Arellano-Bond estimator that there is no autocorrelation of error terms of the first and second row of the first differences of residuals is rejected only in the case of a second-order autocorrelation. This is the case only in the model with other expenditures and in the model with the average number of employees in budgetary users in table 3 at a 10% significance level and in the model with current expenditures and in the model with other expenditures in table 4 and table 5 at a 10% significance level.

Results of the dynamic panel analysis (table 3) indicate a rejection of the hypothesis of the existence of PBC in the selected sample in the observed period. In the model with budget balance and in the model with total expenditures, the dummy variable election year is statistically significant, but the coefficient has a sign which is opposite to the theoretically expected one. That is, in election years the budget balance, on average, increases by 1.9% of total revenue, while total expenditures, on average, decrease by 2.8% of total revenues.

Based on the obtained results, the selected Croatian cities cannot be classified into the paradigm set by the "old democracies". Brender and Drazen (2004) obtained a negative coefficient for this group of countries and more importantly the coefficient was statistically insignificant. In accordance with Rose (2006), the results indicate that the opportunistic manipulation of fiscal instruments is determined by the institutional context within the budgetary process takes place. Limitations on borrowing at the local level in Croatia represent a confirmation of the findings of Bajo and Jurlina Alibegović (2008) and Primorac (2011). Therefore, these results indicate that budgetary constraints regarding public debt accumulation at the local level¹⁴ actually reduce the magnitude of opportunistically motivated PBC.¹⁵ The implications of this conclusion, at the national level, could potentially result in a

¹³ In the selected sample the share of tax revenues in total revenues amounted up to 64-68% in the observed time period.

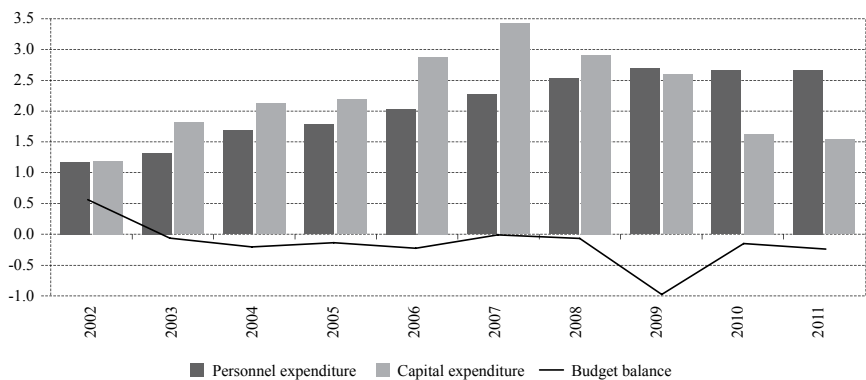
¹⁴ Government and the Ministry of Finance restrict local government borrowing up to 2.3% of total revenues of all local units (Bajo and Jurlina Alibegović, 2008:135).

¹⁵ Primorac (2011:461) states that cities can borrow through utility companies that are in their possession and thus circumvent institutional constraints specified in the Budget Law and the Law on State Budget Execution.

reduction of total expenditures in election years which is a point strongly advocated by the constitutional political economy. Furthermore, Vučković (2011) finds that the only statistically significant variable with the expected theoretical sign, at the consolidated central government level, is total expenditures. This raises a number of questions connected with the conduct of economic policy within such a context, the most important being the limited use of countercyclical fiscal policy. Descriptive analysis (figure 1) shows that capital expenditures have declined since 2008 while personnel expenditures have increased or remained at the same level. In other words, fiscal policy was not used as a countercyclical instrument, rather it was a result of “state capture” and rent-seeking behaviour by the bureaucracy.

FIGURE 1

Budget balance, current and capital expenditures (in billion kuna)



Source: Calculated by author.

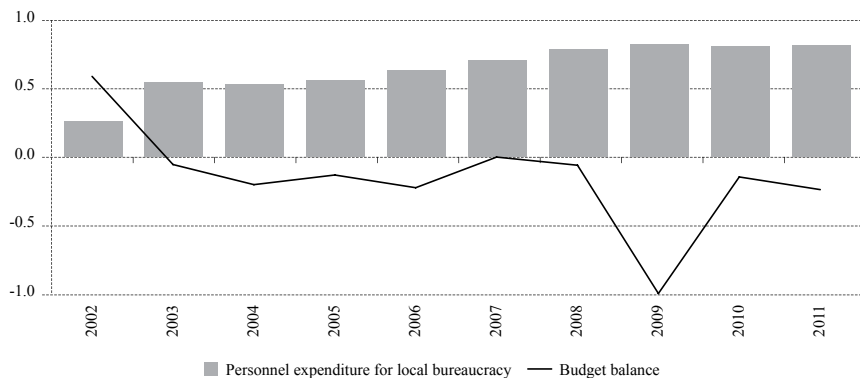
Econometric analysis also confirms that in election years capital expenditures decrease (on average by 1.4% of total revenues), while other expenditures (on average by 0.9% of total revenue) and personnel expenditure for local bureaucracy (on average by 0.3% of total revenues) simultaneously increase. It follows that the manipulation of the structure of total expenditures serves as the second best strategy for the incumbent in election years. As in Schneider (2010) we find that incumbents use this fiscal strategy, the only one remaining due to institutional constraints.

The relationship between budget balance and personnel expenditure for local bureaucracy is shown in figure 2. It indicates that personnel expenditure grew continuously until 2009, regardless of whether the budget was balanced or not. Personnel expenditures declined in 2010, but in the year of the last parliamentary elections, 2011, they again increased. Throughout this period, the budget balance of selected cities was in surplus only in 2002 and in 2007. This indicates not only the fiscal irresponsibility of the political elite at the local level, but also to political economy issues in planning and implementing budgetary policies and the appa-

rent rent-seeking behaviour of the local bureaucracy. Apparently incumbents calculate that this will provide them additional votes. Tullock (1987:1043) cites empirical studies, which confirm the above.

FIGURE 2

Budget balance and personnel expenditure for local bureaucracy (in billion kuna)



Source: Calculated by author.

Econometric analysis shows that while in election years the average number of employees both in local bureaucracy (on average by 0.15% of total population) and in budgetary users (on average by 0.15% of total population) decreases, the personnel expenditure for local bureaucracy increases on average by 0.27% of total revenue. Also, the decline in personnel expenditure for budgetary users (on average by 0.56% of total revenue) with the concurrent increase in personnel expenditure for local bureaucracy may be associated with incumbents' distribution policies, according to Lowi's typology of public policies (Petak, 2008:455). The increase in personnel expenditure for local bureaucracy apparently was financed by reducing other budget items. In this way, employees in local bureaucracy are protected and rewarded for their loyalty, while the salaries of employees in budget users are reduced. Employees in budget users, that is, particularly, in culture and education, are usually not politically reliable since their working place mandates certain professional knowledge that enables them to be free from the direct influence of the incumbent. The above coincides with the findings of Rogić Lugarić (2012:116-117) in a situation in which a budget surplus occurs in municipalities. Excess of revenue in the budget can be used to reduce existing taxes, to reduce debt or can be transferred to the next year and allocated to specific, mostly current, expenditure. Such a decision on the allocation of scarce resources is distributive and political. Drazen and Eslava (2005:22) also found a statistically significant increase in the personnel expenditures for permanent personnel, which reinforces the widespread belief that incumbents in Colombia trade jobs for political support and election votes.

Partisan compatibility between national and local incumbents, or variable *IDEO*, is statistically significant only in the case of the following variables: total expenditures, other expenditures and capital expenditures. All three variables are statistically significant even when we look at particular outcomes of parliamentary and local elections. Even their signs and the estimated coefficients are equal. A negative sign obtained for the variable total expenditure (a reduction, on average, by 4.6% of total revenue) and capital expenditures (a reduction, on average, by 2.53% of total revenue) points to the following two conclusions. First, the movement of these variables is the opposite of the expected theoretical direction and the results do not coincide with those of Naruhiko Sakurai and Menezes-Filho (2011) in the case of local elections in Brazil. Second, the resulting signs of coefficients are equal both for dummy variable *Election year* and *IDEO*, suggesting that partisan compatibility apparently does not play any role in the allocation/distribution of budget funds. As in Jurlina Alibegović et al. (2010) it is evident that the connections between central and local government units are primarily determined through decentralized functions and fiscal equalization model. With respect to the latter, Bajo and Bronić (2007), on a sample of 5% of cities and municipalities, and Bronić (2010), on a sample of counties, judge it inefficient, but in the identification of reasons do not find any related to party affiliation.

In order to capture the potential benefits of pre-election manipulation, in a situation of uncertainty of election outcome, the model was augmented with an additional dummy variable – *margin*. The obtained results again indicate that the incumbent turns to his second best strategy in that situation. Through restructuring items on the expenditure side of the budget, the incumbent, in the election year, on average, reduces current expenditures by 1.5% of total revenue and simultaneously increases capital expenditures, on average, by 3.1% of total revenues. In other words, voters in these cities can expect an increase in capital investment, a reduction in current expenditures and no cycle in the budget balance. Khemani (2004) obtained identical results for local elections in 14 states in India. Also, the incumbent increases the average number of employees in the local bureaucracy, on average, by 0.03% of total population and the average number of employees in budgetary users, on average, by 0.06% of total population. This electoral manoeuvre is “paid for” by a decrease in personnel expenditures for budgetary users in the amount of, on average, 0.6% of total revenues.

The dummy variable *crisis* unambiguously shows that in the period 2009-11 the budget balance deteriorated, on average, by 8.54% of total revenue. Total expenditures in the reporting period increased, on average, by 10.04% of total revenue as a result of the increase in current expenditures, on average, by 8.46% of total revenue. Franić (2012) analysed employment at the local level in Croatia in the 2008-11 period and found that the total number of employees that received wage from local and regional government increased by 15%. This increase was evident both in the absolute and the relative increase in the proportion of total expenditure.

Given that during this period new units were not established, and that no significant progress in decentralization was made, which would have required new jobs, it is evident that this was a political-economy answer to unemployment issues on the labour market. The same trend is observed in our sample of cities. The model records an increase in the average number of employees in local bureaucracy, on average, by 0.17% of total population and an increase in the average number of employees in budgetary users, on average, by 0.39 % of total population. Also, personnel expenditures for local bureaucracy, on average, increase by 1.17% of total revenues and personnel expenditures for budgetary users, on average, increase by 1.9% of total revenues.

If local elections are analysed separately then the hypothesis on the existence of PBC is confirmed. As in Naruhiko Sakurai and Menezes-Filho (2011), we find that budget deficit increases, on average, by 4.45% of total revenues. The budget deficit is also statistically significant in the pre-election and post-election year. In pre-election year, the budget deficit increases, on average, by 4.81% of total revenue and in post-election year the budget deficit increases, on average, by 2.36% of total revenue. Rašić Bakarić et al. (2013), on a sample of 127 cities, and Bratić (2008), in an analysis of the decision-making processes on local budgets in Croatia, conclude that political commitment does not affect the movement of budgetary variables. In other words, all politicians opportunistically manipulate budget items in order to ensure re-election.

In the model with total expenditures, there is a statistically significant increase in the pre-election (on average by 3.41% of total revenues) and the post-election year (on average by 2.06% of total revenues). In the composition of total expenditures, for all three selected periods, only other expenditures are statistically significant, decreasing, on average, by 1.65% of total revenues in the pre-election year.

Also, in each of the selected periods there is a statistically significant increase in variables that measure average numbers of employees in a local bureaucracy and in budgetary users with the most significant coefficients in a post-election year (0.105% and 0.296% of total population, respectively). In a situation in which the outcome of the elections is unclear, the dummy variable *margin* in the election year also confirms a statistically significant and positive coefficient of the mentioned variables (0.034% and 0.052% of total revenues, respectively). The above mentioned phenomenon points to the incumbents' motivation, which is for the incumbent to ensure political support in local elections by providing jobs to the electorate. Since the turnout in local elections is much lower than the turnout in the parliamentary elections (SEC, 2013) the marginal benefits of such a manoeuvre are much larger.

TABLE 4
The results of dynamic panel data analysis: local elections

Dependent variable	Budget balance (SAL)	Total expenditures (UR)	Current expenditures (TC)	Other expenditures (TC_OST)	Capital expenditures (RNFI)	Average number of employees in local bureaucracy (ZPT)	Average number of employees in budgetary users (ZPK)	Personnel expenses for local bureaucracy (RZT)	Personnel expenses for budgetary users (RZK)
<i>Dependent variable</i>	-1.734933** (.0866908)	-0.0318814 (.0995042)	-4.08451* (.1519903)	1.589668** (.0759598)	288.2844** (.1347161)	.1326647* (.0503974)	-1.212022 (.133616)	.1608494* (.0230038)	.1414747** (.0559279)
<i>GDP gap</i>	1.44e-09* (4.44e-10)	-2.07e-09* (6.33e-10)	1.22e-09* (4.43e-10)	-7.42e-10* (2.56e-10)	-2.36e-09* (4.79e-10)	-5.92e-11* (2.51e-12)	-1.52e-10* (8.48e-12)	-1.56e-11 (1.02e-10)	3.87e-10** (1.56e-10)
<i>GDP pc</i>	4.49e-06* (1.01e-06)	-5.62e-06* (1.43e-06)	-1.35e-06** (5.37e-07)	-1.62e-07 (6.37e-07)	-4.72e-06* (9.39e-07)	-8.12e-08* (4.35e-09)	-2.08e-07* (2.04e-08)	-4.04e-07 (2.81e-07)	-9.91e-08 (3.32e-07)
<i>Total population</i>	6.28e-06 (3.94e-06)	-8.17e-06** (3.88e-06)	5.15e-07 (2.65e-06)	1.33e-06 (2.31e-06)	-8.93e-06* (3.04e-06)	7.32e-08** (4.19e-08)	3.34e-07*** (1.84e-07)	3.81e-07 (6.64e-07)	5.92e-07 (1.42e-06)
<i>IDEO</i>	.0116954 (.0097328)	-0.0213806** (.0099305)	.0111766 (.0094053)	.0110828** (.0055944)	-0.0258052** (.0120865)	-0.000987* (.0000482)	-0.0002981* (.0001134)	.0006123 (.0060345)	-0.008577 (.007873)
<i>Election year</i>	-.0445553* (.0124494)	.021568 (.0148752)	.0075801 (.0059256)	.002812 (.0027731)	-0.0012691 (.0132777)	.0005471* (.0000461)	.0015661* (.0001054)	-.0065418* (.0011563)	.0019676 (.0029124)
<i>Pre-election year (-)</i>	-.0481236* (.0098106)	.0341971* (.0117483)	.0052825 (.0102531)	-0.016565* (.0053745)	.012516 (.0121139)	.0004098* (.0000563)	.0008391* (.000168)	-.0040639** (.001831)	.0107797* (.0028454)
<i>Post-election year (+)</i>	-.0236024** (.0110145)	.0206571** (.0089672)	.0150651 (.0084286)	-0.0032058 (.0044925)	.0080385 (.013395)	.0010559* (.0000577)	.0029689* (.0001996)	-.0066008* (.0008626)	.0007081 (.0023724)
<i>Crises</i>	-.0547207* (.0140535)	.0750296* (.0170365)	.0667683* (.0139985)	.0050259 (.0081244)	.0075472 (.0186699)	.0001167* (.0000819)	.0025568* (.0002581)	.0162795* (.0035466)	.018282* (.0062298)
<i>Margin</i>	.005664 (.0134177)	-0.0116937 (.0139365)	-0.0128702 (.0113066)	-0.0039785 (.0051802)	.025805 (.0183804)	.0003477* (.0000705)	.0005276*** (.000294)	-.0049563** (.0023088)	-0.015283** (.0045706)
<i>-cons</i>	-.963466* (.3004852)	2.284333* (.305952)	1.098516* (.2950632)	.0027445 (.224111)	1.599955* (.3069513)	-0.011136 (.003651)	-0.0106099 (.0273451)	.04637 (.0753964)	.0522293 (.13734)

Budget balance (SAL)	Total expenditures (UR)	Current expenditures (TC)	Other expenditures (TC_OST)	Capital expenditures (RNFI)	Average number of employees in local bureaucracy (ZPT)	Average number of employees in budgetary users (ZPK)	Personnel expenses for local bureaucracy (RZT)	Personnel expenses for budgetary users (RZK)
168	168	168	168	168	168	168	168	168
0.9999	1.0000	1.0000	1.0000	0.9994	0.9883	0.9933	0.9995	1.0000
0.0139	0.0140	0.3844	0.0280	0.0113	0.0003	0.0026	0.0363	0.0475
0.6785	0.9105	0.0861	0.0609	0.4385	0.6835	0.1300	0.5006	0.7927

Note: *, **, *** denotes statistical significance at the level of 1%, 5% and 10%. Standard errors in parentheses.

Source: Calculated by author.

TABLE 5
The results of dynamic panel data analysis: parliamentary elections

Dependent variable	Budget balance (SAL)	Total expenditures (UR)	Current expenditures (TC)	Other expenditures (TC_OST)	Capital expenditures (RNFI)	Average number of employees in local bureaucracy (ZPT)	Average number of employees in budgetary users (ZPK)	Personnel expenses for local bureaucracy (RZF)	Personnel expenses for budgetary users (RZK)
<i>GDP gap</i>	-1.734933** (.0866908)	-0.0318814 (.0995042)	-4.08451* (.1519903)	.1589668** (.0759598)	.2882844** (.1347161)	.1326647* (.0503974)	-1.212022 (.133616)	.1608494* (.0230038)	.1414747** (.0559279)
<i>GDP pc</i>	1.44e-09* (4.44e-10)	-2.07e-09* (6.33e-10)	1.22e-09* (4.43e-10)	-7.42e-10* (2.56e-10)	-2.36e-09* (4.79e-10)	-5.92e-11* (2.51e-12)	-1.52e-10* (8.48e-12)	-1.56e-11 (1.02e-10)	3.87e-10** (1.56e-10)
<i>Total population</i>	4.49e-06* (1.01e-06)	-5.62e-06* (1.43e-06)	-1.35e-06** (5.37e-07)	-1.62e-07 (6.37e-07)	-4.72e-06* (9.39e-07)	-8.12e-08* (4.35e-08)	-2.08e-07* (2.04e-08)	-4.04e-07 (2.81e-07)	-9.91e-08 (3.32e-07)
<i>IDEO</i>	6.28e-06 (3.94e-06)	-8.17e-06** (3.88e-06)	5.15e-07 (2.65e-06)	1.33e-06 (2.31e-06)	-8.93e-06* (3.04e-06)	7.32e-08*** (4.19e-08)	3.34e-07*** (1.84e-07)	3.81e-07 (6.64e-07)	5.92e-07 (1.42e-06)
<i>Election year</i>	.0116954 (.0097328)	-.0213806** (.0099305)	.0111766 (.0094053)	.0110828** (.0055944)	-.0258052** (.0120865)	-.0000987** (.0000482)	-.0002981* (.0001134)	.0006123 (.0060345)	-.008577 (.007873)
<i>Pre-election year (-)</i>	.0445553* (.0124494)	-.021568 (.0148752)	-.0075801 (.0059256)	-.002812 (.0027731)	.0012691 (.0152777)	-.0005471* (.0000461)	-.0015661* (.0001054)	.0065418* (.0011563)	-.0019676 (.0029124)
<i>Post-election year (+)</i>	.0209529** (.0099074)	-.0009108 (.0121103)	.007485 (.009289)	-.0060179 (.0045741)	.0093077 (.0103009)	.0005088* (.0000262)	.0014028* (.0001245)	-.0000589 (.0010896)	-.0012595 (.0018583)
<i>Crises</i>	-.0547207* (.0140535)	.0750296* (.0170365)	.0667683* (.0139985)	.0050259 (.081244)	.0075472 (.0186699)	.0001167* (.0000819)	.0025568* (.0002581)	.0162795* (.0035466)	.018282* (.0062298)
<i>Margin</i>	.005664 (.0134177)	-.0116937 (.0139365)	-.0128702 (.0113066)	-.0039785 (.0051802)	.025805 (.0183804)	.0003477* (.0000765)	.0005276*** (.000294)	-.0049563** (.0023088)	-.0115283*** (.0045706)
<i>cons</i>	-1.008021* (.3013278)	2.305901* (.3056829)	1.106096* (.2946027)	.0055566 (.2248378)	1.598686* (.3060791)	-.0005666 (.00366633)	-.0090438 (.0273811)	.0398282 (.0754164)	.0541969 (.1391131)

Budget balance (SAL)	Total expenditures (UR)	Current expenditures (TC)	Other expenditures (TC_OST)	Capital expenditures (RNFI)	Average number of employees in local bureaucracy (ZPT)	Average number of employees in budgetary users (ZPK)	Personnel expenses for local bureaucracy (RZI)	Personnel expenses for budgetary users (RZK)
168	168	168	168	168	168	168	168	168
0.9999	1.0000	1.0000	1.0000	0.9994	0.9883	0.9933	0.9995	1.0000
0.0139	0.0140	0.3844	0.0280	0.0113	0.0003	0.0026	0.0363	0.0475
0.6785	0.9105	0.0861	0.0609	0.4385	0.6835	0.1300	0.5006	0.7927

Note: *, **, *** denotes statistical significance at the level of 1%, 5% and 10%. Standard errors in parentheses.

Source: Calculated by author.

The dummy variable *margin* indicates a decrease of personnel expenditures for local bureaucracy (on average, by 0.49% of total revenues) and for budgetary users (on average, by 1.15% of total revenues). At the same time, personnel expenditures for a local bureaucracy, on average, decreases in each of the three periods, with the most significant coefficient in the *post-election year* (on average, by 0.66% of total revenues). On the other hand, personnel expenditures for budgetary users, in a *pre-election year*, showed a statistically significant increase, on average, by 1.07% of total revenues. Having all that in mind, one can conclude that in the case of local elections too there is a certain amount of restructuring among expenditure items in order to finance the increased number of personnel. The increase in “visible” expenditures (the average number of employees and personnel expenditures) in combination with an increase in the budget deficit refers to the theoretical assumptions of Rogoff’s PBC model.

Given the budget constraints that apply to the local level, incumbents are aware that the budget deficit created may be minimal as confirmed by the items that change in the election years (the average number of employees and personnel expenditures for the local bureaucracy). Thus, the legislator took a “weapon” from the incumbents’ hands at the local level, but did not manage to diminish their motives and their tendency to opportunistic behaviour. Furthermore, the existence of budget constraints for borrowing *de facto* abolishes the distinction between competent and incompetent incumbent. In the selected period, the average value of the budgetary balance (appendix, print out A1) indicates an average deficit in the observed time period, meaning that all incumbents take their toll in creating a deficit. The only question is how the incumbents restructure expenditure items and guess the preferences of the electorate.

Identical variables are statistically significant for the dummy variable *crisis* (SAL, UR, TC, ZPT, ZPK, RZT and RZK), as they were in the joint analysis of local and parliamentary elections. All estimated coefficients are positive and lower than those estimated for the joint analysis, except for the coefficient related to personnel expenditures for local bureaucracy, which, on average, increases by 1.62% of total revenue. In addition, estimated coefficients have the same sign and size in both local and parliamentary elections.

The variables SAL, ZPT, ZPK and RZT are statistically significant in the analysis of parliamentary elections, but they have opposite signs of the estimated coefficients in relation to the analysis of local elections. That is, budget deficit decreases, on average, by 4.45% of total revenue as well as the average number of employees in local bureaucracy (by 0.05% of the total population on average) and in budgetary users (by 0.15 % of the total population on average). The last two results are equivalent to those obtained in the joint sample, while the personnel expenditure for local bureaucracy in the election year increases, on average, by 0.65 % of total revenue. In a pre-election year, the average number of employees

in the local bureaucracy and in budgetary users increases, while the budgetary deficit decreases. A post-election year records a statistically significant decrease in other expenditures and in the average number of employees in the local bureaucracy and budgetary users, with a simultaneous increase in personnel expenses for budgetary users. The signs and estimated coefficients on the dummy variables margin and crisis have exactly the same sign and size in both local and parliamentary elections.

6 CONCLUSION

From the viewpoint of political economy, analysis of the informational, technical and political constraints faced by incumbents and by other participants in PCT is becoming increasingly relevant in an environment characterized by fiscal consolidation. In accordance with Aristotle's notion that man is "a political animal", every individual, directly or indirectly, creates an environment in which market and non-market activities take place. Therefore, any analysis of non-market decision making processes (such as decisions in the budget process) that ignores political constraints is incomplete and inadequate.

This paper investigates the relationship between PBC theory and its empirical implications on a sample of Croatian cities. The fiscal strategies of incumbents seeking re-election within the institutional constraints placed at the local level have also been analysed. The correlation between budget items in selected Croatian cities (19 county centres, the City of Zagreb and Pula) with the election results in the period 2003-11 has been empirically tested. Dynamic panel models have been estimated using the Arellano and Bond two-step GMM estimator. The paper presents not only the empirical part but also various theoretical models of PBC as well as a review of empirical research on the existence of PBC in developed, transition and developing countries. A total of 27 econometric models in three different samples have been estimated. The first nine models were related to the joint analysis of the impact of local and parliamentary elections on budgetary variables in a selected sample of cities; the following nine on impacts of local elections and the last nine on impacts of the parliamentary elections.

The results of dynamic panel analysis on the joint sample indicate a rejection of the hypothesis that opportunistic PBCs exist at the level of the observed Croatian cities. In election years, the budget deficit and total expenditures decrease as opposed to the theoretical assumptions of the model. Due to the institutional constraints on local level public borrowing incumbents manipulate the structure of total expenditure in order to maximize re-election. The results indicate that budget constraints on public borrowing result in a decrease of opportunistically motivated PBCs. This has important repercussions when applied to the level of consolidated central government and consolidated general government.

An increase in current expenditures (personnel expenditure for local bureaucracy and other expenditures) and a decrease in capital expenditures represents a second best strategy for incumbents. This underscores the rent-seeking role of the bureaucracy in the electoral process, which is consistent with Niskanen's assumptions on the maximization of the bureaucrats' budget. At the same time this represents a rational decision on behalf of incumbents, who count on a turnout of public servants in the elections that is high compared to the rest of electorate. In a situation in which the outcome of the election is uncertain, the estimated models suggest that incumbents increase the average number of employees in local bureaucracy and in budgetary users. In addition to that, there is an increase in capital expenditures with a simultaneous reduction of current expenditures.

In the sample of parliamentary elections, the results of the analysis do not differ significantly from those obtained from the joint sample. The budget deficit reduces in election years, while total expenditures are not statistically significant at standard levels of significance. Incumbents' strategy in election years is marked by an increase in the average number of employees in local bureaucracy and in budgetary users, combined with a reduction in personnel expenditures.

Confirmation of the hypothesis of the existence of opportunistic PBC's at the level of observed Croatian cities was found in a sample analysing only local elections. Estimated coefficients in models with budget balance, average number of employees in local bureaucracy and an average number of employees in budgetary users are statistically significant and in line with the theoretical predictions of Rogoff's PBC model presented in chapter 3.

The results of the dynamic panel analysis in none of the three samples confirm the additional hypothesis that an increase of public expenditure follows when the incumbents at the central and local level share the same party membership. Given that the central and local levels are connected via financing of the decentralized functions and through the fiscal equalization model, incumbents at the central level do not have any additional space for discretion in the election cycle.

The limitation of this study stems from the relatively short time series. Furthermore, a more complete analysis of the opportunistic motives of incumbents at the local level should include utility companies owned by local units and their respective budget. It is through utility companies and their excessive short-term borrowing that the municipalities are able to circumvent budget constraints on public borrowing. The latter also represents a direction for future research. Also, according to the theoretical foundations of the model of an incumbent's asymmetric preferences and the extreme fiscal centralization in Croatia, it would be interesting to analyse the impact of spending from the central government budget targeted to specific social groups and/or geographical areas, and the results of elections at local and regional levels.

PRINT OUT A1

Descriptive analysis

```
. summarize bdp_jaz bdp_pc br_stan rnfi rzk rzt sal tc tc_ost ur zpk zpt
```

Variable	Obs	Mean	Std. Dev.	Min	Max
bdp_jaz	210	5.80e-06	1.48e+07	-3.05e+07	2.07e+07
bdp_pc	210	55889.54	19930.38	27905.64	1381195
br_stan	210	91873.93	160860.7	11832	793616
rnfi	210	.2295255	.1035899	.0362604	.677106
rzk	210	.1434883	.048639	0	.2378531
rzt	210	.0787342	.0377541	0	.2968779
sal	210	-.0153087	.0838408	-.2339418	.2229724
tc	210	.7857832	.0865491	.4152943	.9790033
tc_ost	210	.1535218	.0713549	.0187538	.5186317
ur	210	1.015309	.0838408	.7770276	1.233942
zpk	210	.0056085	.003115	0	.0149832
zpt	210	.001921	.001066	0	.0066568

Source: Calculated by author.

PRINT OUT A2

Correlation matrix (on 5% significance level)

```
. pcorr bdp_jaz bdp_pc br_stan ideo izb_god izb_god_1_ izb_god_1_01 kriza  
margina rnfi rzk rzt sal tc tc_ost ur zpk zpt, star(5)
```

	bdp_jaz	bdp_pc	br_stan	ideo	izb_god	izb_g-1_	izb_g-01
bdp_jaz	1.0000						
bdp_pc	-0.1743*	1.0000					
br_stan	-0.0007	0.6933*	1.0000				
ideo	-0.0907	-0.2661*	-0.1590*	1.0000			
izb_god	0.1218	0.0121	-0.0012	0.0042	1.0000		
izb_god_1_	0.2694*	-0.0904	0.0006	0.0042	-0.4286*	1.0000	
izb_god_1_01	-0.4331*	0.0477	0.0006	0.0190	-0.3273*	-0.3273*	1.0000
kriza	0.4836*	0.2090*	-0.0031	-0.1621*	0.0476	0.0476	-0.3273*
margina	-0.1873*	0.0037	-0.0450	0.0942	0.2124*	-0.2124*	-0.1217
rnfi	-0.3095*	-0.0062	-0.0415	0.0986	-0.0858	-0.1245	0.2160*
rzk	0.0874	0.1149	-0.0856	-0.0843	0.0257	-0.1797*	0.0591
rzt	0.2156*	-0.1055	-0.1412*	0.0005	0.0727	0.0495	-0.0948
sal	0.0393	-0.0262	0.0184	0.0392	0.1707*	0.0851	-0.1483*
tc	0.3324*	0.0328	0.0318	-0.1560*	-0.0627	0.0666	-0.1149
tc_ost	-0.0996	0.0689	-0.0713	0.0040	0.0220	-0.0184	-0.0387
ur	-0.0393	0.0262	-0.0184	-0.0392	-0.1707*	-0.0851	0.1483*
zpk	-0.3643*	0.3172*	0.1675*	-0.0234	-0.3391*	0.1210	0.1117
zpt	-0.3186*	0.3861*	0.2391*	0.0255	-0.3687*	0.1662*	0.1043
kriza	1.0000						
margina	0.0000	1.0000					
rnfi	-0.3008*	-0.0258	1.0000				
rzk	0.3994*	-0.0203	-0.1004	1.0000			
rzt	0.1116	-0.0298	-0.0395	-0.2065*	1.0000		
sal	-0.0301	0.0636	-0.5912*	-0.0883	-0.1959*	1.0000	
tc	0.3892*	-0.0308	-0.6242*	0.2057*	0.2370*	-0.2611*	1.0000
tc_ost	0.0041	0.0670	-0.1634*	-0.2424*	-0.1447*	-0.0390	0.2333*
ur	0.0301	-0.0636	0.5912*	0.0883	0.1959*	-1.0000	0.2611*
zpk	-0.1948*	0.0357	0.1179	-0.0526	-0.1997*	-0.0053	-0.1360*
zpt	-0.1616*	0.0318	0.1140	-0.1044	0.0458	-0.0599	-0.0784
tc_ost	1.0000						
ur	0.0390	1.0000					
zpk	0.1236	0.0053	1.0000				
zpt	-0.0246	0.0599	0.6653*	1.0000			

Source: Calculated by author.

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