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YILDIZ TECHNICAL UNIVERSITY
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M.A. PROGRAM IN ECONOMICS

MASTER'S THESIS

POLITICAL BUDGET CYCLES: WHERE AND WHY?

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THESIS SUPERVISOR

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Yunus Emre Özcan tarafından hazırlanan ”Political Budget Cycles: Where and Why?” başlıklı çalışma **05.07.2024** tarihinde yapılan savunma sınavı sonucunda oybirliği ile başarılı bulunmuş ve jürimiz tarafından İktisat Ana Bilim Dalı İngilizce İktisat Yüksek Lisans Programında **YÜKSEK LİSANS** tezi olarak kabul edilmiştir.

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ABSTRACT

POLITICAL BUDGET CYCLES: WHERE AND WHY?

The theory of Political Budget Cycles suggests that incumbents strategically attempt to stimulate the economy in the period prior to elections. Incumbents desire to improve their public perception by increasing the disposable income of the electorate. This may be accomplished by increasing government spending or decreasing government revenue. Incumbents try to display an elevated degree of competence, either providing a broader amount of public goods and services with given resources or sustaining a given degree of public goods and services with lower levels of revenue. In this thesis, a large number of countries analyzed to understand the existence of political budget cycles and how they vary among nations. To accomplish this, a dynamic econometric model constructed. After examining their presence across different groups of countries, additional insights to the existing literature on the factors that influence political budget cycles provided. Results of this thesis highlight the heterogeneous nature of PBCs, revealing that while pre-electoral manipulation through expenditure is not a global phenomenon, the use of revenue as a policy instrument exhibits a more pronounced presence across all but the least developed nations. Furthermore, a more significant impact of elections on the primary balance found. This thesis also investigates the influence of democracy, information technology, and media autonomy on these cycles. The findigs suggest that as countries become more democratic and the penetration of communication technologies improves, governments are less inclined to manipulate spending and revenues prior to elections. Similarly, as the media becomes more independent, there will be a decrease in the frequency and magnitude of fiscal manipulation prior to elections.

Keywords: Political Budget Cycles, Information Asymmetry, Media Independence, Elections, Fiscal Policy

ÖZ

POLİTİK BÜTÇE ÇEVRİMLERİ: NEREDE VE NEDEN?

Politik Bütçe Çevrimleri teorisi, iktidarların seçimlerden önceki dönemde stratejik olarak ekonomiyi canlandırmaya çalıştığını öne sürmektedir. İktidar sahipleri, seçmenlerin harcanabilir gelirini artırarak kamuoyundaki algılarını iyileştirmek isterler. Bu, kamu harcamalarının artırılması veya kamu gelirlerinin azaltılması yoluyla sağlanabilir. İktidarlar, ya belirli kaynaklarla daha fazla miktarda kamu mal ve hizmeti sağlayarak ya da daha az gelirle belirli bir düzeyde kamu mal ve hizmetini sürdürerek daha yüksek bir yetkinlik seviyesi sergilemeye çalışırlar. Bu tez kapsamında, siyasi bütçe çevrimlerinin varlığı ve ülkeler arasında nasıl farklılık gösterdiğini anlamak için geniş bir ülke grubu analiz edilmiştir. Bu amaçla dinamik bir ekonometrik model oluşturulmuştur. Çeşitli ülke gruplarındaki varlıkları incelendikten sonra, siyasi bütçe döngülerini etkileyen faktörlere ilişkin mevcut literatüre ek bilgiler edinilmiştir. Bu tez çalışması, politik bütçe çevrimlerinin heterojen yapısını vurgulayarak, harcamalar yoluyla seçim öncesi manipülasyonun küresel bir olgu olmadığını, ancak gelirlerin bir politika aracı olarak kullanılmasının en az gelişmiş ülkeler hariç tüm ülkelerde daha belirgin bir varlık gösterdiğini ortaya koymaktadır. Ek olarak, seçimlerin faiz dışı denge üzerinde daha belirgin bir etkisi olduğu görülmüştür. Tezde ayrıca demokrasi, iletişim teknolojisi ve medya bağımsızlığının bu döngüler üzerindeki etkisi de araştırılmaktadır. Elde edilen bulgular, ülkeler daha demokratik hale geldikçe ve iletişim teknolojilerinin yaygınlığı arttıkça, hükümetlerin seçimlerden önce harcama ve gelirleri manipüle etmeye daha az yöneldiğini göstermektedir. Aynı zamanda, medya bağımsızlaştıkça, seçimlerden önce yapılan mali manipülasyonların sıklığı ve büyüklüğü de azalmaktadır.

Anahtar Kelimeler: Politik Bütçe Çevrimleri, Bilgi Asimetrisi, Medya Bağımsızlığı, Seçimler, Mali Politikalar

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ABBREVATIONS

DPI	: The Database of Political Institutions
EDEs	: Emerging and Developing Economies
FE	: Fixed Effects
FOD	: Forward Orthogonal Deviations
GDP	: Gross Domestic Product
GMM	: Generalized Method of Moments
G/GDP	: Government Expenditure as share of GDP
IMF	: International Monetary Funds
OLS	: Ordinary Least Squares
PBCs	: Political Budget Cycles
PB/GDP	: Primary Balance as share of GDP
PG/GDP	: Primary Expenditures as share of GDP
REV/GDP	: Government Revenue as share of GDP
PWT	: Penn World Tables
UN	: United Nations

1. INTRODUCTION

Political Budget Cycles refer to the cyclical movements of fiscal variables in synchronization with election timing. For instance, the increase in government expenditure before an election and the return to its initial level following the election represent an example of political budget cycles. Such cycles around elections are the result of an incumbent's manipulation of fiscal policies to enhance the chances of re-election. The incumbent, in an effort to woo the electorate, may try to engage in expenditures visible to the electorate immediately. Also, the incumbent may try to increase the disposable income of voters by abandoning public revenues. Any policy instruments used by the incumbent to influence the electorate must result in effects that can be easily recognized by the electorate, and the lag between their introduction and realization must be fairly small (Tufte, 1978, p. 10). Consequently, it is very difficult to achieve the desired effects through monetary policy. Notably, the use of monetary rather than fiscal policies for manipulations is both theoretically and empirically unconvincing. In contrast, the utilization of fiscal policies as a tool of manipulation is on solid ground both theoretically and empirically (Drazen, 2000).

One can ask, if fiscal variables return to their previous levels after the elections, what is the problem? The problem is that there is a trade-off between today's consumption and tomorrow's consumption. When voters fail to understand the nature of the trade-off, incumbents try to maximize their re-election prospects by exploiting this trade-off (Nordhaus et al., 1989). Moreover, the repeated distortion of fiscal variables away from their most ideal trajectory renders countries' fiscal balances fragile to external shocks at a certain point. Funke et al. (2023) found that in countries governed by populist leaders for 15 years, the GDP per capita is 10% lower than a plausible counterfactual. So the incumbents, for their own self-interest, gift the prosperity of future generations to the current generation in order to be re-elected. If such manipulations takes place in a repetitive manner, intergenerational inequalities gets larger and larger. Future generations devoid a part of the wealth enjoyed by their predecessors.

Alternatively, the incumbent can make changes in the composition of fiscal variables while keeping the levels of them undistorted. These changes can be made with the aim of targeting a particular constituency (Drazen & Eslava, 2010). By targeting policy changes

to a particular constituency, incumbents gain the advantage of directly communicating what actions they are taking on behalf of that constituency (Tufte, 1978, p. 57). However undistorted level of government fiscal balance can not hold intergenerational inequalities at a fixed level. Because such policy changes have cumulative effects over time. For example, In Turkey, prior to the national elections in 2023, the parliament approved a regulation that enabled nearly 2 million people to be eligible to pension relatively at an early age (Fahim & Karatas, 2023). Future generations will bear the cumulative burden of this regulation. So merely altering the composition does not mean that the prosperity of future generations is not stolen. Furthermore, alterations in the fiscal composition for populist agendas to gain electoral favor makes it challenging for countries to pursue their long term objectives.

If the results are devastating, how is it that those in power can manipulate the pre-election period? Because their only goal is to be re-elected and to keep the rent that comes with holding office for a longer period of time. The benefits of holding the office can be either material or just the great honor it brings (Shi & Svensson, 2006).

If all incumbents possess similar motivation, shouldn't political budget cycles occur in every country? But this is the first question this thesis tries to answer: In which countries political budget cycles exist? The second question is why political budget cycles occur in some countries and not in others? And what are the conditioning factors for political budget cycles?

Chapter 2 provides a brief literature survey of both theoretical and empirical work on political budget cycles, starting from the origins. Chapter 3 first describes the methodology used in the econometric analysis. Afterwards, datasets used in the analyses and variables extracted from the datasets described in the second part of Chapter 3. Chapter 4, using a panel dataset formed by 44 years of observations for a large number of countries and country groups formed by IMF and UN classifications of development, analyses made to investigate in which country groups the political budget cycles occured. Then, In Chapter 5, some of the factors affecting the existence and magnitude of political budget cycles are analyzed. Chapter 6 contains a brief discussion of the results obtained in the thesis.

2. LITERATURE REVIEW

While there have been previous studies of the relationship between economic variables and elections (Åkerman, 1947; Barro, 1973; Downs, 1957a; Downs, 1957b; Kramer, 1971), it was the work of Nordhaus (1975) that initiated the literature on political business cycles. However, Anthony Downs' (1957a; 1957b) assertions that politicians act solely in their own self-interest and exchange policies for votes, similar to entrepreneurs selling products for money, served as the foundation for the study of political business cycles. Nordhaus (1975) and MacRae (1977) developed their models based on the short-run exploitable Philips curve and on the assumption that voters are retrospectively myopic. In the former model, the incumbent aims to maximize their vote, while in the latter, the focus is on minimizing vote loss. Both models predict a fall in unemployment rates before the election, followed by a rise in inflation just before or after the election. According to Lindbeck (1976), politicians do not act solely in their own self-interest, as suggested by Downs. According to him, politicians have two seperate utility functions, a social utility function and a self-interest function, to which they assign intertemporal varying weights. The weight of the self-interest utility function increases as the election gets closer and closer.

The rational expectations revolution in economics has led to doubts about the validity of political business cycle studies. The theoretical foundations of these models lost their relevance with the assumption of rational voters. The Phillips curve equation, which was once exploitable by politicians, became ineffective, and the myopic behavior attributed to voters disappeared. This criticism halted the Political Business Cycles literature nearly a decade (Alesina & Tabellini, 1988; Nordhaus et al., 1989).

Later work attempted to reconcile rational voter behavior with political business cycles. In their game-theoretic analyses, Cukierman and Meltzer (1986), Rogoff and Sibert (1988), and Rogoff (1990) provided insights into the persistence of political business cycles even in the presence of rational voters. The capacity of the government to forecast external shocks is a critical factor in determining the welfare of its citizens, according to Cukierman and Meltzer (1986), similarly according to Rogoff and Sibert (1988) and Rogoff (1990), the

level of government competence significantly impacts the welfare of its citizens.

Cukierman and Meltzer (1986) underscored the salience of information asymmetry between the government and the electorate. They posit that despite the rationality of voters, their predictive assessments are grounded solely in the past performance of the incumbent. Consequently, the incumbent's current welfare-generating endeavors significantly influence the likelihood of re-election. To secure electoral victory, incumbents may implement pre-election policies aimed at bolstering welfare, even if such measures entail subsequent welfare losses—they denote this losses as the "cost of democracy."

Rogoff and Sibert (1988) and Rogoff (1990) conceptualised government competence in terms of its effectiveness in providing public goods. They put forward the idea that an increase in the provision of public goods implies increased competence and is favoured by voters because of its positive welfare consequences. They argue that the government knows its own level of competence, but voters learn about the government's competence with a lag. Being aware of this information asymmetry, incumbents may use fiscal instruments to stimulate the economy in the pre-election period, typically through increased public spending or tax cuts, in order to signal a higher level of competence than they actually possess. The resulting deficit is offset by seigniorage and can only be perceived by voters after the election.

Rogoff (1990) extended this hypothesis and argues that those in power can strategically manipulate the composition of public expenditure to signal a higher level of competence. He argued that there is a tendency to favour more visible expenditures, such as direct consumption, over less visible investments. This strategic resource allocation, termed "political budget cycles", serves to increase the perceived competence of the government.

Another branch of literature delves into the phenomenon of partisan political business cycles, which posits that governments not only pursue re-election but also ideological objectives. Building upon Hibbs' (1977) pioneering work, this theory suggests that political parties implement policies catering to their respective constituencies, leading to distinct economic outcomes based on the party in power. According to Hibbs, left-wing ideological parties tend to prioritize reducing unemployment and may tolerate higher levels of inflation to achieve this goal. Conversely, right-wing parties are often more concerned with controlling inflation and may accept higher unemployment rates as a trade-off. This framework implies a cyclical pattern in economic indicators, with periods of low unemployment and high inflation coinciding with left-wing governance, and periods of high

unemployment and low inflation aligning with right-wing governance. Hibbs' model has also been criticised because voters have adaptive expectations.

Alesina (1987) developed a game-theoretic model in which two parties with different ideologies assign different weights to inflation and unemployment as economic bads, the parties do not know what the voters will prefer, and the voters are forward-looking rational agents. The solution of his model shows that if the party that gives more weight to inflation (such as Republician Party of U.S.) wins the election, there will be unexpected inflation and growth higher than the natural level, while if the party that gives less importance to inflation (such as Democrat Party of U.S.) wins the election, there will be a recession. In this model, the higher the polarisation between the parties (the relative weight they assign to inflation and unemployment), the higher will be the fluctuation resulting from a change of government.

On the empirical side, research on political budget cycles spans from large country panel studies to research on a individual country's municipal elections. In developing countries, Schuknecht (2000) analyzed data from 24 nations between 1973 and 1992, finding that the ratio of fiscal deficit to GDP increases by 0.7 percentage points in election years, with two-thirds of this increase attributable to rising public expenditures. Similarly, Shi and Svensson (2006) used data from 85 countries between 1975 and 1995 to demonstrate that the ratio of government deficit to GDP increases by 1% on average during election years, an increase implying an average 22% rise in the fiscal deficit. They also concluded that political budget cycles are more severe in developing countries than in developed ones. Vergne (2009), focusing on 42 developing countries between 1975 and 2001, found that during election years, incumbents increase current expenditures and decrease capital expenditures, with the share of capital expenditures in aggregate expenditure increasing by 1%. F. J. Veiga et al. (2017), based on the data of 70 developed and developing countries covering the period between 1975 and 2010, found that the ratio of government expenditures to GDP increased by 0.33 percentage points, the ratio of government revenues to GDP decreased by 0.20 percentage points and the ratio of budget deficit to GDP increased by 0.65 percentage points during election years. They also concluded that media freedom has an impact on these distortions. de Haan et al. (2023), using data from 104 emerging market and developing countries for the period 1975-2022, found that the ratio of primary deficit to GDP increased by 0.6 percentage points, the ratio of indirect tax revenues to GDP decreased by 0.3 percentage points, and the ratio of wage payments to GDP increased by 0.1 percentage points in election years. They also noted that these deteriorations were

observed in both democratic and non-democratic regimes. Their results also imply that tightening the fiscal rules reduces the magnitude of political budget cycles.

In new and established democracies, Brender and Drazen (2005) studied the occurrence of political budget cycles, concluding that these cycles do not occur in established democracies but are prevalent in countries with less mature democracies. Their results showed that in new democracies, the ratio of fiscal balance to GDP decreases by 0.74 to 0.87 percentage points in election years, but this effect diminishes over time as democratic norms are embraced by citizens. Similarly, Klomp and De Haan (2013) used data from 1970-2007 for 70 democratic countries to show that elections increased public expenditures on average by 0.6% and decreased fiscal balance by 0.8%, though these effects do not persist in the long run, with fiscal variables returning to their previous levels post-election. Shmuel (2020) analyzed the existence of political budget cycles by examining the fiscal balance in his study covering the 1960-2015 period based on data from 119 countries. He concluded that political budget cycles exist for both autocracies and democracies. But he revealed that political budget cycles do not occur in strong autocracies and strong democracies. They appear to occur in weak autocracies and weak democracies.

Comparative studies on OECD countries have also yielded significant insights. Alt and Lassen (2006) analyzed political budget cycles in 19 developed OECD countries during the 1990s, concluding that such cycles do not occur in countries with high fiscal policy transparency, but are prevalent in countries with low fiscal policy transparency. Chang (2008) examined a sample of 21 OECD countries over the period 1973-2000, finding that political budget cycles are sensitive to institutional settings, with the presence of multiple veto players reducing the magnitude of these cycles. Mink and De Haan (2006) analyzed the political budget cycles for the Euro area between 1999 and 2004, discovering that the monetary union does not prevent expansionary fiscal policies prior to elections, and noting that budget deficits increase in election years, particularly under left-wing governments. Efthyvoulou (2012) examined European Union countries from 1997 to 2008, finding that political budget cycles were evident, with cycles in Euro Zone countries having a greater magnitude than others. He noted that the ratio of fiscal deficit to GDP increased by 1% in election years, while the ratio of government expenditures to GDP increased by 0.8%. Block (2002) provided specific regional insights by studying 44 Sub-Saharan African countries from 1980 to 1995, revealing that the ratio of fiscal deficit to GDP increased by 3.5 percentage points during election years, while the ratio of public expenditures to GDP increased by 2.1 percentage points. This highlights a significant impact of electoral cycles

on fiscal policy within this region.

There are also studies analyzing a single country. In Mexico, Gonzalez (2002) analyzed quarterly data between 1957 and 1997, finding that infrastructure spending begins to increase six quarters before elections and current transfer expenditures spike in the election quarter. She observed that the magnitude of political budget cycles increased as Mexico became more democratic, attributing this to incumbents placing greater emphasis on vote-buying when faced with credible electoral challenges. Similarly, Akhmedov and Zhuravskaya (2003) studied regional governor elections in Russia using monthly data from August 1995 to December 2003, finding that gross regional income increased by 5% before elections. They concluded that the magnitude of political budget cycles decreases with the maturity of democracy, increased urbanization, improved media freedom, and greater government transparency. For India, Khemani (2004) analyzed data from 14 states between 1960 and 1992, finding that electoral manipulations often targeted narrow voter groups rather than the general electorate, altering fiscal variables in a way that increased benefits for these groups before elections.

At the municipal level, L. G. Veiga and Veiga (2004) investigated Portuguese municipalities over a 22-year period (1979-2000), finding that mayors tend to make visible expenditures prior to elections, with left-wing mayors exhibiting more pronounced opportunistic behavior compared to their right-wing counterparts. Drazen and Eslava (2010) studied Colombian municipalities using data from 1987 to 2002, finding that these municipalities do not necessarily increase overall expenditures before elections but rather focus on spending that is favorable to voters, sending a message that the incumbent shares their priorities.

3. METHODOLOGY & DATA

3.1. Methodology

The standard fixed effect approach is adopted since the dataset has both time series and cross sectional characteristics. The error term in fixed effect models has a composite structure and includes unobservable time invariant country specific effects. Presence of such effects leads to endogeneity problem. In order to mitigate endogeneity problem, fixed effect models are estimated after within transformation. Within transformation implies the subtraction of each country's own averages from the covariates. Within transformation eliminates time invariant country specific effects from the error term, so that only the i.i.d. error term remains. The endogeneity problem is adressed in this way and OLS estimators become consistent. Accordingly, the regression model to conduct the econometric analysis is constructed as follows:

$$\mathrm{Y_{i,t}} = \beta_0 + \gamma_1 \mathrm{Y_{i,t-1}} + \delta_1 \mathrm{ELE_{i,t}} + \eta^{'} \mathrm{w_{i,t}} + \xi_\mathrm{i} + \lambda_\mathrm{t} + \epsilon_\mathrm{i,t}$$

Where $\mathrm{Y_{i,t}}$ is the dependent variable, β_0 is the intercept term, $\mathrm{Y_{i,t-1}}$ is the first lag of dependent variable, ELE is an election dummy or a variable specifying the election date, $\mathrm{w_{i,t}}$ is a vector of control variables, λ_t is the time fixed effects, ξ_i is the time invariant country specific effects and $\epsilon_\mathrm{i,t}$ is the i.i.d. error term.

The one-period lagged value of the dependent variable is used as an explanatory variable in the model which adds a dynamic nature to the model. OLS estimation of dynamic models leads to biased and inconsistent coefficient estimators (Nickell, 1981). This deviation is called Nickell bias. The bias decreases as t increases. The common approach is that Nickell bias can be negligible in the case of large time spans. Since the time span of the dataset in use is 44 years, the Nickell bias can be ignored. But there are also critics of this approach. Judson and Owen (1999) showed through their Monte Carlo simulations that depending on the coefficient of the autoregressive parameter, a bias between 3% and 20% will be seen in the case of $\mathrm{t} = 30$. While the bias shrinks as t increases, it becomes larger as the autoregressive coefficient increases. However, the bias

in the coefficient estimates of the other explanatory variables is between 0.75% and 3% in the case of $t = 30$ depending on the coefficient of the autoregressive parameter and the coefficient of the independent variables.

Arellano and Bond's (1991) Difference GMM, Arellano and Bover (1995) and Blundell and Bond's (1998) System GMM approaches are widely applied to estimate dynamic linear panel data models. Arellano and Bond suggest using lagged values of the dependent variable as instrumental variables in the first difference equation. The first difference transformation eliminates the unobserved country-specific effect. However, there is a relationship between the first difference of the error term and the first difference of the lagged dependent variable. The reason for using further lagged levels as instrument variables is the endogeneity problem arising from this relationship. However, if the coefficient of the autoregressive parameter is close to unity, then there is a weak correlation between lagged differences and lagged levels. This renders lagged levels as weak instruments and the estimates of the Difference GMM approach are biased downwards (Pinkovskiy & Hausman, 2017).

Arellano and Bover (1995) and Blundell and Bond (1998) suggest estimating the level equation along with the first difference equation to mitigate the weak correlation and weak instrument problem. They argue that using first differences of dependent variable as instrumental variables in the level equation will eliminate the weak instrument problem. In their simulations, Blundell and Bond show that the System GMM approach gives significantly better results than the Difference GMM approach, especially when the coefficient of the autoregressive parameter approaches one. In the System GMM approach, lagged levels are used as instruments for the first difference equation, while lagged differences are used as instrumental variables for the level equation. In the Difference GMM approach, the use of lagged levels as instruments leads to loss of observations. In the System GMM approach, the use of first differences as instruments in the level equation does not lead to loss of observations and the loss of observations remains solely dependent on the number of lags in the autoregressive setup of the model.

Both the Difference and the System GMM approaches are designed for use with large N and small T datasets. When year fixed effects are added to the model, the number of instruments increases as T increases. Instrumental variable proliferation leads to the problem of over-identification. One way to reduce the number of instrumental variables is to reduce the number of lags to be used in the instrumental variable matrix (curtailing)

(Kiviet, 2020). This approach is feasible because further lags may be weak instruments. Therefore, limiting the number of lags to be used as instrumental variables will reduce the problem of over-identification with a limited loss of efficiency. Another way to limit the number of instruments is to collapse the instrument variable matrix into a column vector (collapsing) (Roodman, 2009a). While GMM-type instrument variables are interacted with time fixed effects, collapsed instruments become standard instrument variables.

One advantage of the GMM estimator is the ability to relax one of the assumptions of OLS: strict exogeneity. In GMM estimation, strictly exogenous variables, endogenous variables and predetermined variables can be regressors. Predetermined variables are sequentially exogenous. That is, the error term is not related to the current and past values of the regressors, but may be related to their future values. In other words, the regressors may be correlated with past values of the error term but not with its current and future values. This flexibility is useful both when the lag of the dependent variable is used as an explanatory variable in the model and when simultaneously identified variables with reverse causality are included in the estimated model as regressors. However, this flexibility also leads to problems (Roodman, 2009b; Kiviet, 2020; Leszczensky & Wolbring, 2022).

The flexible nature of the GMM estimator leads to its use as a black box. There are two diagnostic tests commonly used after Difference and System GMM estimators. The first one is the Arellano and Bond (1991) autocorrelation test. This test measures whether the error term in the first difference model has second order autocorrelation. The null hypothesis of the test is that the error term has second order autocorrelation. Rejecting the null hypothesis implies that the error term in the level model is not serially correlated or that the error term follows a random walk. To distinguish between these two cases, the same test is applied for first order autocorrelation. Failure to reject the null hypothesis of first order autocorrelation eliminates the possibility of random walk. The second diagnostic tests are the Sargan (1958) and Hansen (1982) over-identification tests. If the model is just-identified, that is, if the number of explanatory variables and the number of instrumental variables are equal, then by assumption all instrumental variables are valid and exogenous.

Over-identification tests can only be performed if more instrumental variables are used than the number of endogenous variables in the model, which means these tests can be conducted only if the model is over-identified. Even in the over-identified case, the number of instrumental variables equal to the number of explanatory variables is assumed to be valid and exogenous when calculating the test statistics and the number of explanatory

variables is subtracted from the number of instrumental variables when determining the degrees of freedom. The tests measure the joint validity of all instrumental variables. The null hypothesis of these tests is that the instrumental variables are jointly valid instruments. Rejection of the null hypothesis implies that the instruments as a set do not satisfy the exogeneity condition. Thus, number of instruments is crucial for over-identification tests (Roodman, 2009a; Parente & Santos Silva, 2012).

The widely accepted rule of thumb is that if the number of instrument variables is less than the number of cross-sectional units, then the validity of these tests is sufficient. For example, if the number of instruments is smaller than the number of countries covered by the analysis, it is considered to be problem-free. However, limiting the number of instruments below the cross sectional unit count does not always yield accurate test statistics (Roodman, 2009a). Datasets for which it is appropriate to use the Difference GMM and System GMM estimators are characterized by small T and large N. Scholars often conduct their analyses assuming that this statement specifies a relative comparison between T and N. Yet this is only partially correct. In relative terms, T must be smaller than N. But the requirement of a small T is also an absolute one. For large T, the inclusion of time fixed effects in the model leads to a drastic increase in the number of instruments and the validity of the Hansen and Sargan tests is lost. As Roodman (2009b) states, a p value of the Hansen test that equals to 1 is an indication of a possible problem and cases where the p value is greater than 0.20 should be carefully evaluated. In this circumcstances the overidentification tests can't provide information about the identification of variable of interest by instruments (Parente & Santos Silva, 2012).

Although the Difference and System GMM approaches are frequently applied in the empirical literature on political budget cycles, the fixed effect OLS method is preferred in this analysis, both because the Nickell bias is believed to be quite small due to the large time interval of the sample and because consistent results and robust test statistics are not yielded by the difference and system GMM estimators. Yet, for the sake of compatibility with the empirical literature, System GMM estimation results are also in the Appendix.

3.2. Data

The dataset used in the analyses covers 161 countries and contains 6750 observations. The analyses cover the period between 1975 and 2019. As the dependent variable, election variable and other explanatory variables vary, the number of countries and the number of

observations also change. Figure 1 shows countries included in the dataset. But, as stated number of countries depend on variables used. Hence, some of the analyses do not cover all the countries in Figure 1 due to lack of available data.

Election dates were extracted from The Database of Political Institutions (Cruz et al., 2021). When constructing the election variables, only the date of presidential elections is taken into account if the country has a presidential system, only parliamentary elections if the country has a parliamentary system and parliamentary elections if the country has a presidential system in which the president is elected by the parliament. The *system*, *dateleg*, *dateexec*, *legelec*, and *exelec* variables from DPI dataset are used to create election variables.

The mean and median of the number of elections in the full sample between 1975 and 2019 is 7.75 and 8, respectively. Meaning that in the 161 countries included in the sample, elections were held every 5.68 years on average over 44 years.

The economic variables are taken from the Penn World Tables (Feenstra et al., 2015) and IMF's Public Finances in Modern History (Mauro et al., 2013) datasets. From the PWT dataset, the variables *csh_g*, Share of government consumption at current PPPs; *csh_x*, Share of merchandise exports at current PPPs; *csh_m*, Share of merchandise imports at current PPPs; *rgdpna*, Real GDP at constant 2017 national prices (in mil. 2017US $); and *pop*, Population (in millions) are used. *csh_g* used as dependent variables and other variables drawed from PWT used for construction of control variables. The variables *expenditure*, government expenditure (percent of GDP); *revenue*, government revenue (percent of GDP); *prim_expenditure*, government primary expenditure (percent of GDP) and *prim_balance*, government primary balance (percent of GDP) from the Public Finances of Modern History dataset are used as dependent variables.

Individiuals Using the Internet (World Bank, 2024b) and Fixed Telephone Subscription (2024a) from World Bank's World Development Indicators dataset, *Polity2* from Polity V (Marshall & Gurr, 2020) dataset and *v2mecorrpt*, Media Corruption from Varieties of Democracy (V-Dem) (Michael Coppedge et al., 2024; Pemstein et al., 2024) dataset used as additional controls.

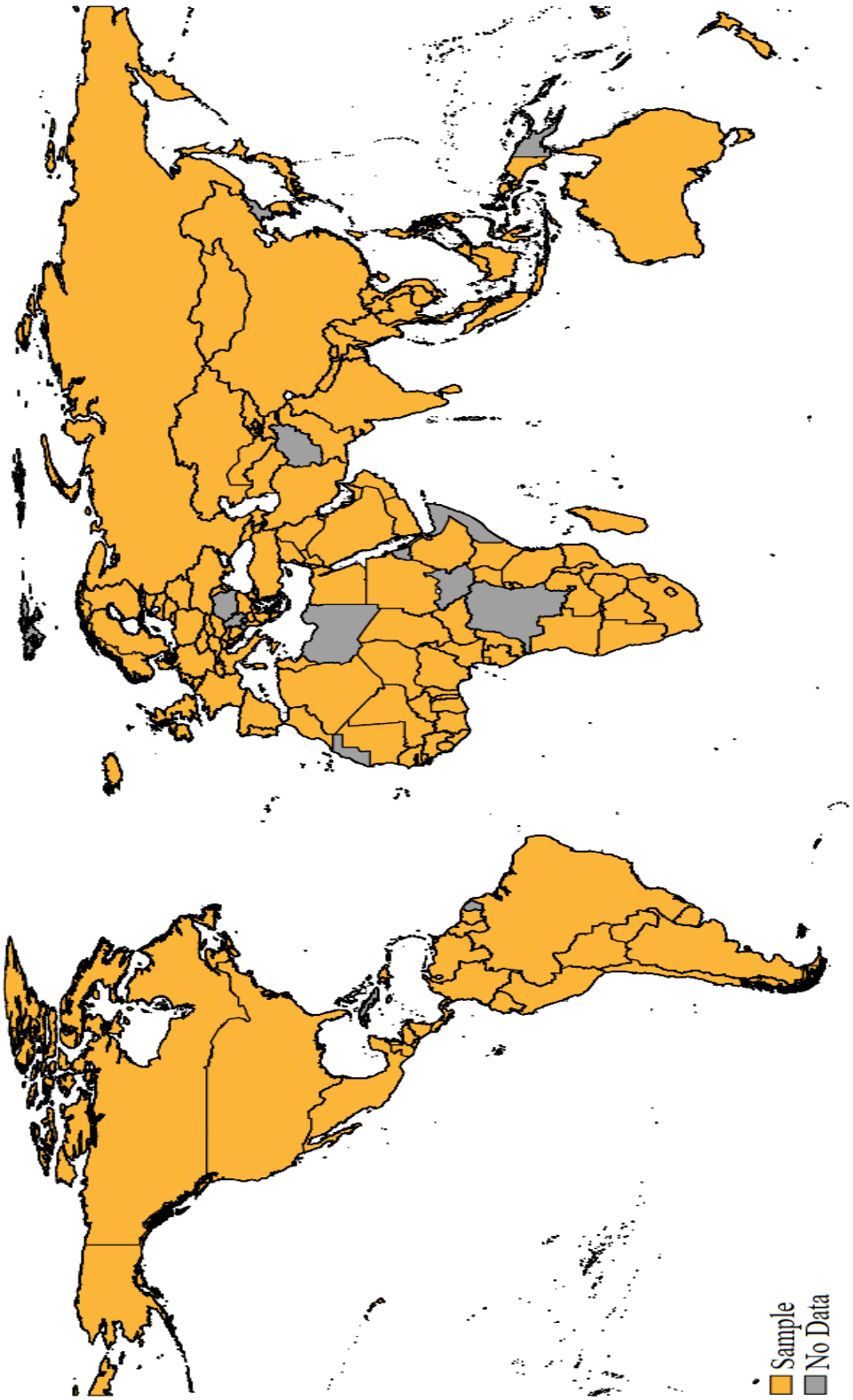
Table 1 shows number of observations by each country. The number of observations for other countries not included in the table is 44. Only countries with less than 44 observations are included in the table. The majority are former Eastern Bloc countries. For these countries, data for the period before the collapse of the Union of Soviet Socialist

Table 1. Number of Observations by Countries

Country	N	Country	N	Country	N
Armenia	29	Kazakhstan	28	Slovakia	27
Azerbaijan	28	Kyrgyzstan	28	Slovenia	28
Bosnia and Herzegovina	23	Kuwait	43	Eswatini	43
Belarus	29	Saint Lucia	40	Tajikistan	28
Belize	38	Lithuania	28	Turkmenistan	28
Czech Republic	28	Latvia	28	Ukraine	28
Djibouti	42	Republic of Moldova	28	Uzbekistan	28
Estonia	26	North Macedonia	28	Yemen	26
Georgia	27	Namibia	29	**Other Countries**	44
Croatia	29	Russian Federation	27		

Republics are not available in the datasets used. Also, data for the former Yugoslavia countries prior to their independence are not available.

Figure 1. Countries in the Sample



4. WHERE DO POLITICAL BUDGET CYCLES OCCUR?

Tufte (1978), Rogoff and Sibert (1988) and Rogoff (1990) argue that political business cycles are unlikely to occur through monetary instruments, the incumbent's control over monetary policy may be limited and it takes time to stimulate the economy through monetary instruments. They argue that fiscal instruments are the primary instruments that the incumbent can utilize for political business cycles. Fiscal instruments are under the direct control of the government and a wide range of fiscal variables can be exploited to formulate policies that will have a direct impact on the electorate. Rogoff (1990) calls these cycles in which fiscal instruments are used for pre-election manipulation as political budget cycles. By using Government Expenditures, Government Revenues and Primary Balance as dependent variables in analyses, the aim is provide inferences on political budget cycles. Then, in the Chapter 5 focus of analyze changes to why political budget cycles occur with different magnitudes in different countries, in other terms, what are the conditioning factors for political budget cycles is the main question of Chapter 5.

4.1. Cycles on Government Expenditure

In order to increase the prospects of being re-elected by the electorate, the incumbent may increase transfer expenditures or focus on expenditures that will be more visible to the voters immediately (Tufte, 1978; Brender & Drazen, 2013). In this case, government spending will be higher in election years than in other years. To test this hypothesis, the following model is constructed using the political variables in the DPI dataset and the economic variables in the PWT dataset. The regression model is constructed as below:

$$\text{G/GDP}_{\text{i,t}} = \beta_0 + \gamma_1 \text{G/GDP}_{\text{i,t-1}} + \delta_1 \text{ELE}_{\text{i,t}} + \eta^{'} \text{w}_{\text{i,t}} + \alpha_{\text{i}} + \lambda_{\text{t}} + \epsilon_{\text{i,t}}$$

The dependent variable is the ratio of public expenditures to GDP. The one-year lagged value of the dependent variable is added to the model as an explanatory variable. The ELE variable takes the value of 1 in election years and 0 in other years. $\text{w}_{\text{i,t}}$ is a vector of control variables. ξ_{i} is the unobserved country-specific effect and λ_{t} is the year fixed

effect. $\epsilon_{i,t}$ is the i.i.d. error term.

The first control variable used in the baseline model is the real GDP growth rate. The G/GDP ratio is less than 1. Therefore, as the country grows, the G/GDP ratio should decrease ceteris paribus. Hence, the coefficient of the growth rate is expected to be negative. Another control variable is the natural logarithm of GDP per capita. It is included in the model to control for differences in the level of economic development between countries. The openness ratio, which measures the international openness of countries and is calculated as the ratio of the sum of imports and exports to GDP, is added to the model to control for the magnitude of countries' exposure to exogenous shocks. The last control variable is a political control variable weighted by the share of countries' GDP in total GDP in that year. It is designed to measure political activity in countries other than that specific country. Each country's GDP weight is included if an election is taking place in that country in that year and each country's own weight is subtracted from this total. Tufte (1978, pp. 65-70) argues that economic expansions in leading capitalist countries during election years are reflected in other countries. Therefore, the expected coefficient of the variable is positive. If there are elections in many countries in the world in the same year and opportunistic business cycles occur in these countries by increasing public expenditures, other countries may also be affected by this expansion. Table 2'shows the result of baseline fixed effect model.

Table 2. PWT G/GDP: Fixed Effect Results

Gov. Expenditure/GDP		
Lagged Gov. Expenditure/GDP	0.882***	(0.013)
Election Dummy	0.231***	(0.086)
GDP Growth Rate	-0.075***	(0.013)
log(GDP per capita)	0.038	(0.206)
Openness(X+M)/GDP	0.006**	(0.003)
Political Activity	0.028*	(0.017)
Constant	1.187	(1.892)
R^2		0.92
Number of Countries		161
Number of Observations		6693

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

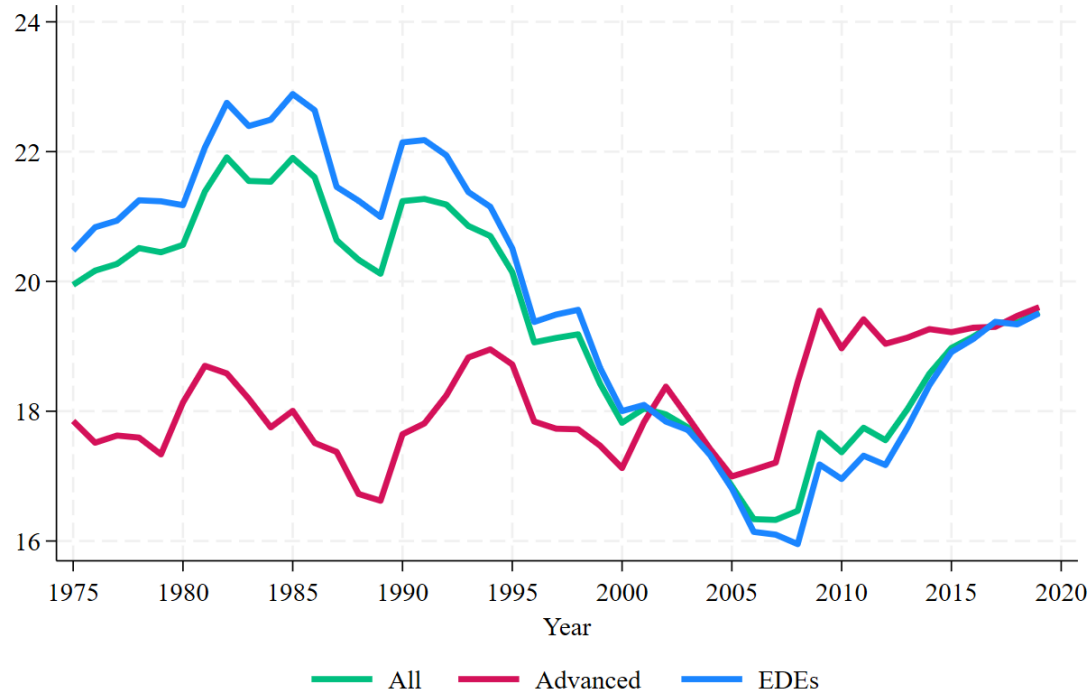
The coefficient of the election dummy is positive and statistically significant at the 1% level and the coefficient estimate is 0.231. In other words, in the 161 countries included in the model, the ratio of public expenditures to GDP in election years between 1975-2019 is 0.231 percentage points higher on average and this difference is statistically significant at the 1% level. Although it is statistically significant, this ratio may be perceived as a small increase at first glance.However, the average ratio of government expenditures to GDP for the 161 countries included in the analsis is 19.167 in the period between 1975-2019. Therefore, a 0.231 percentage point increase in government expenditures to GDP ratio means that G/GDP ratio increases 1.21% in election years. Even if this ratio does not make sense on its own, it will be usefull for the interpretation of the coefficient estimate of the election dummy. The increase in the ratio of public expenditures to GDP in election years is 1.21% considering the average G/GDP of the sample as a basis. Given that, sample average of government expenditures to GDP is close to 20%, the realized equivalent of a 1.21% increase in the election years will be a striking value. Performing this realization for the values of the United States of America, which has the highest Real GDP for 2019, the last year of the analysis, this value turns out to be 286 Billion Dollars (2017 $).

The growth rate has a negative coefficient as expected and is statistically significant at the 1% level. GDP per capita is statistically insignificant. The economic development level of countries does not have a statistically significant effect on explaining the G/GDP ratio. The international openness of countries is statistically significant at the 5% level. As the openness rate increases, the weight of the public sector on total output increases in these countries. Rodrik (1998) argues that the reason for this is that the state plays an insurance role against external shocks. The political activity control variable is statistically significant only at the 10% level. As global political activitys increase, the G/GDP ratio increases. This variable is weighted according to countries' share in global output. Therefore, it empirically shows that elections in leading major economies in the same year are spilled over to other countries.

The results in Table 2 are presented without any attempt to categorize countries. However, in countries with higher levels of output, public expenditures are expected to be realized more efficiently and therefore the share of public expenditures on economic output may vary depending on the level of economic development of the countries. The classification of countries is not only critical for understanding which countries have experienced political budget cycles, but also for analyzing whether the magnitude of political budget cycles varies across countries with particular features. Figure 2 shows

the time series of the average public expenditures of the countries included in the IMF's advanced country classification and the rest, emerging and developing countries, for the period 1975-2019.

Figure 2. Government Expenditure to GDP Ratio by IMF's Advanced Countries Classification



In emerging and developing countries, the ratio of public expenditures to GDP, which was higher than advanced countries in 1975, increased from 1975 to the mid-1980s and then started to decline, and this decline continued until 2008. While the weight of public expenditures in GDP was lower in advanced countries than EDEs, this situation changed with the 2008 crisis. After the crisis, the weight of the government on total output increased in advanced economies. By 2019, the average of advanced countries and emerging and developing ones are approximately the same. Until 2000, the share of public expenditures in advanced economies remained lower than that of emerging and developing countries, but after 2000, the difference diminished. From 2008 to 2018, the average of advanced countries was above the average of emerging and developing countries countries.

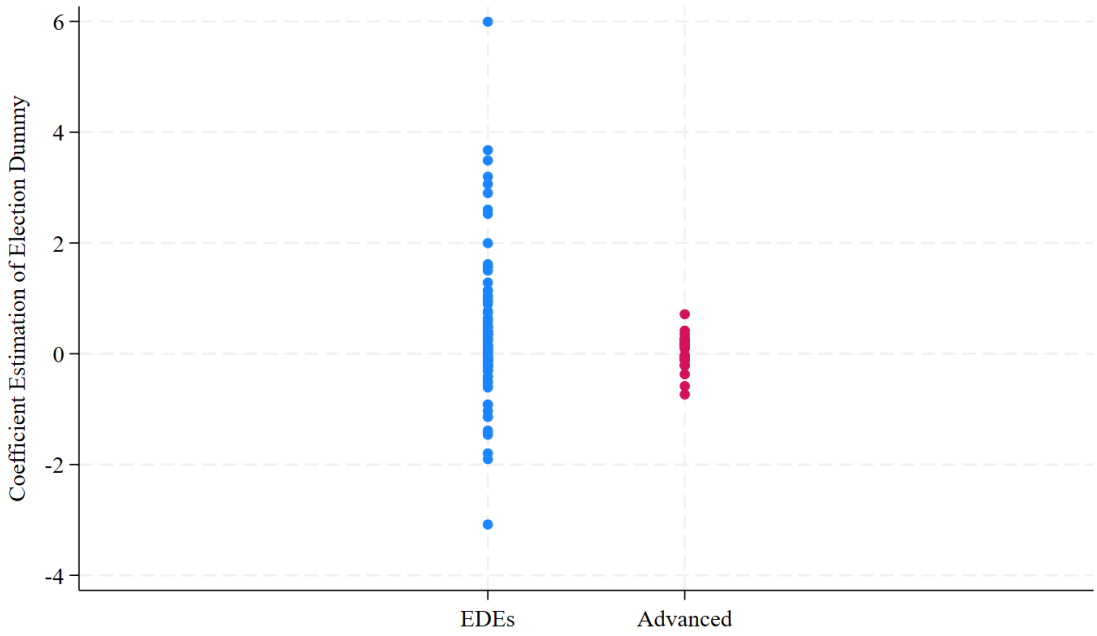
Checks and balances are tend to be stronger in advanced countries and the proportion of well-informed voters is also higher (Schuknecht, 1996; Shi & Svensson, 2006). Therefore, the magnitude of political budget cycles may be different between advanced countries

and emerging and developing ones. Using the IMF's advanced country classification, the average government expenditures of the two years before and two years after the elections are tested with t-test. The hypotheses formulated as follows:

H_0 : The G/GDP ratio is the same in the 2 years before and after the elections.
H_1 : The G/GDP ratio is higher before elections.
The t statistic is 2.4376 and the p value is 0.0075. The null hypothesis H_0 is rejected. It can be said that the ratio of public expenditures to GDP is higher in the 2 years before the elections than in the 2 years after the elections. However, as before, the results change when the countries grouped according to the IMF's advanced countries classification and perform this test for both groups. Considering advanced countries as a group, the p-value of the t-test is 0.2581 and the null hypothesis H_0 cannot be rejected. This provides support to the studies in the literature that opportunistic political budget cycles do not occur in advanced countries. For emerging and developing countries, the p-value is 0.0095 in the t-test and the null hypothesis H_0 is rejected. Based on these tests, it seems that it would be a reasonable strategy to analyze countries in groups.

An additional argument for why it makes sense to divide countries into groups is illustrated in Figure 3. Figure 3 displays the spread of the coefficient estimate of the election dummy variable for advanced and emerging and developing countries after estimating the model with OLS for for each country.

Figure 3. OLS Coefficient Estimates of Election Dummy



While the coefficient estimates of the election dummy are clustered in a relatively narrower range in advanced countries, the range is broader in emerging and developing economies. Therefore, it would be a reasonable decision to classify countries according to their level of economic development. Table 3 shows the results of the model estimated with the IMF's advanced country classification. Advanced is the results of the model estimated by grouping the countries in the IMF's advanced economies classification and EDEs is the results of the model estimated by grouping the countries classified as emerging and developing economies by IMF.

Table 3. PWT G/GDP: FE Results - IMF Classification

Gov. Expenditure/GDP	All	Advanced	EDEs
Lagged Gov. Expenditure/GDP	0.882***	0.902***	0.879***
	(0.013)	(0.014)	(0.014)
Election Dummy	0.231***	0.048	0.322***
	(0.086)	(0.061)	(0.120)
GDP Growth Rate	-0.075***	-0.167***	-0.070***
	(0.013)	(0.027)	(0.014)
log(GDP per capita)	0.038	-0.719**	0.011
	(0.206)	(0.334)	(0.234)
Openness(X+M)/GDP	0.006**	0.003	0.007*
	(0.003)	(0.002)	(0.004)
Political Activity	0.028*	-0.001	0.149**
	(0.017)	(0.008)	(0.072)
Constant	1.187	9.292**	-4.102
	(1.892)	(3.748)	(3.833)
R^2	0.92	0.98	0.91
Number of Countries	161	33	128
Number of Observations	6693	1371	5322

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The sign of the election dummy for advanced countries is positive as expected, while the coefficient is 0.048 and has no statistical significance. The estimation results suggest that the changes in the share of public expenditures to GDP in advanced countries in election years are statistically indistinguishable from 0. Meanwhile, the coefficient for the emerging and developing economies is higher than the estimation results off all countries. The estimated coefficient is 0.322 and statistically significant at the 1% level. These results indicate that opportunistic political budget cycles in which public expenditures are utilized do not occur in advanced economies, although the coefficient of election dummy is significant in the all country result, this is due to the EDEs. The estimation result shows that public expenditures decrease as GDP per capita increases in advanced countries. This indicates that public expenditures decrease as the level of economic development increases. However, this coefficient is statistically insignificant in emerging countries. Despite the categorization of these countries as emerging and developing countries, one can still notice considerable variation in the level of economic development. Nonetheless, the fact that it

does not have an effect on the ratio of public expenditures to GDP remains to be explained. This may be due to the fact that public investments are still ongoing in these countries. The growth rate is statistically significant at the 1% level for all estimations. However, the growth rate has a higher effect on public expenditures in advanced economies than in emerging countries. While the political activity variable is statistically insignificant in advanced countries, it is statistically significant at the 5% level in emerging and developing countries. This indicates that emerging and developing countries are affected by global political activity, while no such effect is statistically found in advanced countries.

The election dummy in the model is constructed based on the calendar years. However, while some elections take place in the first month of the year, some elections take place in the last month. An incumbent candidate or government party who intends to initiate opportunistic budget cycles is likely manipulate economic instruments in the previous year for an election that takes place in the first part of the year. This could lead to flawed estimation results. A straightforward approach is to split the year in half, owing to the annual frequency of the variables in use. This means that the election dummy should take the value 1 if an election is held in the first six months of the following year and 1 if an election is held in the last six months of the current year. Estimation results of the models with the time adjusted election dummy appear below in Table 4. The Political Activity variable is also generated by weighting it with the time adjusted election dummy.

Table 4. PWT G/GDP: TA Election Dummy FE Results - IMF Classification

Gov. Expenditure/GDP	All	Advanced	EDEs
Lagged Gov. Expenditure/GDP	0.881***	0.886***	0.880***
	(0.012)	(0.020)	(0.013)
TA Election Dummy	0.297***	0.106*	0.372***
	(0.093)	(0.056)	(0.132)
GDP Growth Rate	-0.077***	-0.155***	-0.072***
	(0.013)	(0.024)	(0.013)
log(GDP per capita)	0.086	-0.832*	0.079
	(0.210)	(0.428)	(0.236)
Openness(X+M)/GDP	0.006**	0.004***	0.006*
	(0.002)	(0.001)	(0.003)
Political Activity	0.032*	0.004	0.073
	(0.017)	(0.006)	(0.066)
Constant	0.548	10.284**	-1.113
	(1.981)	(4.605)	(3.786)
R^2	0.92	0.97	0.91
Number of Countries	161	33	128
Number of Observations	6750	1376	5374

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient estimate of the time adjusted election dummy is higher than the coefficient estimate of the standard election dummy in all three estimation results in Table 3. It appears that political budget cycles on the ratio of public expenditures to GDP also occur in advanced economies, although it is statistically significant only at the 10% level when estimated with a time adjusted election dummy. However, the political budget cycles in advanced countries has a substantially lower magnitude compared to emerging and developing economies. It can be explained by the fact that media freedom is greater in advanced countries and the electorate is more informed and better educated. As a matter of fact, the rational political budget cycle theories are based on asymmetric information between the incumbent president or the government and the electorate (Rogoff & Sibert, 1988; Rogoff, 1990; Cukierman & Meltzer, 1986). As the degree of this asymmetry decreases, the incumbent's ability to induce political budget cycles and the incentive to stimulate the economy prior to elections diminishes. Moreover, political budget cycles have to occur at small magnitudes in the presence of the political opposition. Otherwise,

the opposition will attempt to exploit the incumbent's manipulation of fiscal instruments by exposing them. By the same token, if there is an overt manipulation of fiscal policy instruments in a country that enjoys substantial media freedom, the media publicizes it and the incumbent suffers reputational damage (Alesina et al., 1993; Nordhaus et al., 1989). For these reasons, political budget cycles should occur with relatively small magnitudes. This magnitude will be even smaller in established democracies.

The growth rate is statistically significant at the 1% level in all three estimation results. GDP per capita variable is statistically significant at the 10% level only in advanced countries. The GDP per capita variable, which included in the model to control for the level of economic development of countries, is not statistically significant in the results of the estimations including all countries and EDEs. Openness is statistically significant in all three estimations. While this significance is at the 1% level in the estimation including advanced countries, it is only at the 10% level in the results of the emerging and developing countries sample. This implies that the effect of international openness on the ratio of public expenditures to GDP is more pronounced in advanced countries than the rest. Political activity variable is significant only at the 10% level in the sample of all countries.

Lastly, Table 5 presents the estimation results using the election variable as an indicator rather than a dummy variable as suggested by Franzese (2000). This new election variable is defined as the election month (M) divided by 12 in election years and in the year preceding the election year, it is calculated as (12-M)/12. It takes the value 0 in other years. If the election is held in December, the election variable takes the value 1 in the current year and 0 in the year before. The variable is designed to measure the effect of elections by weighting it for the last one year. If an election takes place in June, the variable takes the value 0.5 in the same year and 0.5 in the preceding year. Sum of the values of the variable in the election year and the previous year equals to one. If an election takes place in the first months of the year, the impact of any manipulation in the preceding year will be more likely to be greater. Conversely, if an election is held in the last part of the year, the effect of the interventions in the current year tends to be more significant.

Table 5. PWT G/GDP: Election Indicator FE Estimation Results - IMF Classification

Gov. Expenditure/GDP	All	Advanced	EDEs
Lagged Gov. Expenditure/GDP	0.881***	0.886***	0.880***
	(0.012)	(0.020)	(0.013)
Election Indicator	0.377***	0.162**	0.463***
	(0.123)	(0.066)	(0.171)
GDP Growth Rate	-0.077***	-0.156***	-0.072***
	(0.013)	(0.024)	(0.013)
log(GDP per capita)	0.086	-0.840*	0.081
	(0.210)	(0.426)	(0.235)
Openness(X+M)/GDP	0.006**	0.004***	0.006*
	(0.002)	(0.001)	(0.003)
Political Activity	0.030*	0.005	0.088
	(0.016)	(0.006)	(0.107)
Constant	0.922	10.352**	-1.077
	(1.872)	(4.550)	(4.540)
R^2	0.92	0.97	0.91
Number of Countries	161	33	128
Number of Observations	6750	1376	5374

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The magnitude of the coefficient of the election variable is higher in all three estimations than the models estimated with an election dummy. Table 6, presents the models estimated with the standard election dummy, time adjusted election dummy and the election indicator together to compare the estimation results.

Table 6. PWT G/GDP: All Election Variables FE Results - IMF Classification

	Election Dummy			TA Election Dummy			Election Indicator		
Gov. Expenditure/GDP	All	Advanced	EDEs	All	Advanced	EDEs	All	Advanced	EDEs
Lagged Gov. Expenditure/GDP	0.882***	0.902***	0.879***	0.881***	0.886***	0.880***	0.881***	0.886***	0.880***
	(0.013)	(0.014)	(0.014)	(0.012)	(0.020)	(0.013)	(0.012)	(0.020)	(0.013)
Election Variable	0.231***	0.048	0.322***	0.297***	0.106*	0.372***	0.377***	0.162**	0.463***
	(0.086)	(0.061)	(0.120)	(0.093)	(0.056)	(0.132)	(0.123)	(0.066)	(0.171)
GDP Growth Rate	-0.075***	-0.167***	-0.070***	-0.077***	-0.155***	-0.072***	-0.077***	-0.156***	-0.072***
	(0.013)	(0.027)	(0.014)	(0.013)	(0.024)	(0.013)	(0.013)	(0.024)	(0.013)
log(GDP per capita)	0.038	-0.719**	0.011	0.086	-0.832*	0.079	0.086	-0.840*	0.081
	(0.206)	(0.334)	(0.234)	(0.210)	(0.428)	(0.236)	(0.210)	(0.426)	(0.235)
Openness(X+M)/GDP	0.006**	0.003	0.007*	0.006**	0.004***	0.006*	0.006**	0.004***	0.006*
	(0.003)	(0.002)	(0.004)	(0.002)	(0.001)	(0.003)	(0.002)	(0.001)	(0.003)
Political Activity	0.028*	-0.001	0.149**	0.032*	0.004	0.073	0.030*	0.005	0.088
	(0.017)	(0.008)	(0.072)	(0.017)	(0.006)	(0.066)	(0.016)	(0.006)	(0.107)
Constant	1.187	9.292**	-4.102	0.548	10.284**	-1.113	0.922	10.352**	-1.077
	(1.892)	(3.748)	(3.833)	(1.981)	(4.605)	(3.786)	(1.872)	(4.550)	(4.540)
R^2	0.92	0.98	0.91	0.92	0.97	0.91	0.92	0.97	0.91
Number of Countries	161	33	128	161	33	128	161	33	128
Number of Observations	6693	1371	5322	6750	1376	5374	6750	1376	5374

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The design of the election variable affects the coefficient estimate and its level of statistical significance. Yet, the coefficient estimates of the other variables are quite similar to each other across three estimation groups. Coefficient estimates of the election variable are statistically significant at the 1% level for all three election variables for all countries and for the emerging and developing countries samples. However, the situation is not the same for the group of advanced countries. In the model with the standard election dummy, the coefficient estimate of the dummy variable is not statistically different from 0. Meanwhile, the coefficient estimate of the time adjusted dummy variable is greater and it is statistically significant at the 10% significance level. Whereas, the coefficient estimate of the election indicator is even greater than the former and the coefficient gains statistical significance at the 5% level.

These findings reinforce the literature (Shi & Svensson, 2006) suggesting the existence of a divergence in the magnitude of political budget cycles across advanced economies and EDEs. This difference, according to Shi and Svensson, stems mainly from the fact that the constraints faced by politicians in developed countries give public officials limited margin to use public resources for personal benefit. They also argue that the higher share of informed voters in developed countries renders the manipulations more ineffective. As they argue, the difference between institutions is a major underlying factor why political budget cycles occur with different magnitudes in developed and developing economies.

Results have previously been reported with countries grouped solely according to the IMF's classification of advanced and EDEs. However, IMF is certainly not the only organization that classifies countries according to their level of economic development. Table 7 displays the results of the fixed effect estimation for country groups in the UN's classification of developed and developing countries.

Table 7. PWT G/GDP: TA Election Dummy & Election Indicator FE Results - UN Classification

	TA Election Dummy				Election Indicator			
Gov. Expenditure/GDP	LDCs	Developing	Developed	All	LDCs	Developing	Developed	All
Lagged Gov. Expenditure/GDP	0.912***	0.857***	0.869***	0.881***	0.912***	0.857***	0.869***	0.881***
	(0.014)	(0.018)	(0.018)	(0.012)	(0.014)	(0.018)	(0.018)	(0.012)
Election Variable	0.258	0.472***	0.092	0.297***	0.369	0.571**	0.162	0.377***
	(0.230)	(0.176)	(0.081)	(0.093)	(0.263)	(0.226)	(0.122)	(0.123)
GDP Growth Rate	-0.038*	-0.081***	-0.158***	-0.077***	-0.038*	-0.081***	-0.158***	-0.077***
	(0.019)	(0.014)	(0.026)	(0.013)	(0.019)	(0.014)	(0.027)	(0.013)
log(GDP per capita)	-0.043	-0.208	0.174	0.086	-0.041	-0.206	0.166	0.086
	(0.347)	(0.284)	(0.684)	(0.210)	(0.346)	(0.284)	(0.687)	(0.210)
Openness(X+M)/GDP	-0.001	0.011***	-0.003	0.006**	-0.001	0.011***	-0.003	0.006**
	(0.003)	(0.004)	(0.002)	(0.002)	(0.003)	(0.004)	(0.002)	(0.002)
Political Activity	2.299	0.084	0.002	0.032*	4.640	0.098	0.003	0.030*
	(2.874)	(0.089)	(0.009)	(0.017)	(3.347)	(0.138)	(0.010)	(0.016)
Constant	-109.682	0.957	1.554	0.548	-181.146	1.185	1.589	0.922
	(141.102)	(5.149)	(6.646)	(1.981)	(132.901)	(6.014)	(6.670)	(1.872)
R^2	0.93	0.90	0.95	0.92	0.93	0.90	0.95	0.92
Number of Countries	36	81	44	161	36	81	44	161
Number of Observations	1570	3442	1738	6750	1570	3442	1738	6750

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Estimations are calculated with both time adjusted election dummy and the election indicator recommended by Franzese (2000). Both election variables predict an increase in the ratio of public expenditures to GDP in election years only in developing countries. The model for IMF classification has a statistically significant coefficient for developed countries, while the UN classification does not. The results suggest that political business cycles are observed in developing countries.

The estimated coefficients of both election variables are statistically significant at the 1% level in the estimation results including all countries in the sample. Apparently, this statistical significance originates from the developing countries except the least developed ones. In both sets of results, some coefficient estimates in the least developed countries differ considerably from those of the other country samples.

The economic variables used are all taken from the PWT dataset. The dependent variable G/GDP is also obtained from the PWT dataset. However, while calculating the G/GDP ratio in the PWT dataset, the United Nations' System of National Accounts approach was adopted. The United Nations' System of National Accounts approach does not include items such as transfer payments as part of government expenditures. Furthermore, while estimating the G/GDP ratio in the PWT dataset, instead of current prices in that country, world averages of current prices are used. Government expenditures estimated using this approach tend to be higher than actual expenditures for poor countries and lower than actual expenditures for rich countries (Knowles, 2001). Thus, it is essential to consider another available data source in the analysis in order to see the robustness of the findings. Figure 4 shows the time series of the average yearly G/GDP share of the IMF Public Finances of Modern History dataset and the G/GDP share of the PWT dataset for the years between 1975 and 2019. Noticeably, the G/GDP ratio estimates of the PWT dataset are considerably different from those of the IMF dataset.

Figure 5 Shows the difference between the G/GDP share in the IMF's Public Finances of Modern History dataset and the G/GDP share in the PWT dataset over the period between 1975-2019. Countries are divided into groups based on the UN's development classification.

Figure 4. G/GDP Ratio Comparision PWT & IMF

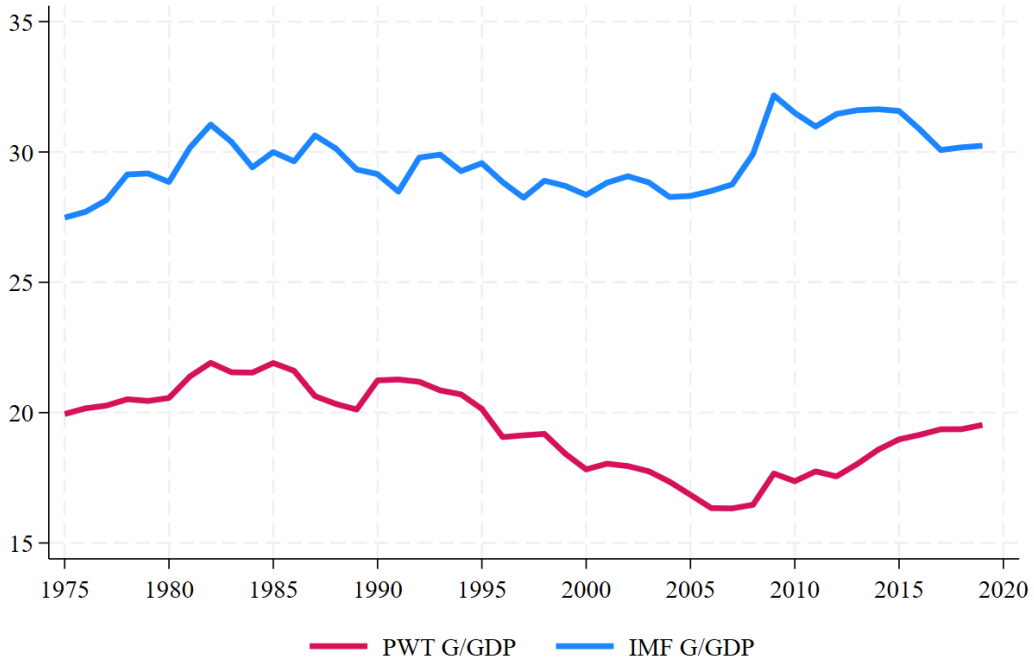
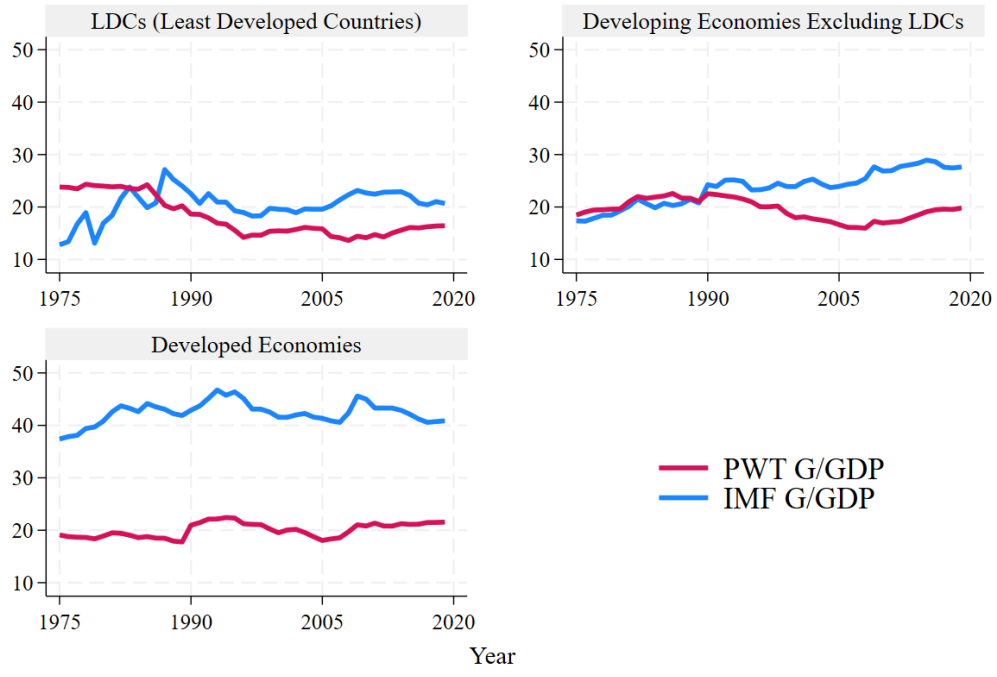


Figure 5. G/GDP Ratio Comparision PWT & IMF - UN Classification



By contrary to the point made by Knowles (2001), the PWT's G/GDP share has

been underestimated in poor countries since the mid-1980s, at least compared to the IMF's G/GDP share. However, the difference is smaller in EDEs compared to advanced economies. This may also indicate a distortion in the PWT data. To check the robustness of the findings, the same models estimated with the dependent variable replaced by G/GDP from the IMF's Public Finances in Modern History dataset. Table 8 shows the estimation output.

Table 8. PWT & IMF G/GDP: All Election Variables FE Results

	PWT G/GDP			IMF G/GDP		
Gov. Expenditure/GDP	Ele. Dummy	TA Dummy	Ele. Ind.	Ele. Dummy	TA Dummy	Ele. Ind.
Lagged Gov. Expenditure/GDP	0.882***	0.881***	0.881***	0.816***	0.817***	0.817***
	(0.013)	(0.012)	(0.012)	(0.021)	(0.021)	(0.021)
Election Variable	0.231***	0.297***	0.377***	0.086	0.311***	0.330**
	(0.086)	(0.093)	(0.123)	(0.119)	(0.113)	(0.152)
GDP Growth Rate	-0.075***	-0.077***	-0.077***	-0.045**	-0.043*	-0.043*
	(0.013)	(0.013)	(0.013)	(0.022)	(0.022)	(0.022)
log(GDP per capita)	0.038	0.086	0.086	0.452	0.554	0.551
	(0.206)	(0.210)	(0.210)	(0.364)	(0.377)	(0.378)
Openness(X+M)/GDP	0.006**	0.006**	0.006**	0.003	0.003	0.003
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Political Activity	0.028*	0.032*	0.030*	-0.033	0.021	-0.006
	(0.017)	(0.017)	(0.016)	(0.031)	(0.021)	(0.021)
Constant	1.187	0.548	0.922	2.312	-1.262	0.071
	(1.892)	(1.981)	(1.872)	(3.680)	(3.535)	(3.557)
R^2	0.92	0.92	0.92	0.95	0.95	0.95
Number of Countries	161	161	161	136	136	136
Number of Observations	6693	6750	6750	4508	4514	4514

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

All election variables are statistically significant at the 1% level with the G/GDP ratio from the PWT dataset, while the standard election dummy is statistically insignificant with the G/GDP ratio from the IMF dataset, the time-adjusted election dummy is statistically significant at the 1% level and the election indicator is statistically significant at the 5% level. This result might be considered as the robustness check. The number of countries decreases from 161 to 136 in the analysis using the IMF dataset and the number of observations decreases proportionally. The IMF's Public Finances in Modern History dataset does not cover Lithuania, Malta, Singapore, and Taiwan, which are included in the IMF's advanced country classification. Thus, the number of countries covered for the analysis falls from 33 to 29 in the IMF's advanced country group.

Table 9. IMF G/GDP: Election Indicator FE Results - IMF Classification

Gov. Expenditure/GDP	All	Advanced	EDEs
Lagged Gov. Expenditure/GDP	0.817***	0.869***	0.789***
	(0.021)	(0.020)	(0.026)
Election Indicator	0.330**	0.131	0.408*
	(0.152)	(0.168)	(0.212)
GDP Growth Rate	-0.043*	-0.272***	-0.026
	(0.022)	(0.044)	(0.024)
log(GDP per capita)	0.551	-0.581	0.721
	(0.378)	(0.584)	(0.444)
Openness(X+M)/GDP	0.003	-0.001	0.008*
	(0.003)	(0.004)	(0.005)
Political Activity	-0.006	-0.027	0.035
	(0.021)	(0.021)	(0.250)
Constant	0.071	13.395**	-3.556
	(3.557)	(6.380)	(11.142)
R^2	0.95	0.95	0.90
Number of Countries	136	29	107
Number of Observations	4514	1173	3341

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 9 shows the results of the models estimated with the election indicator with the IMF's G/GDP ratio as the dependent variable for the samples divided by the IMF's advanced country classification. The coefficient estimate of the election variable in the sample of all countries is 0.330 and statistically significant at the 5% level. In the sample of advanced countries, the estimated coefficient is smaller and it is 0.131, which is not statistically significant. For the sample of emerging and developing countries, the coefficient estimate is 0.408, the highest of the three and statistically significant at the 10% level. Using the IMF's G/GDP ratio as the dependent variable yields statistically weaker results. While the PWT G/GDP ratio as a dependent variable is statistically significant for the sample of advanced countries, albeit at a smaller magnitude, when the IMF G/GDP ratio used as dependent variable, estimation does not yield statistically significant result even at the 10% level for advanced countries. Following the previous approach, samples are also constructed with the development classification of the United Nations and the models are estimated accordingly. The following Table 10 shows the estimation results obtained with

this classification.

Table 10. IMF G/GDP: Election Indicator FE Results - UN Classification

Gov. Expenditure/GDP	All	LDCs	Developing	Developed
Lagged Gov. Expenditure/GDP	0.817***	0.761***	0.794***	0.853***
	(0.021)	(0.020)	(0.033)	(0.021)
Election Indicator	0.330**	0.824	0.481*	-0.091
	(0.152)	(0.525)	(0.267)	(0.179)
GDP Growth Rate	-0.043*	0.077**	-0.063**	-0.178***
	(0.022)	(0.028)	(0.025)	(0.056)
log(GDP per capita)	0.551	1.357*	0.338	-0.369
	(0.378)	(0.748)	(0.510)	(0.675)
Openness(X+M)/GDP	0.003	0.004	0.016***	-0.002
	(0.003)	(0.007)	(0.006)	(0.004)
Political Activity	-0.006	2.724	-0.118	-0.036
	(0.021)	(6.402)	(0.230)	(0.022)
Constant	0.071	-114.042	5.214	11.764
	(3.557)	(252.980)	(10.862)	(7.087)
R^2	0.95	0.89	0.86	0.94
Number of Countries	136	27	68	41
Number of Observations	4514	797	2262	1455

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The results obtained with the UN classification are in line with the results obtained with the PWT G/GDP ratio, albeit in a weaker form. The coefficient estimated in the developing economies sample with the same model specification with the PWT G/GDP ratio is 0.571, while with the IMF G/GDP ratio it is 0.481. The estimated coefficient is significant at the 5% level using the PWT G/GDP ratio, while this significance drops to 10% for IMF G/GDP ratio. Also at this point, it is worth noting that there is a considerable gap between IMF and PWT G/GDP ratios, as illustrated graphically in Figure 4 and Figure 5. On average, the IMF rate is higher than the PWT rate. Thus, the interpretation of the coefficient estimates also differs. Following previous analysis with the PWT G/GDP ratio as dependent variable, it's stated that the average increase in public expenditures in election years is 1.21%, taking the mean of the sample as a reference. Since the IMF's G/GDP ratio is higher on average, this indicator changes.

4.1.1. Cycles on Primary Expenditure

The dependent variables in use was the broadest government expenditures available in the datasets. Here, analysis conducted by excluding the interests payments on previous debt from public expenditures. Because the interest payments for the debts borrowed in previous years do not provide any information about the expenditures made in the current year. Removing interest payments from the analysis may provide a better answer to the research question since the research interest in this thesis is to see whether there are political budget cycles around elections.

Table 11.PG/GDP: All Election Variables FE Results - IMF Classification

Primary Gov. Expenditure/GDP	Ele. Dummy	TA Ele. Dummy	Ele. Indicator
Lagged Primary Gov. Exp/GDP	0.794***	0.796***	0.796***
	(0.021)	(0.021)	(0.021)
Election Variable	0.064	0.277**	0.272*
	(0.113)	(0.116)	(0.144)
GDP Growth Rate	-0.019	-0.018	-0.018
	(0.024)	(0.024)	(0.024)
log(GDP per capita)	0.151	0.235	0.231
	(0.364)	(0.372)	(0.373)
Openness(X+M)/GDP	0.004	0.004	0.004
	(0.003)	(0.003)	(0.003)
Political Activity	-0.026	0.027	0.001
	(0.026)	(0.025)	(0.018)
Constant	4.595	1.220	2.552
	(3.583)	(3.583)	(3.494)
R^2	0.94	0.94	0.94
Number of Countries	136	136	136
Number of Observations	4431	4437	4437

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The IMF Public Finances in Modern History dataset also provides the ratio of public expenditure to GDP excluding interest payments, and expenditure excluding interest payments is termed primary expenditure. The primary expenditure measures the government's expenditures in the current year. Table 11 shows the estimation results of the model with primary expenditure as the dependent variable.

Analyzing share of expenditures made in the respective year as the dependent variable, the coefficient estimate of the standard election dummy is not statistically significant. On the other hand, the coefficient estimates of the time adjusted election dummy and the election indicator are 0.277 and 0.272, respectively. The former is statistically significant at 5% level while the latter is statistically significant at 10% level. Coefficients estimated for the election variables are smaller in models in which Primary Expenditure used as the dependent variable. With the IMF G/GDP ratio, the coefficient estimate is 0.311 using the time adjusted dummy variable, whereas in the model where the ratio of primary expenditure to GDP is used as the dependent variable, the coefficient estimate decreases to 0.277. Likewise, the coefficient estimate of the election indicator decreased from 0.330 to 0.272. The results obtained using the ratio of primary expenditures to GDP as the dependent variable also provide further evidence of political budget cycles in public expenditures. While the statistical significance of the results obtained from the ratio of broadly defined public expenditures to GDP from the PWT dataset is stronger, the level of statistical significance decreases when the ratio of public expenditures to GDP from the IMF's Public Finances in Modern History dataset used as dependent variable. The same is true for the ratio of narrowly defined primary expenditures to GDP.

4.2. Cycles on Government Revenue

Government revenues are another fiscal indicator to look for political budget cycles. Prior to elections, incumbents may try to ingratiate themselves with the electorate by cutting revenues. Amnesty of fiscal penalties, reduction in direct and indirect tax rates, tax amnesties, increase in tax exemptions, etc. lead to a direct and contemporaneous increase in the disposable incomes of voters. Furthermore, by doing so, the incumbent president or the party in power tries to send a signal of its high level of competence by demonstrating that it can maintain public services at the current level with a lower income. In any situation where voters do not properly understand the trade-off between present and future, the incumbent tries to boost consumption in the current period at the expense of future consumption for the sake of electoral support (Nordhaus et al., 1989). This holds even if the incumbent party or president plans for the longer term. After all, it is always more valuable to win the very first election on the horizon. At the dawn of the election, the discount rate that the incumbent is willing to bear on economic variables in exchange for policies that benefit the incumbent's private interests is quite high and, in the extreme

case, it goes to infinity (Lindbeck, 1976; Rogoff & Sibert, 1988). Therefore, it may be possible for an incumbent to use political power to force the government to abandon a share of its revenues prior to elections. In order to test such a behavior, the following model is specified. The dependent variable is the ratio of government revenues to GDP. Origin of the variable is the IMF Public Finances in Modern History dataset. The dates of elections are taken from The Database of Political Institutions. For economic control variables, the source is Penn World Tables dataset. As in public expenditures, the model is dynamically specified and estimated with the fixed effect estimator.

$$\text{REV/GDP}_{i,t} = \beta_0 + \gamma_1 \text{REV/GDP}_{i,t-1} + \delta_1 \text{ELE}_{i,t} + \eta^{'} w_{i,t} + \xi_i + \lambda_t + \epsilon_{i,t}$$

Table 12. REV/GDP: All Election Variables FE Results

Gov. Revenue/GDP	Ele. Dummy	TA Ele. Dummy	Ele. Indicator
Lagged Gov. Revenue/GDP	0.799***	0.801***	0.801***
	(0.025)	(0.025)	(0.025)
Election Variable	-0.249***	-0.190**	-0.362***
	(0.090)	(0.083)	(0.116)
GDP Growth Rate	0.058***	0.059***	0.059***
	(0.015)	(0.015)	(0.015)
log(GDP per capita)	0.160	0.253	0.254
	(0.360)	(0.374)	(0.374)
Openness(X+M)/GDP	0.006	0.006	0.006
	(0.004)	(0.004)	(0.004)
Political Activity	-0.037	-0.021	-0.040*
	(0.026)	(0.016)	(0.023)
Constant	4.534	2.949	3.466
	(3.331)	(3.354)	(3.419)
R^2	0.95	0.95	0.95
Number of Countries	136	136	136
Number of Observations	4504	4510	4510

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 12 contains the results of the estimations. Each of the three election variables is statistically significant. The standard election dummy indicates that the ratio of public revenues to GDP decreases by 0.249 percentage points in election years and is statistically

significant at the 1% level. Coefficient of the time adjusted election dummy is -0.190 and statistically significant at the 5% level. Meanwhile, the election indicator has the lowest coefficient of -0.362 and is statistically significant at the 1% level. The results support the assertion that public revenues decrease before elections.

Figure 6. Government Revenue by IMF's Advanced Countries Classification

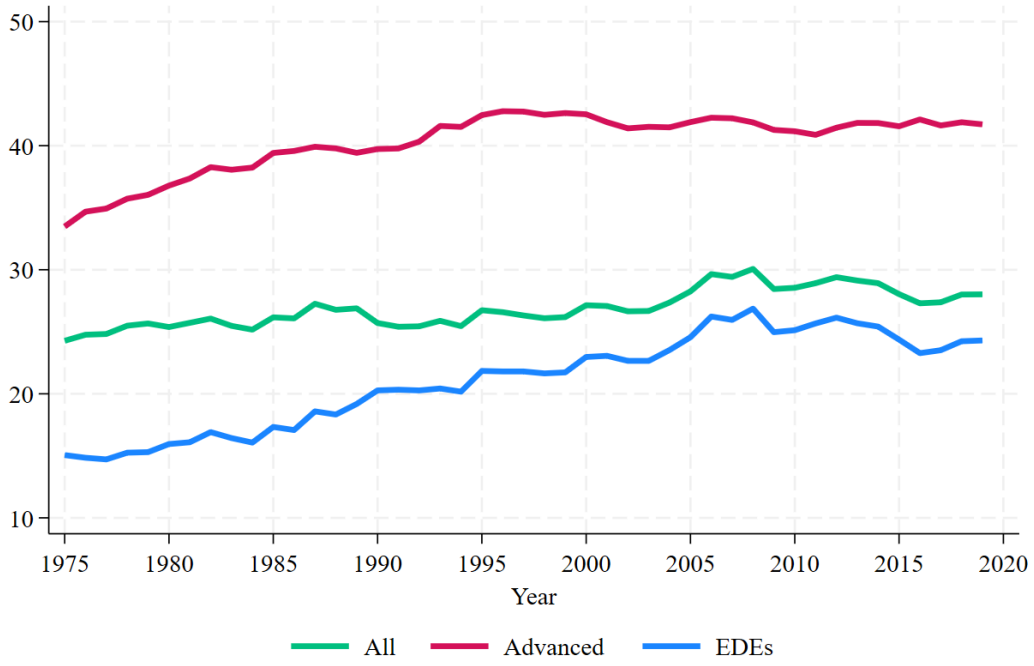


Figure 6 presents the time series plot of the government revenues to GDP ratio in the period covered by this study, divided into groups based on the advanced economies classification of the IMF. Government revenues in the advanced countries significantly higher than emerging and developing economies. It is seen that public revenues increased in both groups between 1975 and 2019. However, the gap between these two groups is considerably high. Thus, as done for government expenditures, a reasonable strategy seems to be to proceed the analyze by grouping the countries. Table 13 provides the estimation of the countries grouped according to the IMF's advanced country categorization.

Table 13. REV/GDP: Election Indicator FE Results - IMF Classification

Gov. Revenue/GDP	All	Advanced	EDEs
Lagged Gov. Revenue/GDP	0.801***	0.889***	0.768***
	(0.025)	(0.024)	(0.031)
Election Indicator	-0.362***	-0.232	-0.470***
	(0.116)	(0.153)	(0.162)
GDP Growth Rate	0.059***	-0.117***	0.069***
	(0.015)	(0.037)	(0.016)
log(GDP per capita)	0.254	-0.686	0.576
	(0.374)	(0.616)	(0.424)
Openness(X+M)/GDP	0.006	0.002	0.010*
	(0.004)	(0.003)	(0.005)
Political Activity	-0.040*	-0.020	-0.193
	(0.023)	(0.018)	(0.198)
Constant	3.466	12.959*	5.891
	(3.419)	(6.354)	(9.037)
R^2	0.95	0.96	0.91
Number of Countries	136	29	107
Number of Observations	4510	1173	3337

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Similar to the ratio of public expenditures to GDP, opportunistic pre-election budget cycles in the ratio of government revenues to GDP observed only in emerging and developing countries. The decrease in the ratio of public expenditures to GDP is 0.362 percentage points in the sample of all countries, whereas it reaches 0.470 percentage points for the group of emerging and developing economies. Remarkably, the ratio of public revenues to GDP decreases along with growth in advanced countries, whereas in developing countries growth is a factor that increases the ratio of public revenues to GDP. The remise of government revenues is more severe compared to the increase in government expenditures. Along with the magnitude, statistical significance is also higher in the estimations including both All countries and EDEs when compared to the results obtained using the IMF's G/GDP ratio as the dependent variable. Moreover, as discussed previously, instead of an increase in government expenditures, the incumbent may strategically change the composition of expenditures to increase the disposable income of targeted groups of voters. Applying the same approach to government revenues increases the disposable income of one group of voters but decreases the disposable income of a different group. Such a situation implies

that the incumbent sacrifices one group of voters for another group of voters. Although it is probable, government revenues are less likely to be the preferred instrument compared to government expenditures.

Figure 7. Average Government Revenue as Share of GDP - UN Classification

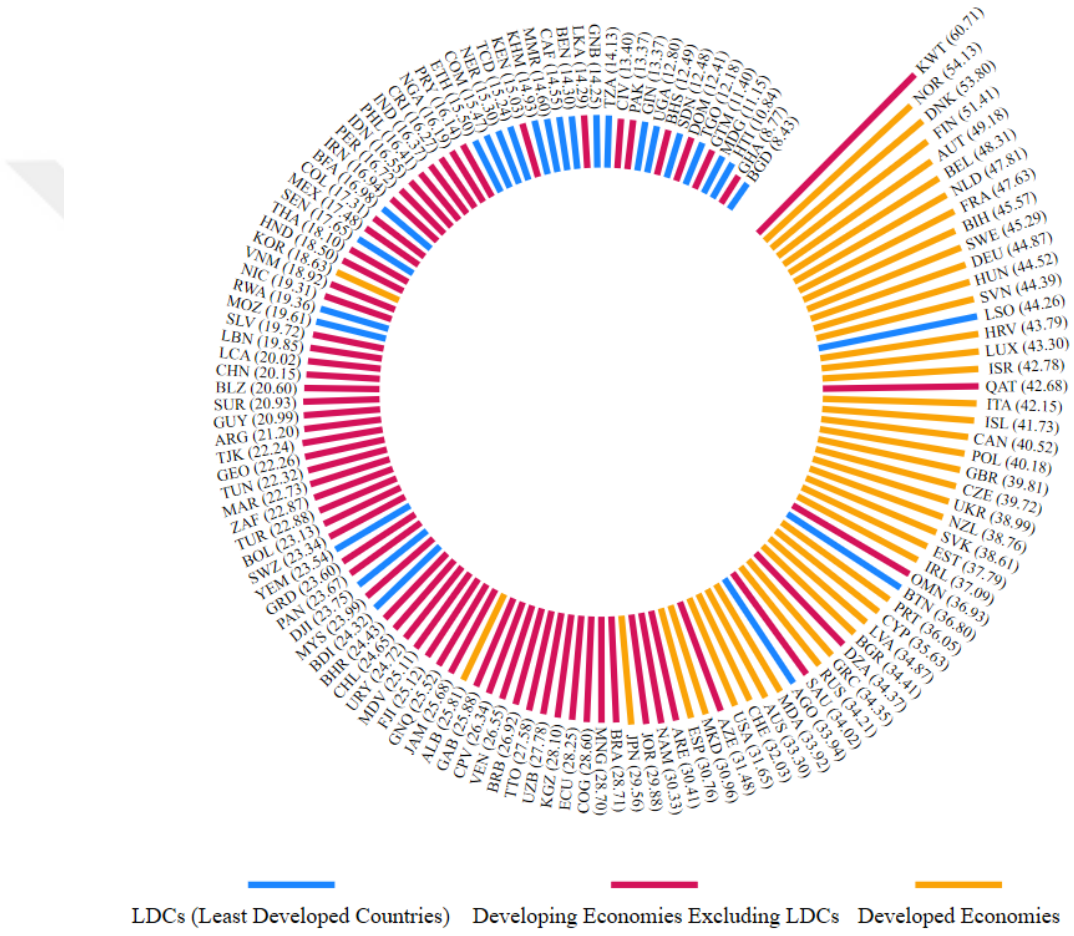


Figure 7 shows the average government revenue to GDP ratio of each country between 1975 and 2019. Although there are divergent countries, the underlying pattern remains evident. The higher the level of development, the higher the ratio of public revenues to GDP or vice versa. Excluding Kuwait, which has the highest average government revenue to GDP ratio, Northern European countries rank on the top. They are followed by the former Eastern Bloc nations. The ratio in developing countries is mainly between 15% and 20%. Except two outlier countries, South Korea and Albania, the lowest rate of developed

countries is seen in Japan with nearly 30%. Whereas the least developed countries are clustered in the lowest values even if they are outliers. Figure 7 display the crucial impact of state capacity. The lack of sufficient state capacity in countries undergoing unstable period with political turmoil and uncertainties poses a major barrier towards development.

Table 14 contains the estimation results of the model with UN classification. As with government expenditures, there is no statistically significant coefficient for government revenues in LDCs. However, the magnitude of the coefficient is larger in the remaining developing countries. Furthermore, contrary to the IMF classification, a statistically significant result is obtained in developed countries.

Table 14. REV/GDP: Election Indicator FE Results - UN Classification

Gov. Revenue/GDP	All	LDCs	Developing	Developed
Lagged Gov. Revenue/GDP	0.801***	0.659***	0.801***	0.879***
	(0.025)	(0.059)	(0.034)	(0.024)
Election Indicator	-0.362***	0.321	-0.643***	-0.359**
	(0.116)	(0.484)	(0.199)	(0.152)
GDP Growth Rate	0.059***	0.146***	0.047***	-0.068*
	(0.015)	(0.031)	(0.012)	(0.035)
log(GDP per capita)	0.254	1.784*	0.222	-0.603
	(0.374)	(0.942)	(0.438)	(0.596)
Openness(X+M)/GDP	0.006	0.007	0.014**	0.004
	(0.004)	(0.013)	(0.006)	(0.003)
Political Activity	-0.040*	6.084	-0.352	-0.034*
	(0.023)	(6.832)	(0.215)	(0.019)
Constant	3.466	-249.445	14.341	12.473**
	(3.419)	(270.113)	(9.648)	(5.955)
R^2	0.95	0.85	0.90	0.96
Number of Countries	136	27	68	41
Number of Observations	4510	797	2262	1451

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Just as in the case of government expenditures, there is no statistically significant effect of elections on government revenues in Least Developed Countries in the models estimated with the United Nations classification. Contrary to government expenditures, government revenues decrease due to elections in the countries included in the UN's classification of developed countries. Albania, Bulgaria, Bosnia-Herzegovina, Belarus,

Cyprus, Hungary, Moldova, Macedonia, Poland, Russia, Slovakia, Slovenia and Ukraine, which are not included in the IMF's classification but are classified as developed countries by the UN. The fact that the election variables do not yield statistically significant effects for government expenditures in this group whereas they do for government revenues suggests that the instruments used in these countries in political budget cycles are those concerning government revenues, rather than government expenditures, and in the countries that are in question, policies to increase the disposable incomes of the electorate by sacrificing government revenues are practiced.

One reason for this may be that the checks and balances in these countries put a barrier to pre-election interventions in public expenditures. For instance, whereas it was common in the US to raise social security payments prior to elections until 1972, the congressional action later limited the raises to be made at the rate of inflation and in June of each year (Tufte, 1978, p. 34). Confronted by such constraints, the remaining policy instruments for pre-electoral signaling are those that are related to government revenues.

4.3. Cycles on Primary Balance

The Primary Balance is another dependent variable can used to provide inferences on political budget cycles. The primary balance is defined as government revenues minus government non-interest expenditures. It allows to analyze the effect of elections on both government expenditures and government revenues jointly. To illustrate, an incumbent may try to increase the disposable incomes of voters or specific constituencies by increasing social transfers and cutting indirect taxes or using other policy instruments prior to elections. Whereas in the case where both revenues and expenditures are used as policy instruments, inference on revenues and expenditures yields incomplete information on the magnitude of political budget cycles, whereas in the primary balance it is possible to observe the combined effect of using both expenditures and revenues as policy instruments. Indeed, separately, the effect of elections on expenditure and revenue components are small, but cumulatively they have a rather sizable effect (de Haan et al., 2023). The following model is specified to analyze the effects on both expenditures and revenues in election years. The dependent variable is the primary balance to GDP ratio. Table 15 presents the estimation results of the model for the three election covariates used previously.

$$\text{PB/GDP}_{\text{i,t}} = \beta_0 + \gamma_1 \text{PB/GDP}_{\text{i,t–1}} + \delta_1 \text{ELE}_{\text{i,t}} + \eta^{'} \text{w}_{\text{i,t}} + \xi_{\text{i}} + \lambda_{\text{t}} + \epsilon_{\text{i,t}}$$

Table 15. PB/GDP: Election Indicator FE Results

Primary Balance/GDP	Ele. Dummy	TA Ele. Dummy	Ele. Indicator
Lagged Primary Balance/GDP	0.582***	0.583***	0.582***
	(0.019)	(0.019)	(0.019)
Election Variable	-0.353***	-0.438***	-0.642***
	(0.116)	(0.107)	(0.146)
GDP Growth Rate	0.091***	0.091***	0.091***
	(0.014)	(0.014)	(0.014)
log(GDP per capita)	0.209	0.233	0.241
	(0.294)	(0.284)	(0.285)
Openness(X+M)/GDP	0.003	0.003	0.003
	(0.003)	(0.003)	(0.003)
Political Activity	-0.017	-0.047	-0.039*
	(0.016)	(0.030)	(0.021)
Constant	-2.003	-0.670	-1.535
	(2.752)	(2.934)	(2.621)
R^2	0.60	0.60	0.60
Number of Countries	136	136	136
Number of Observations	4431	4437	4437

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient is negative with all three election variables as expected and the coefficients are statistically significant at the 1% level. Coefficients indicate that the primary balance is worsened in election years. The estimated coefficient of the standard election dummy variable is -0.353, while the coefficient estimate of the time-adjusted election dummy variable is -0.438. The lowest coefficient estimate is -0.642 which is obtained with the election indicator. The results indicate that the primary balance distorts considerably around elections. Despite the fact that it is difficult to conclude about the origin of the distortion in primary balance by solely relying on this analysis, considering the results in Table 8 and Table 12, one can say that government revenues play a greater role in the worsening of the primary balance.

The mean of the primary balance to GDP ratio in the analyzed sample is 0.218. Therefore, on average, the ratio of primary balance to GDP in countries is positive with a slight margin. Positive primary balance implies that revenues are higher than primary expenditures. Considering the obtained coefficients, it appears that elections alter positive

primary balance towards negative primary balance. Negative primary balance means that countries fail to cover even non-interest expenditures and an already indebted governments continue to accumulate debt.

Figure 8. Primary Balance by IMF's Advanced Countries Classification

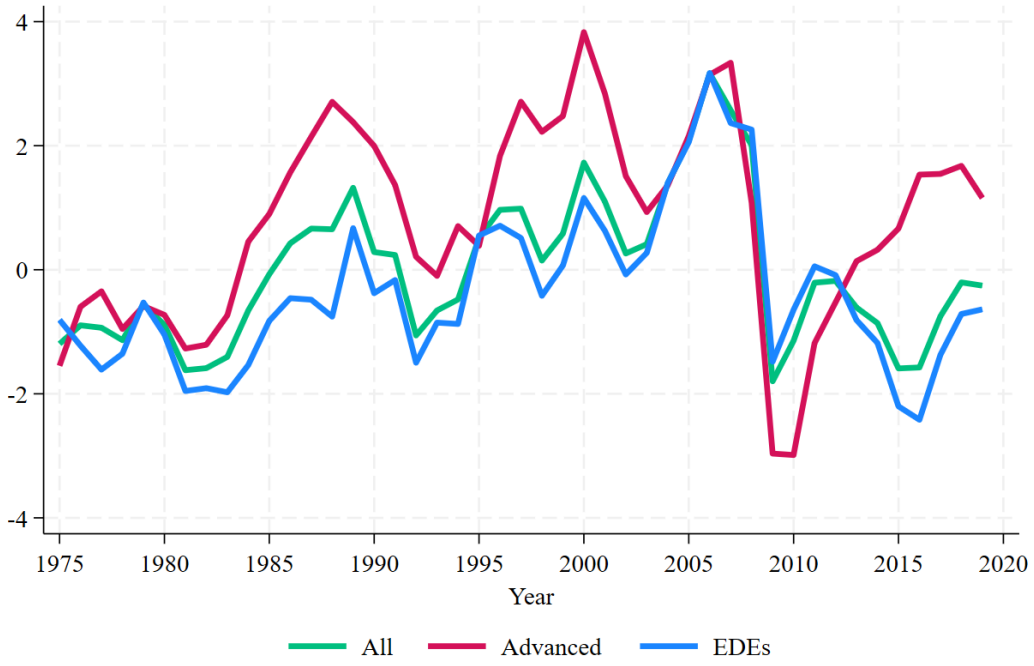
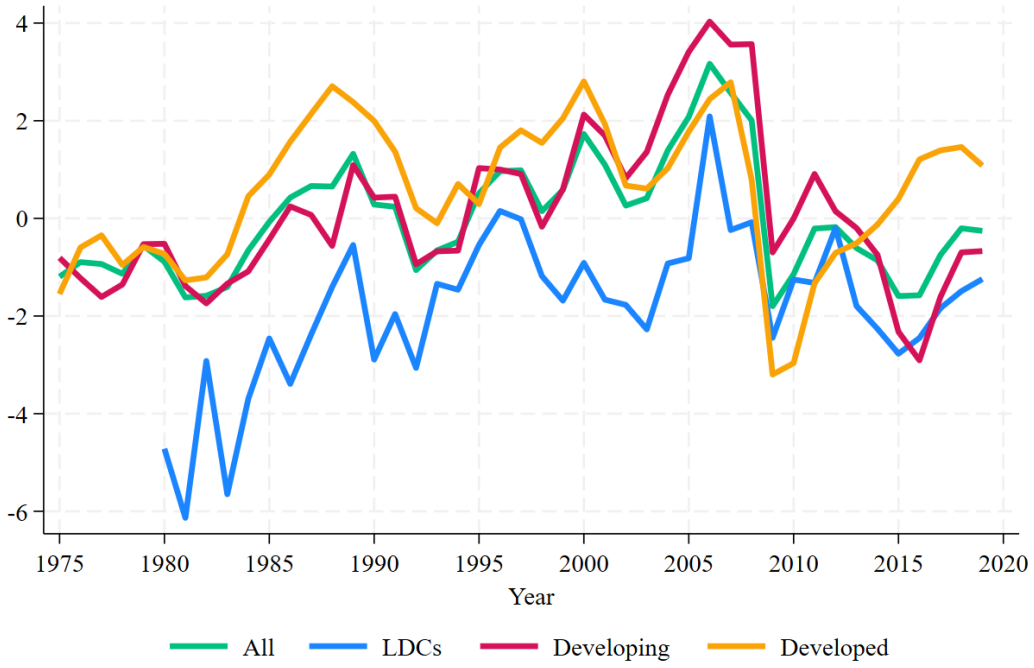


Figure 8 displays the time series plots of the primary balance to GDP ratios of countries sorted based on the IMF's advanced countries classification for the period of years covered by this analysis. Although it is difficult to reach a concrete interpretation from this graph, advanced economies appear to have a higher tendency towards positive primary balance.

Figure 9 illustrates the time series plots of countries stratified by the UN's development classification. The least developed countries differ severely from other countries. The graph reveals that the least developed countries are the worst performers in terms of primary balance. Yet, the gap narrowed remarkably following the global financial crisis of 2008.

Table 16 provides the results of the estimations of the model with country samples grouped according to the UN development classification. The coefficient estimation of the election variables is statistically insignificant in the least developed countries and developed countries, but it is statistically significant in developing countries excluding the least developed countries. The coefficient estimate obtained from the model estimated with the

Figure 9. Primary Balance by UN Development Classification



election indicator for developing countries is -1.114. Indicating a rather drastic disruption. Due to both the reduction in revenues and the increase in expenditures, developing countries undergo a considerable distortion in the fiscal balance of the public sector before elections. Overall, the results suggest that political budget cycles do not occur at the two ends of the development spectrum, albeit in the middle of the spectrum they occur in a drastic manner. Taking into account the results of the analyses of public expenditures and public revenues, it can be said that political budget cycles do occur in developed countries as well, mainly driven by public revenues, but on average the magnitude of these cycles is lower in developed countries relative to that of developing countries. As for the least developed countries, there is no support for the presence of political budget cycles either in government expenditures or in government revenues, nor in the primary balance, where the effect of two aggregate variable combined can be seen.

Table 16. PB/GDP: Election Indicator FE Results - UN Classification

	Election Dummy				Time Adjusted Election Dummy				Election Indicator			
Primary Balance/GDP	LDCs	Developing	Developed	All	LDCs	Developing	Developed	All	LDCs	Developing	Developed	All
Lagged Primary Balance/GDP	0.398***	0.586***	0.693***	0.582***	0.399***	0.587***	0.694***	0.583***	0.400***	0.587***	0.694***	0.582***
	(0.087)	(0.017)	(0.037)	(0.019)	(0.086)	(0.016)	(0.036)	(0.019)	(0.086)	(0.016)	(0.037)	(0.019)
Election Variable	-0.395	-0.680***	-0.147	-0.353***	-0.838***	-0.626***	-0.176	-0.438***	-0.701	-1.114***	-0.236	-0.642***
	(0.358)	(0.219)	(0.159)	(0.116)	(0.242)	(0.218)	(0.119)	(0.107)	(0.448)	(0.267)	(0.190)	(0.146)
GDP Growth Rate	0.046**	0.094***	0.099***	0.091***	0.047**	0.095***	0.099***	0.091***	0.047**	0.094***	0.100***	0.091***
	(0.021)	(0.019)	(0.032)	(0.014)	(0.022)	(0.019)	(0.032)	(0.014)	(0.022)	(0.019)	(0.032)	(0.014)
log(GDP per capita)	0.249	0.595	-0.106	0.209	0.479	0.592	-0.125	0.233	0.483	0.582	-0.104	0.241
	(0.649)	(0.437)	(0.375)	(0.294)	(0.631)	(0.435)	(0.379)	(0.284)	(0.640)	(0.437)	(0.379)	(0.285)
Openness(X+M)/GDP	-0.001	-0.000	0.008*	0.003	-0.001	-0.000	0.008*	0.003	-0.001	0.000	0.008*	0.003
	(0.004)	(0.006)	(0.004)	(0.003)	(0.004)	(0.006)	(0.004)	(0.003)	(0.004)	(0.006)	(0.004)	(0.003)
Political Activity	-0.722	-0.191*	0.011	-0.017	-2.807	-0.187	-0.010	-0.047	1.558	-0.403**	0.008	-0.039*
	(2.677)	(0.107)	(0.017)	(0.016)	(2.550)	(0.180)	(0.018)	(0.030)	(7.094)	(0.178)	(0.018)	(0.021)
Constant	2.924	2.794	0.031	-2.003	8.920	2.924	1.243	-0.670	-20.427	9.766	0.245	-1.535
	(31.420)	(6.908)	(3.844)	(2.752)	(15.953)	(9.490)	(4.171)	(2.934)	(60.202)	(8.199)	(3.863)	(2.621)
R^2	0.33	0.62	0.74	0.60	0.33	0.62	0.74	0.60	0.33	0.62	0.74	0.60
Number of Countries	27	68	41	136	27	68	41	136	27	68	41	136
Number of Observations	781	2205	1445	4431	785	2206	1446	4437	7 85	2206	1446	4437
Akaike Information Criterion	4053	11362	5816	21868	4068	11366	5820	21890	40 70	11362	5820	21888
Bayesian Information Criterion	4183	11647	6027	22182	4198	11646	6031	22203	42 01	11647	6031	22201

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

5. WHAT MAKES PBC DIFFER AMONG COUNTRIES?

The regression results suggest the occurence and magnitude of political budget cycles vary among nations. In this part of the thesis conditional factors for political budget cyles are analyzed. Scholars conclude some aspect of countries have a substantital effect on the possibility and magnitude of PBCs. Shi and Svensson (2006) conclude that instutions play a crucial role. Incumbents's incentive to stimulate economy diminish as instutional quality increases. This holds because as instutions improve the room for using public resources to increase one own's private utility or parties's private interest gets smaller. F. J. Veiga et al. (2017) shows that freedom of media is correlated with severity of PBCs. The government's control over the media makes it easier to dig some truth on the ground and alter information for incumbents. The government-controlled media outlets filter information that otherwise would harm the incumbent party or president. Incumbents can control the publicizing of information, allowing them to alter fiscal variables without the electorate's even notice. As stated earlier rational political business cycles models are based on the assymetry of information. As media outlets make it possible to incumbents keep the assymetry at a high level, the magnitude of manipulation or disruption can reach severity (De Haan & Klomp, 2013).

5.1. Democracy

Political Business Cycles and Political Budget Cycles theories were originally developed for the countries where democratic elections are held. However, later on, scholars (Schuknecht, 2000; Block, 2002; Gonzalez, 2002; Akhmedov & Zhuravskaya, 2003; Brender & Drazen, 2005; Shi & Svensson, 2006) have extended this coverage in their empirical studies. Because autocracies also hold elections. According to Cox (2009), autocrats allow elections even if they might lose in order to avoid the risk of being violently overthrown. Shmuel (2020) argues that elections are also used to gain legitimacy both internally and externally. According to Magaloni (2006, p. 258), autocratic regimes use elections to deter potential elite rivals and mobilize voters to show the elites that the regime is unbeatable. Moreover, elections in autocracies also contribute to the establishment of autocracy by

ensuring the distribution of political power among lower-level politicians. Another reason for elections in autocracies is to divide the opposition. By cooperating with some parties in the opposition and promising some parties seats in parliament, divisions in the opposition can be caused (Magaloni, 2006, p. 258). The more divided the opposition is, the easier it is to extend the rule of the regime. Therefore, autocratic countries were not excluded from the sample. Because if there are elections, there might be also political budget cycles.

To analyze the effect of democracy on Political Budget Cycles, a new variable is introduced to the model. The variable is the Polity2 Index from the PolityV dataset. Polity2 Index is a 21 point scale that ranges between -10 and +10. -10 indicates Hereditary Monarchy while +10 indicates Consolidated Democracy. Values between +6 and +10 indicate the presence of a democratic regime, and values between -6 and -10 emphasize an autocratic regime. Values between -5 and +5 are defined as ”anocrachy”. Anocrachy stands for authoritarian democracy-like regimes.

First, the results obtained by re-running the regression models with only observations with positive Polity2 scores are presented in Table 17.

The results obtained with the sample consisting of observations with positive Polity2 scores have the same signs as the previous results, while the coefficient estimates vary more or less based on the dependent variables. In the results obtained when PWT G/GDP ratio is the dependent variable, the coefficient of the election indicator for all observations is 0.377 while it is 0.231 for the positive Polity2 sample. The coefficient obtained for all observations in the model where IMF G/GDP ratio is the dependent variable is 0.330 while it decreases to 0.261 for the positive Polity2 sample. The estimated coefficient for all observations in the model with REV/GDP ratio as the dependent variable is -0.362, while the result for the positive Polity2 sample is -0.347. Lastly, coefficient estimate decreased from -0.642 to -0.560 in the model where the ratio of primary balance to GDP is the dependent variable. These findings suggest that the level of democracy may have an impact on the magnitude of political budget cycles.

As a further step forward, Table 18 shows the results of regression models executed for a sample with a Polity2 score of 6 and higher. Polity2 scores of 6 and higher are denoted as democracy in the dataset.

The results for the sample with a Polity2 score of 6 and higher show a more drastic change in the coefficient estimates. The coefficient estimate of the election indicator is 0.205 for the PWT G/GDP ratio, 0.092 for the IMF G/GDP ratio, -0.461 for the REV/GDP

Table 17. Positive Polity2 Score Sample Election Indicator FE Results

Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.870***	0.824***	0.817***	0.572***
	(0.012)	(0.022)	(0.029)	(0.035)
Election Indicator	0.231***	0.261*	-0.347***	-0.560***
	(0.082)	(0.144)	(0.112)	(0.135)
GDP Growth Rate	-0.090***	-0.059	0.027	0.084***
	(0.026)	(0.036)	(0.019)	(0.022)
log(GDP per capita)	-0.021	0.353	-0.748*	-0.708*
	(0.346)	(0.524)	(0.417)	(0.365)
Openness(X+M)/GDP	0.002	0.000	0.003	0.002
	(0.002)	(0.003)	(0.003)	(0.003)
Political Activity	0.015	-0.004	-0.040**	-0.038**
	(0.009)	(0.018)	(0.020)	(0.019)
Constant	2.499	2.176	12.874***	7.052**
	(3.094)	(4.950)	(3.841)	(3.406)
R^2	0.92	0.96	0.96	0.48
Number of Countries	161	136	136	136
Number of Observations	4249	3331	3331	3308

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

ratio and -0.492 in the model where the ratio of Primary Balance to GDP is the dependent variable. These results also suggest that the level of democracy may influence the Political Budget Cycles. For the IMF G/GDP ratio, no statistically significant coefficient is obtained in the sample with a Polity2 score of 6 and above. This also suggests that in democratic countries, government spending is not used to increase the re-election prospects of the incumbent party or president. However, the results of the model where the ratio of government revenues to GDP is the dependent variable are lower than the coefficient estimate obtained with the sample that consists of all observations and the sample created with a positive Polity2 score. For all observations, the coefficient of the election indicator is -0.362, for positive Polity2 score sample it is -0.347, whereas for Polity2 score of 6 and higher, i.e. for democracies, the result is -0.461. This implies that in democratic countries, the policies implemented by the incumbent in order to be re-elected are the ones that affect government revenues rather than government spending. For the ratio of Primary Balance to GDP, the negative coefficient estimate is higher than the coefficient estimate

from the sample with all observations and the sample with only positive polity2 scores. The coefficient estimate for the election indicator in the sample of democracies when the IMF G/GDP ratio is the dependent variable is 0.092, which is statistically indistinguishable from zero, so it is easy to see that the effect on the primary balance is largely driven by government revenues.

Table 18. +6 Polity2 Score Sample Election Indicator FE Results

Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.866***	0.827***	0.850***	0.618***
	(0.017)	(0.025)	(0.024)	(0.033)
Election Indicator	0.205***	0.092	-0.461***	-0.492***
	(0.079)	(0.168)	(0.127)	(0.164)
GDP Growth Rate	-0.072**	-0.083**	-0.002	0.079***
	(0.035)	(0.039)	(0.024)	(0.021)
log(GDP per capita)	-0.212	0.676	-1.125**	-1.258**
	(0.391)	(0.802)	(0.460)	(0.544)
Openness(X+M)/GDP	0.003	-0.002	-0.000	0.002
	(0.003)	(0.004)	(0.003)	(0.004)
Political Activity	0.013	-0.022	-0.049**	-0.028
	(0.008)	(0.024)	(0.021)	(0.018)
Constant	3.983	0.299	16.720***	12.049**
	(3.683)	(7.535)	(4.270)	(5.024)
R^2	0.93	0.96	0.96	0.47
Number of Countries	161	136	136	136
Number of Observations	3195	2595	2595	2581

Heteroskedasticity and autocorrelation robust std. errors in parentheses.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

At the next phase, the Polity2 score is introduced into the model as an independent variable. Also, in order to allow the effect of elections on fiscal variables to differ depending on the level of democracy, an interaction term with the Polity2 score and the Election Variable was constructed and introduced into the model, thus the model takes the following form:

$$Y_{i,t} = \beta_0 + \gamma_1 Y_{i,t-1} + \delta_1 ELE_{i,t} + \beta_1 PLT2_{i,t} + \beta_2 ELE_{i,t} \times PLT2_{i,t} + \eta' w_{i,t} + \xi_i + \lambda_t + \epsilon_{i,t}$$

The model is estimated with both the time adjusted election dummy and the election indicator. Table 19 shows the estimation results of the model with this setting. Table 19

also presents the F and p values of the Wald test for the joint significance of the election variable, the Polity2 score and their interaction term.

Table 19. Polity2 Score: TA Election Dummy & Election Indicator FE Results

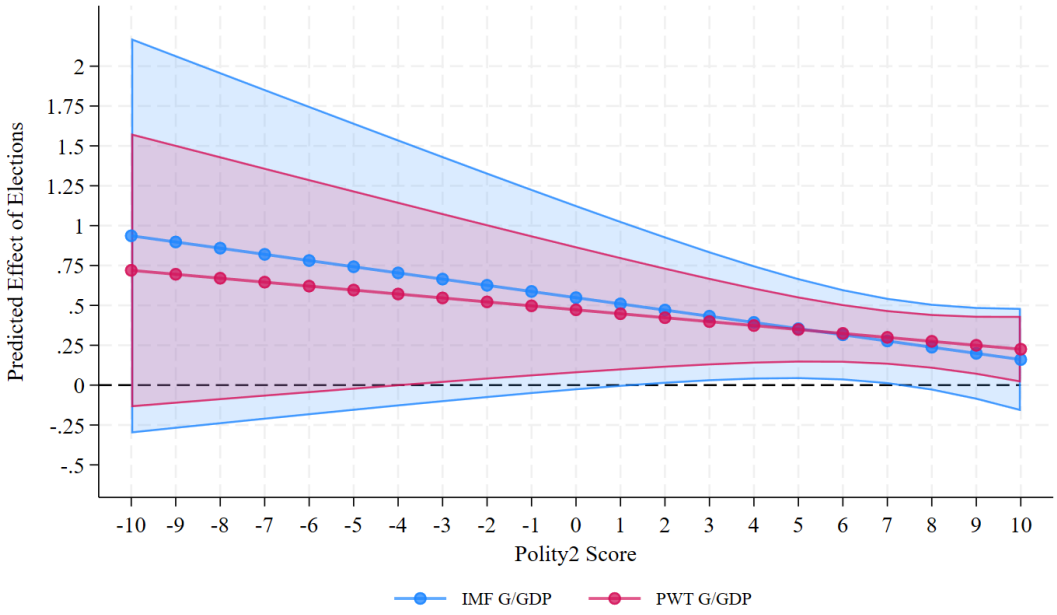
	Time Adjusted Election Dummy				Election Indicator			
Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.880***	0.821***	0.800***	0.581***	0.880***	0.821***	0.800***	0.581***
	(0.013)	(0.021)	(0.026)	(0.021)	(0.013)	(0.021)	(0.026)	(0.021)
Election Variable	0.379**	0.339	-0.284	-0.563**	0.473**	0.548*	-0.403*	-0.854***
	(0.155)	(0.222)	(0.184)	(0.223)	(0.203)	(0.296)	(0.213)	(0.283)
Polity2	0.012	0.013	0.012	-0.003	0.011	0.015	0.014	-0.001
	(0.013)	(0.023)	(0.020)	(0.018)	(0.013)	(0.023)	(0.020)	(0.018)
Election Variable × Polity2	-0.024	-0.013	0.013	0.024	-0.025	-0.039	0.004	0.033
	(0.018)	(0.027)	(0.022)	(0.026)	(0.025)	(0.035)	(0.025)	(0.033)
GDP Growth Rate	-0.079***	-0.046**	0.060***	0.097***	-0.079***	-0.046**	0.060***	0.097***
	(0.015)	(0.023)	(0.016)	(0.014)	(0.015)	(0.023)	(0.016)	(0.014)
log(GDP per capita)	0.048	0.485	0.387	0.379	0.045	0.476	0.390	0.393
	(0.230)	(0.398)	(0.387)	(0.332)	(0.230)	(0.399)	(0.387)	(0.334)
Openness(X+M)/GDP	0.007**	0.002	0.005	0.004	0.007**	0.002	0.005	0.004
	(0.003)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
Political Activity	0.016	0.010	-0.013	-0.032	0.019	-0.020	-0.036	-0.026
	(0.013)	(0.019)	(0.014)	(0.026)	(0.012)	(0.022)	(0.022)	(0.018)
Constant	1.697	-0.012	1.502	-2.769	1.760	1.317	2.207	-3.441
	(2.117)	(3.578)	(3.393)	(3.163)	(2.050)	(3.707)	(3.454)	(2.991)
Wald Test F Value	2.82	1.85	2.34	4.54	4.03	1.74	4.83	8.04
Wald Test p Value	0.04	0.14	0.08	0.00	0.01	0.16	0.00	0.00
R^2	0.92	0.95	0.95	0.61	0.92	0.95	0.95	0.61
Number of Countries	152	127	127	127	152	127	127	127
Number of Observations	6034	4073	4069	3996	6034	4073	4069	3996

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficient estimate of the time adjusted election dummy is statistically insignificant for IMF G/GDP ratio and REV/GDP ratio. It is significant at the 5% level in the models where PWT G/GDP and Primary Balance to GDP ratio are the dependent variables. The p-value of the Wald test is statistically significant at the 5% and 1% levels for these two models, while the p-values of the Wald test for IMF G/GDP and REV/GDP ratio are 0.14 and 0.08. In the models estimated with the election indicator, the coefficient estimate of election indicator is statistically significant at the 1% level for the primary balance to GDP ratio, at the 5% level for the PWT G/GDP ratio, and at the 10% level for the IMF G/GDP and REV/GDP ratios. Wald tests confirm the joint significance at the 1% level in models with other dependent variables except the IMF G/GDP ratio. The coefficient estimates of both the Polity2 score and the interaction term are not statistically significant individually in any of the results. This implies that the level of democracy does not have an explanatory role for the dependent variables in question.

Figure 10 and Figure 11 show how the coefficient estimate of the electoral index differs conditional on the Polity2 score at sample means. Figure 10 shows the magnitude and statistical significance of the coefficient estimate of the election indicator conditional on the levels of the Polity2 score, i.e. different levels of democracy, for the models where the ratio of Public Expenditure to GDP from the PWT and IMF datasets is the dependent variable.

Figure 10. Marginal Effect of Elections on Government Expenditure Conditional on Polity2 Score



The dotted lines plot the effect of elections on government spending conditional on the level of democracy. The surrounding areas represent the 95% confidence intervals. The estimated effect of elections for both PWT and IMF G/GDP decreases as the level of democracy increases. In the model where PWT G/GDP ratio is the dependent variable, this effect is statistically significant at the 5% level for Polity2 scores greater than -4. The statistical significance in the model where IMF G/GDP ratio is the dependent variable is limited to the range of Polity2 scores between 1 and 7. Conclusion obtained from the model with PWT G/GDP ratio as the dependent variable shows that there is no increase in public expenditures in strong autocracies before the elections. On the other hand, the results obtained from the model with IMF G/GDP ratio as the dependent variable show that public expenditures increase before elections only in weak democracies and weak autocracies. In contrast, this is not the case in strong democracies and strong autocracies.

Figure 11. Marginal Effect of Elections on Fiscal Outcomes Conditional on Polity2 Score

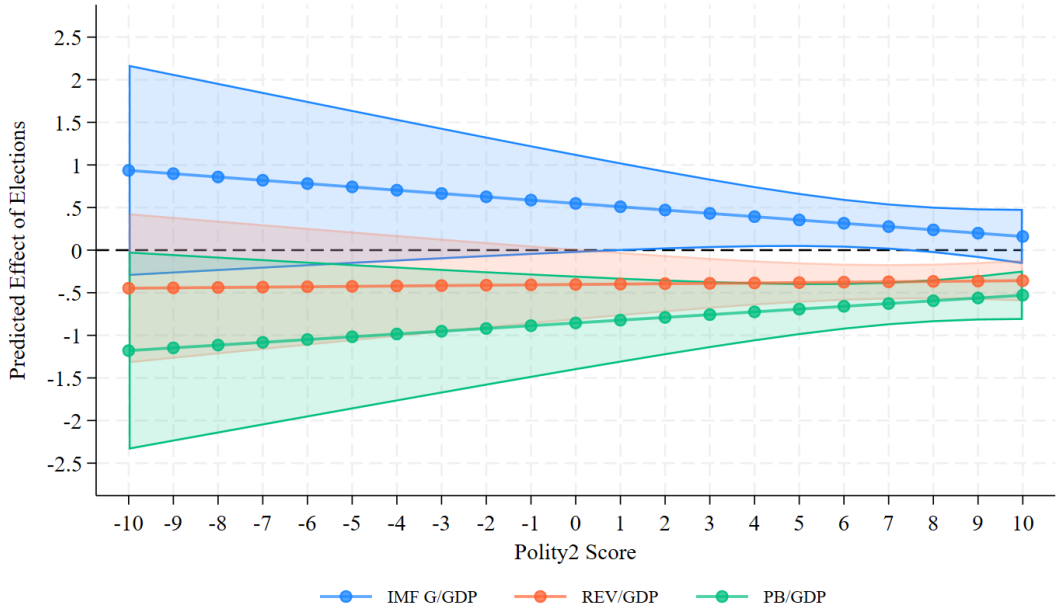


Figure 11 plots the effect of elections conditional on the Polity2 score for fiscal variables extracted only from the IMF dataset. The greater the level of democracy, the smaller the magnitude of the effect on fiscal variables. The negative effect of elections on the ratio of Revenue and Primary Balance to GDP becomes weaker as the level of democracy increases. For the ratio of government spending to GDP, the effect is statistically significant only for values between 1 and 7, while for government revenues, statistical significance at the 5%

level holds for positive Polity2 scores. The effect of elections on spending, as in the results shown earlier, is smaller than the effect on revenues. The results imply that in advanced democracies, the policy instruments used by the incumbent to seek re-election are those that affect government revenues. An incumbent can manipulate spending by targeting a specific group without changing the level of spending. However, using government revenues as a policy instrument to target one group at the expense of other groups of voters would not be a sensible behavior before elections. This may explain why in advanced democracies there is a decline in government revenues before the elections while there is no statistically significant increase in government spending.

As stated previously, the use of the ratio of the primary balance to GDP as the dependent variable provides information on the cumulative effect of elections on public expenditures and public revenues. The conditional effect of elections conditional on the Polity2 score for the ratio of primary balance to GDP indicates that despite the decrease in magnitude as the level of democracy increases, the statistical significance at the 5% level is maintained for the entire Polity2 spectrum. These results suggest that the level of democracy is a determinant of the magnitude of Political Budget Cycles, but it is not a determinant of their existence. In other words, as the level of democracy increases, the magnitude of Political Budget Cycles decreases but their existence does not vanish.

5.2. Information Asymmetry

The information asymmetry between voters and the government is another factor influencing political budget cycles. The degree of information asymmetry determines the magnitude of political budget cycles (Shi & Svensson, 2006; Vergne, 2009). By exploiting this information asymmetry, incumbents can manipulate fiscal instruments without the electorate's notice. The voters may not be aware of such manipulations at all, or they might discover them after the elections. For the voters who lack adequate level of knowledge, this asymmetry will never be eliminated (Brender & Drazen, 2005). Actually, synchronization of information between the government and the electorate may not be desired by either the government or the voters, because states also engage in spending on issues such as security and military strategies, the public disclosure of which may be viewed as more detrimental than beneficial (Cukierman & Meltzer, 1986). Therefore, the exchange of information between the government and the electorate tends to be asymmetric even under ideal scenarios.

To test how information asymmetry influences political budget cycles, additional variables need to be introduced into the baseline model. These are "Internet Users % of Population", "Fixed Telephone Subscription by 100 People" from the World Bank's World Development Indicators dataset and "Media Corruption Index" from the Varieties of Democracy dataset. The telephone and the internet usages are regarded as proxies for the penetration of information and communication technologies. Whereas the Media Corruption Index provides insight into how likely it is for voters to receive accurate and reliable information.

Proportion of the population using the Internet is included in the model as an explanatory variable and then as an interaction term with the election variable. Thus, below is the updated form of the model:

$$\mathrm{Y_{i,t}} = \beta_0 + \gamma_1 \mathrm{Y_{i,t-1}} + \delta_1 \mathrm{ELE_{i,t}} + \beta_1 \mathrm{INT_{i,t}} + \beta_2 \mathrm{ELE_{i,t}} \times \mathrm{INT_{i,t}} + \eta^{'} \mathrm{w_{i,t}} + \xi_\mathrm{i} + \lambda_\mathrm{t} + \epsilon_\mathrm{i,t}$$

Table 20 displays estimation results of the model fitted with this configuration. As the election variable, time adjusted election dummy and election indicator were used. Wald Test is applied for the election variable, Internet users and their interaction term. The F and p-values for these tests are also reported in Table 20.

For all dependent variables, the coefficients of both election variables are statistically significant at the 5% level. When the dependent variables are PWT G/GDP and the ratio of Primary Balance to GDP, the statistical significance level is %1. All Wald tests confirm the jointly statistical significance. In the models where the time adjusted election dummy is used, and IMF G/GDP and REV/GDP are the dependent variables, the variable indicating the ratio of Internet Users is significant at the 1% level. However, the interaction term is not statistically significant in any model with this dummy. In the models where the election indicator is used and IMF G/GDP and REV/GDP are the dependent variables, the variable specifying the percentage of Internet Users is significant at the 1% level. The interaction term is statistically significant in the models where the election indicator is used and the dependent variables are IMF G/GDP ratio, REV/GDP ratio and primary balance to GDP ratio at the 10%, 10% and 1% levels, respectively.

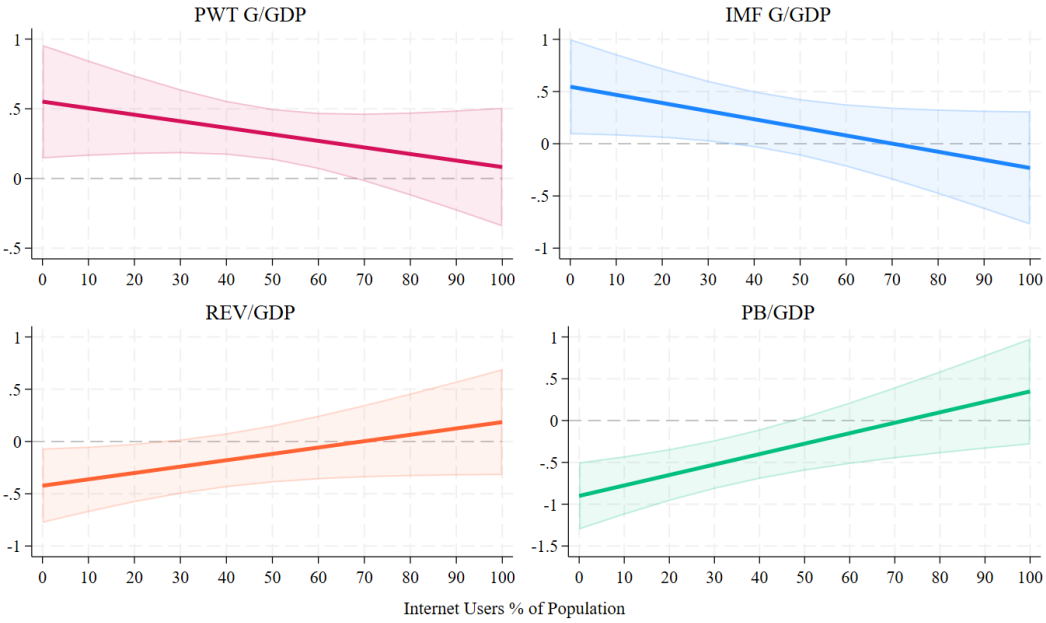
Figure 12 illustrates the effect of elections on fiscal variables conditional on the proportion of the population using the Internet. The lines show the pre-election change in fiscal variables at different levels of the proportion of the population using the Internet, while the areas surrounding the lines show the 95% confidence intervals.

Table 20. Internet Usage: TA Election Dummy & Election Indicator FE Results

	Time Adjusted Election Dummy				Election Indicator			
Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.826***	0.740***	0.718***	0.575***	0.826***	0.740***	0.718***	0.574***
	(0.019)	(0.022)	(0.028)	(0.021)	(0.019)	(0.022)	(0.028)	(0.021)
Election Variable	0.442***	0.425**	-0.268**	-0.614***	0.551***	0.546**	-0.423**	-0.901***
	(0.163)	(0.170)	(0.132)	(0.168)	(0.208)	(0.233)	(0.182)	(0.205)
Internet Users	-0.001	-0.015***	-0.017***	-0.006	-0.001	-0.014***	-0.017***	-0.007
	(0.003)	(0.005)	(0.004)	(0.005)	(0.003)	(0.005)	(0.004)	(0.005)
Election Variable × Internet Users	-0.004	-0.002	0.004	0.005	-0.005	-0.008*	0.006*	0.012***
	(0.003)	(0.004)	(0.002)	(0.003)	(0.004)	(0.004)	(0.003)	(0.004)
GDP Growth Rate	-0.090***	-0.052**	0.066***	0.096***	-0.089***	-0.052**	0.066***	0.095***
	(0.020)	(0.024)	(0.018)	(0.016)	(0.020)	(0.024)	(0.018)	(0.016)
log(GDP per capita)	-0.141	0.826	0.572	0.243	-0.138	0.840	0.563	0.224
	(0.318)	(0.574)	(0.522)	(0.343)	(0.319)	(0.573)	(0.523)	(0.343)
Openness(X+M)/GDP	0.004	0.009*	0.011*	0.004	0.004	0.009*	0.012**	0.004
	(0.003)	(0.004)	(0.006)	(0.004)	(0.003)	(0.004)	(0.006)	(0.004)
Political Activity	0.022	0.029	-0.003	-0.038	0.025	0.002	-0.002	-0.012
	(0.020)	(0.028)	(0.017)	(0.035)	(0.021)	(0.022)	(0.018)	(0.026)
Constant	4.544	0.013	0.339	-3.202	4.578	1.228	0.354	-4.435
	(3.071)	(5.054)	(4.349)	(3.285)	(2.986)	(4.958)	(4.334)	(2.908)
Wald Test F Value	4.10	6.67	7.49	5.84	4.61	5.58	7.63	6.66
Wald Test p Value	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
R^2	0.90	0.94	0.95	0.60	0.90	0.94	0.95	0.60
Number of Countries	160	136	136	136	160	136	136	136
Number of Observations	4769	3723	3723	3716	4769	3723	3723	3716

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 12. Marginal Effect of Elections on Fiscal Outcomes Conditional on Share of Population Using the Internet



The effect of elections decreases as the proportion of the population using the internet increases for G/GDP ratios. However, these effects are statistically significant for the PWT G/GDP ratio up to a level close to 70% and insignificant thereafter. For the IMF G/GDP ratio, the estimated effect of elections loses statistical significance at the level of 35%. For the REV/GDP, the statistical significance holds up to the level of 25%. In the primary balance, the statistical significance level ends around 45%, as it is possible to see the cumulative effect of elections on both government spending and government revenues.

In the model where the dependent variable is the PWT G/GDP ratio, the sample mean of the population using the internet is 22% and the standard deviation is 28.74. The sample mean is 25.6% and the standard deviation is 29.85 in models where IMF G/GDP, REV/GDP and PB/GDP are the dependent variables. In the last year of the analysis, 2019, the averages are 62% when PWT G/GDP is the dependent variable and 64% for the other dependent variables. And the standard deviation for PWT G/GDP is 26.78 for 2019 and 26.41 for the other dependent variables. Considering Figure 12 and these averages and standard deviations, it can be said that increases in internet usage rates affect the magnitude and existence of political budget cycles. As of 2019 and by considering the relevant statistics for the same year, one can claim that political budget cycles have occurred only in countries where internet usage rates fall short of the global average.

For the purpose of testing the robustness of the analysis conducted for the Internet usage rates, the same analysis was conducted for the Fixed Telephone Subscription rate. Fixed Telephone Subscription rate was added to the model as an explanatory variable and an interaction term is created with the election variable. Accordingly, the model takes the following form:

$$\mathrm{Y_{i,t}} = \beta_0 + \gamma_1 \mathrm{Y_{i,t-1}} + \delta_1 \mathrm{ELE_{i,t}} + \beta_1 \mathrm{FTS_{i,t}} + \beta_2 \mathrm{ELE_{i,t}} \times \mathrm{FTS_{i,t}} + \eta^{'} \mathrm{w_{i,t}} + \xi_\mathrm{i} + \lambda_\mathrm{t} + \epsilon_\mathrm{i,t}$$

Table 21 present the results obtained by estimating the model with this specification. The results are reported with time adjusted election dummy and election indicator.

In the models fitted with time adjusted election dummy, PWT G/GDP ratio is statistically significant at 1%, IMF G/GDP ratio is statistically significant at 5% and PB/GDP ratio is statistically significant at 1%. However, the REV/GDP ratio is not statistically significant. Telephone Users and the interaction term are statistically significant only in models where PWT G/GDP ratio is the dependent variable. The Wald test confirms joint significance at the 1% level for the PWT G/GDP and PB/GDP ratios, while joint significance for IMF G/GDP is valid at the 5% level and at the 10% level for REV/GDP. In the models where the election indicator is used, the coefficient estimate of the election indicator is statistically significant at the 1% level in the models where IMF G/GDP and PB/GDP ratios are dependent variables. The coefficient estimate is statistically significant at the 5% level in models where PWT G/GDP and REV/GDP are used as dependent variables. Only in models where PWT/G GDP is the dependent variable, Telephone Users is statistically significant, while the interaction term is statistically significant at the 5% level in models where IMF G/GDP and PB/GDP ratios are the dependent variables. Wald Test affirms joint significance at the 1% level for PWT G/GDP and PB/GDP, while joint significance for IMF G/GDP and REV/GDP is valid at the 5% level.

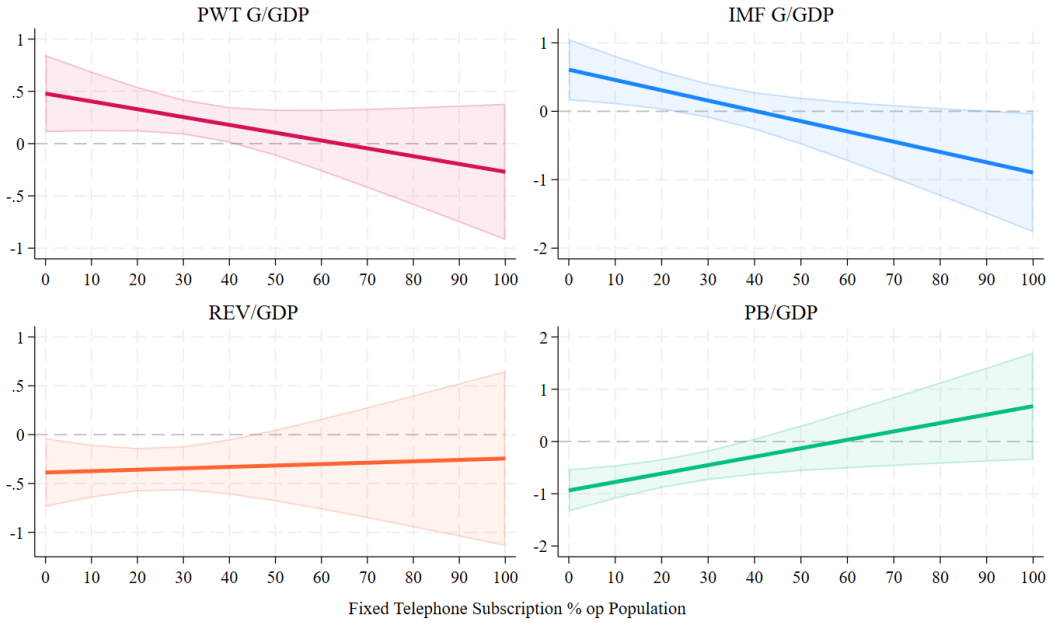
Table 21. Fixed Telephone Subscription: TA Election Dummy & Election Indicator FE Results

	Time Adjusted Election Dummy				Election Indicator			
Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.870***	0.816***	0.800***	0.585***	0.870***	0.816***	0.800***	0.584***
	(0.014)	(0.021)	(0.025)	(0.020)	(0.014)	(0.021)	(0.025)	(0.020)
Election Variable	0.412***	0.430**	-0.204	-0.591***	0.479**	0.608***	-0.387**	-0.936***
	(0.140)	(0.170)	(0.140)	(0.168)	(0.188)	(0.228)	(0.180)	(0.207)
Telephone Users	0.022***	0.012	0.007	-0.012	0.021***	0.013	0.007	-0.013
	(0.008)	(0.010)	(0.010)	(0.009)	(0.008)	(0.010)	(0.010)	(0.009)
Election Variable × Telephone Users	-0.007**	-0.006	0.001	0.008	-0.007	-0.015**	0.001	0.016**
	(0.003)	(0.006)	(0.004)	(0.005)	(0.005)	(0.006)	(0.006)	(0.007)
GDP Growth Rate	-0.083***	-0.043*	0.060***	0.091***	-0.083***	-0.043*	0.060***	0.091***
	(0.014)	(0.022)	(0.015)	(0.014)	(0.014)	(0.022)	(0.015)	(0.014)
log(GDP per capita)	-0.064	0.455	0.214	0.337	-0.063	0.450	0.216	0.347
	(0.225)	(0.405)	(0.396)	(0.302)	(0.224)	(0.407)	(0.396)	(0.303)
Openness(X+M)/GDP	0.006**	0.003	0.006	0.003	0.006**	0.003	0.006	0.003
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Political Activity	0.011	0.008	-0.019	-0.029	0.010	-0.038	-0.036	-0.005
	(0.011)	(0.022)	(0.016)	(0.025)	(0.011)	(0.025)	(0.025)	(0.020)
Constant	3.048	0.254	3.219	-2.415	3.212	2.194	3.675	-3.759
	(2.049)	(3.712)	(3.521)	(2.993)	(2.019)	(3.810)	(3.545)	(2.744)
Wald Test F Value	5.14	3.12	2.29	6.11	5.00	2.96	3.52	7.58
Wald Test p Value	0.00	0.03	0.08	0.00	0.00	0.03	0.02	0.00
R^2	0.91	0.95	0.95	0.60	0.91	0.95	0.95	0.60
Number of Countries	160	136	136	136	160	136	136	136
Number of Observations	6520	4485	4481	4417	6520	4485	4481	4417

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The following Figure 13 displays the marginal effect of elections on fiscal outcomes conditional on the Fixed Telephone Subscription rate. The lines show the marginal effects and the areas surrounding the lines represent the 95% confidence intervals. The higher the Fixed Telephone Subscription rate, the smaller the effect of elections on the dependent variables. The effect of elections on PWT G/GDP ratio is statistically significant until the Fixed Telephone Subscription rate reaches 40%. For the IMF G/GDP ratio, the statistical significance of the marginal effects ends around 20%. For the ratio of government revenues to GDP, statistical significance at the 5% level is maintained until around 45%. For the primary balance to GDP ratio, the statistical significance disappears before the level of 40% is reached.

Figure 13. Marginal Effect of Elections on Fiscal Outcomes Conditional on Fixed Telephone Subscription (% of Population)



The findings from the Internet Usage and Fixed Telephone Subscription rates suggest that the Political Budget Cycles are sensitive to the prevalence of information and communication technologies. One explanation could be that the incumbent party or the president may seek to avoid public awareness of policies that affect fiscal variables before the elections (Alt & Lassen, 2006). If the voters have the sufficient level of sophistication and are conscious of what the incumbent is doing, the manipulations will have no effect on the incumbent's vote share (Rogoff, 1990). Not only would there be no increase in the vote share, but there might also be a decrease. Ultimately, voters do not like deficits

(Brender & Drazen, 2008; Klomp & De Haan, 2013). If these deficits are discovered by voters, it may lead to a decline in the incumbent's vote share. Tobin (1974, p. 20) argues that it is not the level of variables that determines the voting behavior of voters but their derivatives. Which means that change is more decisive than the actual level. When things are improving, it does not matter how bad the situation actually is. In this case, the higher the odds that a deteriorating policy change is publicly known, the lower the incentive for the incumbent to induce such policy change. Widespread access to communication tools in this way can prevent political budget cycles from materializing.

The prevalence of information and communication technologies directly affects voters' access to information. However, the accuracy of the information received by voters can also affect the existence and magnitude of political budget cycles (Brender & Drazen, 2005). It is possible that even if all voters have access to information, the incumbent's ability to control and manipulate this information may provide the required incentive to engage the manipulation of fiscal variables. Rogoff (1990) argues that political budget cycles will vanish if a reputable group monitoring the government can disseminate this information in a way that the average citizen can digest it. Because in the presence of a properly functioning media, the signals of the incumbent are worthless in the view of the electorate (Akhmedov & Zhuravskaya, 2003).

In order to test for such a hypothesis, the Media Corruption Index from the Varieties of Democracy dataset is added to the model. It is a continuous variable that takes the value between 0 and 4. 0 denotes that the media is controlled by the state and 4 indicates that the media rarely changes the news and someone is punished if this situation is revealed. The Media Corruption was introduced as an independent variable in the model. Also, an interaction term formed by Media Corruption and the election variable is included. Under this configuration, the model takes the following form:

$$\mathrm{Y_{i,t}} = \beta_0 + \gamma_1 \mathrm{Y_{i,t-1}} + \delta_1 \mathrm{ELE_{i,t}} + \beta_1 \mathrm{MC_{i,t}} + \beta_2 \mathrm{ELE_{i,t}} \times \mathrm{MC_{i,t}} + \eta^{'} \mathrm{w_{i,t}} + \xi_\mathrm{i} + \lambda_\mathrm{t} + \epsilon_\mathrm{i,t}$$

Table 22 reports the results obtained by fitting the model with this configuration. Again, a time adjusted election dummy and election indicator are used to mark the election dates. Results also contain the F and p-values of the Wald Test for the joint significance of Media Corruption, election variable and their interaction term. For the models using the time adjusted election dummy, the coefficient estimate of this variable is statistically significant only when the dependent variable is the ratio of the primary balance to GDP.

In the models where the election indicator is used, the coefficient estimates of the ratio of government revenues to GDP and the ratio of primary balance to GDP are statistically significant at the 10% and 5% levels, respectively. Media corruption and interaction term are not statistically significant in any of the estimated models. The Wald test result does not confirm joint statistical significance only in the model where the election indicator is used and the dependent variable is IMF G/GDP ratio. In the remaining models, joint significance is present.

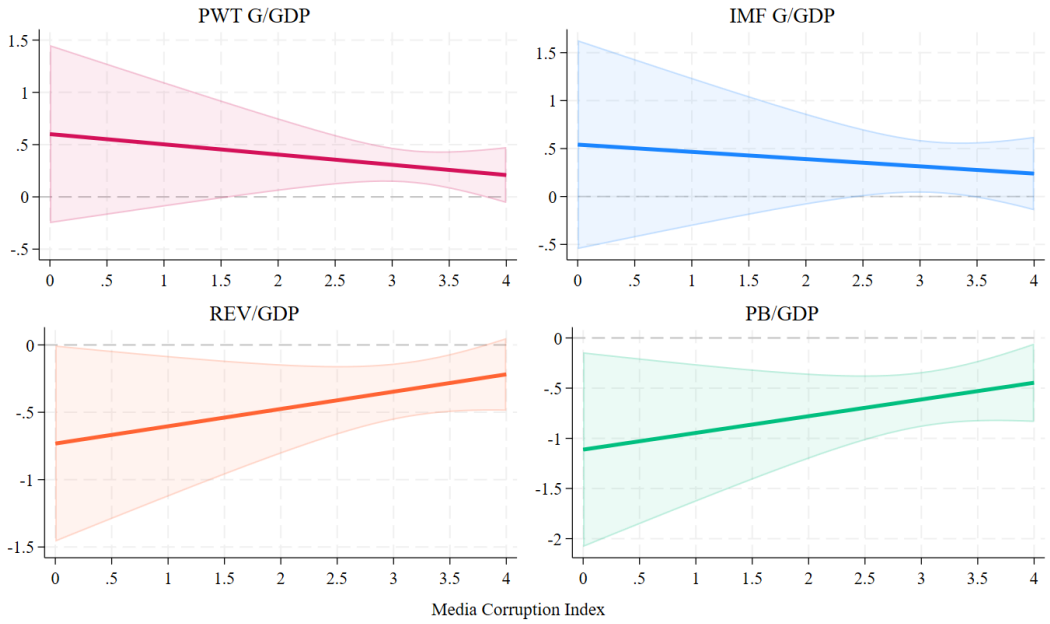
Table 22. Media Corruption: TA Election Dummy & Election Indicator FE Results

	TA Election Dummy				Election Indicator			
Dependent Variable	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP	PWT G/GDP	IMF G/GDP	REV/GDP	PB/GDP
Lagged Dependent Variable	0.880***	0.818***	0.801***	0.582***	0.880***	0.818***	0.801***	0.581***
	(0.013)	(0.021)	(0.025)	(0.020)	(0.013)	(0.021)	(0.025)	(0.020)
Election Variable	0.452	0.491	-0.349	-0.774**	0.601	0.541	-0.732*	-1.112**
	(0.297)	(0.413)	(0.276)	(0.345)	(0.435)	(0.556)	(0.372)	(0.495)
Media Corruption	0.035	0.173	0.148	-0.001	0.034	0.171	0.144	0.002
	(0.087)	(0.184)	(0.164)	(0.120)	(0.087)	(0.184)	(0.166)	(0.121)
Election Variable × Media Corruption	-0.074	-0.064	0.050	0.115	-0.098	-0.076	0.128	0.167
	(0.092)	(0.132)	(0.084)	(0.105)	(0.135)	(0.170)	(0.112)	(0.155)
GDP Growth Rate	-0.076***	-0.044*	0.058***	0.091***	-0.076***	-0.044*	0.058***	0.091***
	(0.013)	(0.022)	(0.015)	(0.014)	(0.013)	(0.022)	(0.015)	(0.014)
log(GDP per capita)	0.089	0.600	0.299	0.251	0.088	0.596	0.302	0.261
	(0.208)	(0.377)	(0.375)	(0.291)	(0.208)	(0.378)	(0.375)	(0.292)
Openness(X+M)/GDP	0.006**	0.003	0.006	0.004	0.006**	0.003	0.006	0.004
	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)
Political Activity	0.021	0.018	-0.018	-0.040	0.020	-0.009	-0.030	-0.028
	(0.014)	(0.021)	(0.016)	(0.029)	(0.012)	(0.021)	(0.021)	(0.022)
Constant	1.074	-1.817	2.148	-1.200	1.316	-0.511	2.406	-2.191
	(1.979)	(3.461)	(3.340)	(3.071)	(1.885)	(3.550)	(3.402)	(2.755)
Wald Test F Value	3.27	2.88	3.02	6.13	4.59	2.00	5.04	6.62
Wald Test p Value	0.02	0.04	0.03	0.00	0.00	0.12	0.00	0.00
R^2	0.92	0.95	0.95	0.60	0.92	0.95	0.95	0.60
Number of Countries	156	132	132	132	156	132	132	132
Number of Observations	6493	4399	4395	4322	6493	4399	4395	4322

Heteroskedasticity and autocorrelation robust std. errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Figure 14 shows the effect of elections on the dependent variables conditional on the level of media corruption. While the lines denote the predicted effect, the wrapping areas show the 95% confidence intervals. The effect of elections on all dependent variables decreases as media independence improves. While PWT G/GDP is the dependent variable, the estimated effect is statistically significant between values 1 and 3.9. The estimated effect on IMF G/GDP is statistically significant in the range between 2 and 3.6. The estimated effect on REV/GDP is statistically insignificant only when media corruption is 4. For the ratio of Primary Balance to GDP, the estimated effect is statistically significant for all levels of media corruption.

Figure 14. Marginal Effect of Elections on Fiscal Outcomes Conditional on Media Corruption Index



These results imply that media independence plays a crucial role in the magnitude of political budget cycles, but it has no significant influence on their existence. As anticipated, the magnitude of political business cycles diminishes as the independence of the media from the government is ensured. However, based on the effect in the primary balance, it can be seen that media independence does not prevent political budget cycles despite the shrinking magnitude. Perhaps this is because, as mentioned earlier, the electorate may not be adequately informed. Providing them with information is unlikely to eliminate political budget cycles if voters are not well informed to process the information disseminated by the media.

6. CONCLUSION

In this thesis, first, a dataset consisting of 44 years of observations of the maximum 161 countries between 1975 and 2019 is constructed to examine whether political budget cycles occur on public expenditures, public revenues and the primary balance. Countries are grouped in accordance with the IMF and UN development classifications and it is investigated in which country groups politicians induce opportunistic budget cycles. The results suggest that political budget cycles do not occur in Least Developed Countries. This might be due to the fact that the state capacity in these countries is not sufficient for those in charge to be able to cause opportunistic budget cycles. The regression analysis reveals that the impact of pre-electoral manipulations on fiscal aggregates in developing countries is higher than in other country groups. In developing countries, public expenditures increase and public revenues decrease during election years. This implies that the incumbent is trying to woo voters with policy instruments affecting both government revenues and government expenditures. Consequently, the primary balance also deteriorates before the elections. For developed countries, there is only weak evidence of pre-election manipulation through the use of government expenditures. However, government revenues are observed to be effected by pre-election policy implementation in developed economies as well. The reason for this might be that regulations that prevent the use of government expenditures as a manipulation tool before elections are more widespread in these countries. Thus, governments in developed countries may be trying to signal their competence level to the electorate through policies that discard public revenues as the only remaining instrument.

Once the heterogeneous nature of political budget cycles across countries is confirmed, it is analyzed why these cycles occur in some countries and not in others, or why they occur with different magnitudes. Previous studies suggest that the factors affecting political budget cycles are the level and establishment of democracy, media independence, the scale of information asymmetry between the government and the voters, institutional quality, and regime type. In this thesis the influence of democracy and information asymmetry on the political budget cycles examined.

The severity of political budget cycles decreases as the level of democracy increases, as suggested in the literature. This is observed in both government expenditures and government revenues. Consequently, it is also evident in the primary balance. Given that politicians use both government revenues and government expenditures as policy instruments, it is possible to see the reflection of pre-election policy changes affecting government revenues and government expenditures as an cumulative effect in the primary balance. It is also observed that the effect of elections decreases as the level of democracy increases in the primary balance. Regardless of the level of democracy, the impact of elections is statistically significant. As a result, it can be said that the level of democracy is a determinant for the magnitude of political budget cycles, however, it is not a determinant for their existence.

Then, three different analyses on information asymmetry are conducted to investigate how the scale of asymmetry affects political budget cycles. Initially, two variables that directly affect the degree of information asymmetry are analyzed: the prevalence of fixed telephone and the prevalence of internet usage. The preelection fiscal distortions decrease as both fixed telephone and the internet penetration become more widespread. Furthermore, the results also imply that pre-election distortions in fiscal aggregates vanish once the rates of fixed telephone and internet usage reach to a certain level. Subsequently, after the analysis of the prevalence of communication technologies, that directly affect the scale of the asymmetry, media autonomy, that indirectly influences the asymmetry, is analyzed. It is found that the severity of political budget cycles decreases as media independence improves, whereas the existence of political budget cycles is not determined by media independence.

The main findings of this thesis imply that political budget cycles occur in developed and developing countries, albeit with different magnitudes and by implementing different policy instruments. Moreover, the magnitude of pre-election fiscal manipulations decreases as the level of democracy, the penetration of communication technologies and media freedom increase.

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APPENDIX

Table 23. PWT G/GDP: Two Step System GMM Results

Gov. Expenditure/GDP	Election Dummy	TA Election Dummy	Election Indicator
Lagged Gov. Expenditure/GDP	0.929***	0.926***	0.926***
	(0.010)	(0.009)	(0.009)
Election Variable	0.171*	0.231**	0.374***
	(0.091)	(0.095)	(0.132)
GDP Growth Rate	-0.070***	-0.071***	-0.071***
	(0.013)	(0.012)	(0.012)
log(GDP per capita)	0.766	0.924*	0.915*
	(0.488)	(0.485)	(0.482)
Openness (X+M)/GDP	0.009**	0.008**	0.008**
	(0.004)	(0.003)	(0.003)
Political Activity	0.099*	0.117**	0.132**
	(0.057)	(0.058)	(0.067)
Constant	-7.475	-9.675*	-9.388*
	(5.101)	(5.312)	(5.253)
Number of Instruments	54	54	54
Number of Countries	161	161	161
Number of Observations	6693	6750	6750
Hansen Test p Value	0.526	0.565	0.572
AR(1)	0.000	0.000	0.000
AR(2)	0.986	0.875	0.878

Windmeijer (2005) corrected standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Lagged dependent variables, log(GDP per capita) and Openness treated as endogeneous, rest of the right hand side variables treated as exogeneous. One period lagged levels used as instruments in the FOD equation and one period lagged differences used as instruments in the level equation.

Table 24. IMF G/GDP: Two Step System GMM Results

Gov. Expenditure/GDP	Election Dummy	TA Election Dummy	Election Indicator
Lagged Gov. Expenditure/GDP	0.912***	0.910***	0.910***
	(0.024)	(0.024)	(0.024)
Election Variable	0.015	0.219*	0.315*
	(0.136)	(0.112)	(0.160)
GDP Growth Rate	-0.052**	-0.043**	-0.043**
	(0.021)	(0.021)	(0.021)
log(GDP per capita)	1.074**	1.195***	1.197***
	(0.439)	(0.423)	(0.423)
Openness (X+M)/GDP	0.021*	0.019	0.020
	(0.012)	(0.012)	(0.012)
Political Activity	-0.012	0.044	0.042
	(0.050)	(0.036)	(0.043)
Constant	-7.739*	-8.229**	-10.959**
	(4.038)	(3.938)	(4.212)
Number of Instruments	54	54	54
Number of Countries	136	136	136
Number of Observations	4508	4514	4514
Hansen Test p Value	0.104	0.148	0.149
AR(1)	0.000	0.000	0.000
AR(2)	0.644	0.696	0.682

Windmeijer (2005) corrected standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Lagged dependent variables, log(GDP per capita) and Openness treated as endogeneous, rest of the right hand side variables treated as exogeneous. One period lagged levels used as instruments in the FOD equation and one period lagged differences used as instruments in the level equation.

Table 25. REV/GDP: Two Step System GMM Results

Gov. Revenue/GDP	Election Dummy	TA Election Dummy	Election Indicator
Lagged Gov. Revenue/GDP	0.901***	0.894***	0.894***
	(0.034)	(0.034)	(0.034)
Election Variable	-0.207**	-0.164*	-0.342***
	(0.094)	(0.083)	(0.114)
GDP Growth Rate	0.049***	0.059***	0.059***
	(0.015)	(0.016)	(0.016)
log(GDP per capita)	0.395	0.643	0.642
	(0.417)	(0.401)	(0.399)
Openness (X+M)/GDP	0.011	0.009	0.010
	(0.009)	(0.009)	(0.009)
Political Activity	-0.046	-0.017	-0.025
	(0.048)	(0.037)	(0.043)
Constant	0.003	-3.359	-2.957
	(3.634)	(3.076)	(3.426)
Number of Instruments	54	54	54
Number of Countries	136	136	136
Number of Observations	4504	4510	4510
Hansen Test p Value	0.084	0.097	0.093
AR(1)	0.000	0.000	0.000
AR(2)	0.498	0.452	0.439

Windmeijer (2005) corrected standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Lagged dependent variables, log(GDP per capita) and Openness treated as endogeneous, rest of the right hand side variables treated as exogeneous. One period lagged levels used as instruments in the FOD equation and one period lagged differences used as instruments in the level equation.

Table 26. PB/GDP: Two Step System GMM Results

Primary Balance/GDP	Election Dummy	TA Election Dummy	Election Indicator
Lagged Primary Balance/GDP	0.669***	0.671***	0.671***
	(0.029)	(0.029)	(0.029)
Election Variable	-0.269**	-0.390***	-0.609***
	(0.130)	(0.111)	(0.158)
GDP Growth Rate	0.092***	0.091***	0.091***
	(0.016)	(0.015)	(0.015)
log(GDP per capita)	0.033	0.067	0.065
	(0.346)	(0.320)	(0.320)
Openness (X+M)/GDP	-0.003	-0.003	-0.004
	(0.012)	(0.012)	(0.012)
Political Activity	0.007	-0.020	-0.015
	(0.037)	(0.037)	(0.041)
Constant	-0.501	-0.080	-0.114
	(3.491)	(3.386)	(3.414)
Number of Instruments	54	54	54
Number of Countries	136	136	136
Number of Observations	4431	4437	4437
Hansen Test p Value	0.114	0.139	0.144
AR(1)	0.000	0.000	0.000
AR(2)	0.162	0.138	0.140

Windmeijer (2005) corrected standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Lagged dependent variables, log(GDP per capita) and Openness treated as endogeneous, rest of the right hand side variables treated as exogeneous. One period lagged levels used as instruments in the FOD equation and one period lagged differences used as instruments in the level equation.