Pleasing the voters? Electoral manipulation through voter-friendly expenditures: Evidence from Costa Rican municipalities*

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May 22, 2022

This paper

JEL Codes: XXXX

*We thank ....

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1 Introduction

Local governments -also called municipalities- are fundamental institutions for the governance of a country. Their closeness to the community provides them first-hand recognition of their challenges and threats. These institutions handle a significant amount of resources: Contraloría General de la República de Costa Rica (2020) reported that municipalities initially budgeted almost 600 billions of colones. Even if these funds should be efficiently allocated to maximize social welfare, the study of Political Budget Cycles (henceforth, PBCs) has made the relationship between fiscal policy and electoral incentives rather visible. This field of economic research has greatly progressed in the past decades and has found evidence in several countries that spending moves with a predictable pattern of elections-motivated candidates and parties. (Chortareas et al., 2016; Drazen & Eslava, 2010)

This paper aims to find if pre-electoral politically induced budget cycles exist in voter-friendly expenditures in Costa Rican municipalities and their magnitude. Such phenomenon is rather important to investigate since, in some ways, proves that in a democratic context there is legal room for elected public servants, with a high degree of decision-making power, to prioritize their career prospects rather than their constituents' present and future welfare. Furthermore, it can show links between politics and socioeconomic outcomes, induce greater understanding on how fiscal policy is conducted and, more importantly, to find practical measures that counteract such manipulation and improve social welfare. (Alesina et al., 2019; Chortareas et al., 2016)

Proving the existence of these cycles in specific spending categories has been difficult because of two different reasons. First, the availability of disaggregated data for long periods isn't available in many countries at the local level. Second, the effect of mayors' characteristics as voters preferences for spending could be correlated with the PBCs, therefore, the effect would be endogenous.

To answer our question, we analyze a detailed data set with disaggregated expenditures that municipalities are obligated to report to the General Comptroller of Costa Rica. This data set contains three detailed levels of disaggregation for 81 municipalities.[1] The literature usually analyzes the first level (i.e. remunerations, services and investment expenditures) while we use the second and third levels that report categories like publicity, transportation, construction of land communication routes, activities and others. These types of expenditure are clearly more visible to the voters and will allow us to make a

[1] In 2017, Río Cuarto separated from Grecia leading to the creation of the 82th municipality in the 2006-2020 period, which covers three municipal elections. In our analysis, we exclude Río Cuarto as their mayor was elected on 2020, the last period of our analysis.

direct connection to the electoral manipulation in the pre-electoral year. Regarding the endogeneity of spending correlated to the mayors' characteristics, we implement an IV strategy to identify the effect of these characteristics in spending decisions.

Our analysis proceeds in three steps. First, we present a description of the data. We introduce the data set of municipalities' spending and their levels of disaggregation. Also, we describe the socioeconomic variables that helps us control for macroeconomic and climate shocks from the Central Bank of Costa Rica. Also, we compile a new data set on political variables of parties and their candidates across time with information from the Supreme Court of Elections. Moreover, we use demographic variables from the Costa Rican Security Fund (*Caja Costarricense del Seguro Social*, henceforth, CCSS).

Second, we present the institutional background that regulates Costa Rican municipalities. It's necessary to explain the mechanisms that allows the PBCs to exist in the first place and second to choose voter-friendly spending before elections. We explain the different types expenditure municipalities of municipalities. Also, we describe the steps for approving spending and the participants of this process, in particular, the functions of the Municipal Council and the Mayor. Next, we describe the elections. Specifically, the elections, determined by the Supreme Court of Elections, takes place every four years and is exogenous.

Third, we explain our baseline dynamic panel model to estimate the effects of spending manipulation to its growth on pre-electoral year. The identification assumption that we rely on is that by controlling by social, demographic variables and mayors' characteristics, we isolate all possible shocks and identify the proposed effects.

2 Objectives

Below, we present our general and specific objectives for this research.

2.1 General objective

Analyze the existence of Political Budget Cycles in voter-friendly expenditures and their relation with mayors' characteristics and incumbents seeking reelection.

2.2 Specific objectives

1. Identify the existence and magnitude of Political Budget Cycles in Costa Rican municipalities.

2. Estimate the difference in the PBCs among municipalities governed by older and younger mayors.

3. Estimate the difference in the PBCs among municipalities governed by incumbents seeking reelection.

3 Literature Review

The theoretical framework for Political Budget Cycles (PBC) was formally established by Nordhaus (1975). In his work, he examined the behavior of democratic political systems when facing choices between present and future welfare. Capitalizing from data showing that voters are rather sensitive to inflation and unemployment, he designed a model to explain and predict budgetary policy decisions made by political authorities. He concludes that incumbent politicians go from austerity early in their term to greater spending in election periods. Similar conclusions were reached by Rogoff and Sibert (1988) that further developed this model. Emphasizing the importance of temporary information asymmetries, assuming that voters observe government investments the year before from elections, incentives clearly exist for macroeconomic policy manipulation. These theoretical conclusions are also backed by the political-economic equilibrium model proposed by Drazen and Eslava (2010). Furthermore, and rather important, all three authors argue that these measures have the potential to deteriorate welfare, meaning that their examination can be greatly valuable.

At a national level, there has been several attempts to seek relationships between fiscal policy and electoral processes. With data from Mexico's government budget by types of expenditure, González (2002) found evidence for the existence of PBC in the form of significant raises in infrastructure spending, starting six quarters before elections to then diminish the one after. Additionally, she found mild changes in current transfers, and that the magnitude of the cycle directly depends on the democratic stability at a given time. Lankester-Campos (2017) has similar findings when analyzing macroeconomic fiscal variables in 13 Latin American countries. The evidence she shows is more timid, and argues that the effectiveness of fiscal manipulation is determined by time and the specific sets of economic conditions. In their analysis, they both recommend the examination of this phenomenon at a local government level due to the homogeneity of conditions in terms of political, social, legal and economic context.

With data from Portuguese municipalities, Veiga and Veiga (2007) in many ways pioneered the study of political budget cycles at a local government level where they

found significant increase in expenditure and reduction in taxes, mainly in investment "highly visible to the electorate" and simultaneous reduction in "not visible" spending such as transportation, machinery and equipment. Similarly, Drazen and Eslava (2010), using data from Colombian local governments, find evidence for the existence of PBCs using budget composition rather than level of expenditure, particularly in infrastructure related to transportation, water treatment and power plants. Nonetheless, they do not find significant changes in deficits and total expenditure like Veiga and Veiga (2007) do.

Analyzing budgetary data from Brazil's local governments and Indonesian municipalities, Sakurai and Menezes-Filho (2011) and Setiawan and Rizkiah (2017) respectively found evidence that the fiscal surplus of local governments decreases in election years, due to increase in spending and reduction in taxation. Contrary to the findings of Veiga and Veiga (2007) and Drazen and Eslava (2010), they find that investments decline in election years. This means that countries with similar economic developments, may show different results when measuring opportunistic cycles. Additionally, Sakurai and Menezes-Filho (2011) found that each fiscal variable behaves differently around election years and according to the political alignment with higher levels of government. This conclusion is also drawn by Corvalan et al. (2018) when investigating indirect PBC in Chile. Particularly, they observe that central government transfers to municipalities increase during elections, and that this is significantly larger when the incumbents are politically aligned with the national government. Among aligned mayors, the transfer increase is even larger when the margin is relatively tight. With that said, Chortareas et al. (2016) found that the mayor's political alignment had no effect in PBC, when exploring this idea with data from Greece.

The study of PBC has come a long way in terms of the data and variables used in the attempt to further explain its existence. Tenure has been found to have a direct relationship in some countries such as Indonesia (Sakurai & Menezes-Filho, 2011) but none in others like Greece (Chortareas et al., 2016). Studying data from Italian local governments and mayor's characteristics, Alesina et al. (2019) found that there is an inverse relationship between the mayor's age and magnitude of PBC, possibly due to their long term career prospects. Following the framework established by Nordhaus (1975), Labonne (2016) discovers data suggesting that local governments from the Philippines shift expenditure to boost employment the quarters before elections just for it to decrease after the process is done, which goes in hand with the conclusion reached by Alfaro Figueroa (2019) that voters use the economic environment as input to assign electoral support. Furthermore, he detects more pronunciation of the cycles when the incumbent's term is limited and trying to transfer the position to a relative, and less pronounced when there are no challengers.

Finally, Bonfatti and Forni (2019) encounter evidence showing that fiscal rules, setting caps for spending, have worked to diminish the magnitude of Political Budget Cycles in Italy.

Finally, the effects of fiscal manipulation in the form of Political Budget Cycles on the electoral chances of incumbents or political parties has been studied profoundly. After further inquiring by Aidt et al. (2011), they came to the conclusion that, in Portugal, incumbents' odds of being elected in fact increase when expenditure increases. On top of that, they find an inverse relationship between distortion of spending and winning margin, meaning that the distortion is bigger the tighter the race was. Research by Drazen and Eslava (2010) and Cassette and Farvaque (2014), found that voters punish incumbents for the accumulation of debt, with an effect increasing with its level, even when it does seem to be the main explanation for its long term accumulation (Alesina & Passalacqua, 2016). Short-term effects act in the opposite direction. This reveals that elections may work as "debt brakes", even if mild ones. Particularly, for the case of Costa Rica, Hernández Saborío et al. (2014), found that inflation is the only macroeconomic variable that has significant prediction power for reelection purposes at a partisan national level.

4 Institutional background

In 1970 the Municipal Code was approved, this established the structure of local governments and their political control. During the following years, reforms have been set in place to further shape its capabilities and limitations, evolved in the different communities. (Alfaro Redondo, 2009, p. 10) This event set the municipalities in Costa Rica as the entities in charge of the government and administration of "cantonal" interests and services, under the understanding that the cantón is a figure of geographic division defined within the Costa Rican legal framework. (Asamblea Legislativa de Costa Rica, 1998, Art. 3) Also, these institutions can "invest public funds with other municipalities and institutions of the Public Administration for the fulfillment of local, regional, or national purposes, or for the construction of public works of common benefit, following the agreements signed for this purpose." (Art.3) This means that municipalities may have an impact outside their jurisdiction as well.

The Municipalities in Costa Rica enjoy a high degree of autonomy in administrative and financial affairs. To promote the development of their community, they have managerial freedom over budget administration, provision of certain public services, and the approval of rates, prices, taxes and contributions, among many other things. These capacities should enable a municipality to promote the development of their community. (Art.

4)

Regarding the internal organization of this institution, the two figures of authority are (1) the municipal council and (2) the mayor. The mayor is the official in charge of the functions inherent to the condition of the general administrator: overseeing the organization, operation, coordination, and faithful compliance with municipal agreements, laws, and general regulations. Additionally, the mayor is responsible for the municipal development plan, which is then presented to the municipal council, along with the ordinary and extraordinary budgets. (Art. 17)

Secondly, the municipal council is an entity composed of councilors, elected under popular election, just like the mayor. The council decides the policy and priorities of the municipality, in addition to defining and approving the municipal budget presented by the mayor. (Art. 13) At this point, it is evident that the mayor fulfills (together with other officials, such as the vice mayors) a similar function to the executive powers in presidential democratic societies, and, the municipal council exercises a function like that of congresses.

An extremely important characteristic of these two prominent entities is that both, the mayor and the councilors (council members), have indefinite re-election. (Art. 15) In fact, this applies to all popularly elected positions in Costa Rican municipalities, which is against the principle of power alternation.

Note that these entities have governance and power over the budget that allows them to manipulate it: The mayor plans and presents it, while the council acts as a political counterweight that proposes, promotes and approves modifications. This framework permits the manipulation of the municipal budget, motivated by the rational and opportunistic use of resources on behalf of mayors in order to be reelected. This budget pattern refers to the possible existence of Political Budget Cycles.

The municipalities have two main sources of revenue. First, they collect and administrate various taxes assigned to them (Art. 77); which usually represents the biggest proportion of income. Moreover, municipalities have certain advantages in comparison to other public institutions, due to several tax exemptions they have received in the past years, like being excluded from the application of the fiscal rule. The second main source is the income derived from municipal services they provide, such as public lighting, road maintenance, trash management and recycling, etc. (Art. 83) Therefore, it is possible to identify that the current revenues have the most weight in the flow of municipal incomes.

Municipalities also have access to credit under some supervision (Financing). The municipal code establishes that municipalities may be financed in various ways: (1) through loans between municipalities, (2) through the issuance of bonds, or (3) through

the issuance of municipal titles. This indebtedness must be reflected in subsequent budgets.

Regarding spending, this must be annually planned and should promote the efficient and equitable distribution of resources. (Art. 101) The table above shows how the different types of expenses are classified. Some of them could present a stronger fluctuation, such as capital expenditure, since this includes road expenses, for example. Other expenses such as financial assets or service expenses are expected to remain rather stable over time.

There are four fundamental facts that could influence the behavior of PBCs in Costa Rican municipalities: First, the celebration of the electoral period in Costa Rica shifted its dates. Before the 2016 election, the municipal elections were divided, the election of the councilors was presented simultaneously in February (along with the national elections); while, the mayoral election took place the same year in December. Congress considered that, in order for the municipalities to achieve greater autonomy and give more relevance to the municipal elections, local authorities would be elected in midterm elections, two years after the national ones. The election of these positions would be carried out every four years as stated in the Electoral Code. (Asamblea Legislativa de Costa Rica, 2009, Art. 150) To this end, it was necessary to extend the 2010 electoral period for two years, becoming the only municipal period in history to last for 6 years (2010-2016). Second, we consider the emergence of micro-parties (or municipal parties). Their inscription and functions are limited to the municipal politics, therefore, they can't interfere in national politics directly. In the last two decades, the country has observed an emergence of new local leadership which is supported by: greater decentralization, the crisis of the traditional national parties, the new tendencies to citizen participation and concerns regarding the control and poor management of local governments. (Blanco, 2011, p. 165) The phenomenon of local parties has been gradually reinforced, especially since the 1998 elections. (Beers González, 2006, p. 15) It can be argued that the dynamics behind budget management can be greatly dependent on the party's classification: national, provincial or municipal. Third, there's a growing trend towards the politically-fragmented local governments. This follows directly from the introduction of new parties (as we mention earlier, especially those of municipal competence only) that are beginning to consolidate in the local government policy. Blanco (2011) mentions that: "In a significant number of cantons, there are fragmented local governments with a predominant but not a majority party". (p. 2) This is a relevant situation in the dynamics of budget cycles and another motivation for the inquiry around the municipal budget.

Fourth, the uncovered cases of corruption in 2021 associated with public budget has not exempted the municipalities. On November 2021, the Costa Rican authorities arrested

6 mayors, five of them members of the same political party, linked to cases of corruption in the public works tender. (Molina, 2021) These events had a direct impact on the period of analysis since they are events of embezzlement of public funds that come from many years ago. But more importantly, these events remark the importance of constant fiscalization and control of public spending by different sectors of our society, which would allow a early detection of irregularities like manipulation of the public finances on municipalities. All these factors will be evaluated throughout this paper.

5 Data

We combine a new collection of administrative data to quantify the effects of the election year on the municipal expenditures. Look at Tables 1 - **??** for complete description of the variables.

Expenditures of municipalities The administrative data of the municipalities' spending is obtained from CGR. The period available in our observations goes from 2006 to 2020. Municipalities report all their spending and incomes to the CGR, as they're handling public funds. They provide the data disaggregated up to three levels: *Partidas* (level 1), *Grupo de subpartidas* (level 2) and *Subpartidas* (level 3). For convenience, we use the second level of disaggregation.

Below are described the sources of control variables.

Demographic and Economic Variables per Municipality We have two sources for these variables: CCSS and CGR. CCSS is in charge of registering the actuarial statistics per municipality. This dataset registers population, number of schools, mortality, births, among other variables related to demography. Also, the other controls are calculated from the income and expenditures reports of the municipalities.

Political Context and Personal Characteristics of Mayors Mayors are public servants and they're subject to scrutiny from their citizens. That's why they must submit their curriculum vitae when postulating for these positions. We compile public personal information of mayor postulants from their submitted CVs and the Supreme Election Court information that has information of every Costa Rican citizen.

National Macroeconomic Variables These are standard national macroeconomic time series. The BCCR calculates and reports them in various frequencies. In our case, these

are annual series.

6 Empirical strategy

In this section, we present our empirical strategy to study the effects of election years on voter-friendly municipal expenditures. Using the database, we run the following dynamic panel specification considering most of the literature, municipalities' characteristics and the institutional context:

$$y_{jit} = \sum_{k=1}^{K} \rho_{jit-k} y_{jit-k} + \gamma \text{Election}_t + \mathbf{Municipality}'_{\mathbf{it-k}} \beta_{t-k} + \mathbf{Mayor}'_{\mathbf{m(i,t)}} \theta + \mathbf{National}'_{\mathbf{t}} \alpha + \lambda_i + \varepsilon_{jit} \tag{1}$$

where y_{jit} is the log real municipal fiscal variable per capita j for municipality i in year t and y_{jit-k} is the k-th lag of the dependent variable used to capture the persistence in the municipal fiscal outcomes.[2] We estimate a separate regression for (the log of) each type of government expenditure. Elec_t is a dummy which captures the timing of elections. It takes the value of one in periods preceding local elections, and 0 in all others. We set this dummy such that the pre-election period is the year previous to the election if it takes place in the first half of the year and the year of the election, if it is held in the second half. The municipality fixed effect λ_i accounts for unobserved characteristic from each municipality and ε_{jit} an i.i.d. error term.[3] We include additional controls at several levels following the literature and others that fit our institutional context: $\mathbf{Mun}'_{\mathbf{it}}, \mathbf{May}'_{\mathbf{m(i,t)}}, \mathbf{Nat}'_{\mathbf{t}}$. The vector $\mathbf{Mun}'_{\mathbf{it}}$ at the municipality's level i in year t controls for demographic variables as the population density, share of population below 15 years old and over 65 years old; number of K-12 centers; and economic variables such as municipality's Deficit-to-Total Expenditure Ratio, current transfers, capital transfers, debt, number of free zones and following Drazen and Eslava (2010) we control for the total expenditure of the municipality in that year, which will allow us to interpret the coefficient for the political dummy as the election year effect on the share of spending in a given category. We estimate (1) with and without controlling for the total expenditure to see the change in levels and the share to analyze this proposed theory. The vector $\mathbf{May}'_{\mathbf{m(i,t)}}$ controls how the political environment influences the spending in each municipality. We include mayors' characteristics

[2]The description of the dependent variables of our model and the controls can be found in tables 1-**??**.

[3]Since the Supreme Elections Court established synchronized elections across all municipalities in Costa Rica, we follow Chortareas et al. (2016) not including time fixed effects because the election year effects cannot be separated from aggregate shocks.

like Age at the start of their government, number of periods as a mayor, gender, incumbent advantage measured by the share of votes of the mayor's party received in the last election at the municipal mayoral and council, legislative and national level, and the type of political party (municipal, provincial or national). Finally, the vector $\mathbf{Nat}_t'$ contains national variables that don't vary across municipalities. We include national debt-to-GDP and deficit-to-GDP ratios, passive base interest rate and log GDP.

The coefficients of interest are the Elec_t dummy and its interactions with reelection dummies and Age. In the institutional context, we discussed that, as of 2021, mayors can be reelected indefinitely. Nevertheless, a mayor could influence the Political Budget Cycle in an altruistic manner to make its party's fellows more likely to get reelected, if the current mayor doesn't run for another term. That's why we consider three reelection variables: (1) if a mayor inscribes herself for the next election, regardless of the political party; (2) if a mayor runs again with the same political party; and (3) if the party runs for reelection in the next period. We expect the coefficients to be statistically significant and positive except the one associated with the age. We would expect that as the candidate get older, the incentives for spending more in the last period to get reelected diminish.

The specification (1) is a standard dynamic panel data one. The standard fixed-effects estimators is asymptotically biased. First, including a lagged dependent variable and municipality fixed effects renders the OLS estimator biased and inconsistent by the Nickell (1981) bias. Although the Fixed-effects (FE) estimator eliminates the municipalities specific effects, it cannot eliminate the bias introduced by the inclusion of lagged dependent variables among the regressors, which is correlated by construction with the error term. The order of the FE estimator bias is $O(1/T)$, where T corresponds to the time length of the panel. In our case, the time length of our panel is 15 years, consecuently, the use of the Fixed Effects estimator may add non-negligible bias to the coefficients. To address this concern, we employ the Blundell and Bond (1998) two-step system GMM estimator for dynamic panel data which augments the Arellano and Bond (1991) difference GMM estimator using lagged differences of the dependent variables as instruments in the levels equations in addition to lagged levels of the dependent variables, which are used as instruments for the equations in first differences. Since the estimated standard errors of the two-step GMM estimator tend to be severely downward biased, we correct the bias using the Windmeijer (2005) finite sample correction. There could be misleading results caused by instrument proliferation from exploiting all moment conditions in system GMM. In order to alleviate this concern, we collapse the instrument set, as suggested by Roodman (2009), to reduce the number of moment conditions. Finally, we perform the Arellano and Bond (1991) tests for first-order and second-order serial correlation of the differenced

residuals and the Hansen test for over-identifying restrictions.

There's no consensus in the literature whether or not to include more than one lag in the dependent variable and how many lags should be included for the predetermined variables. We apply the criteria described Kripfganz (2019) and Kiviet (2020) to decide the number of lags of the dependent variable and the municipal controls that could be contemporaneous with the error term to choose the optimal specification. We consider Elec_t, national and mayor's controls as exogenous.

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Tables

Table 1: Log per capita Expenditure (y_{jit})

Variable	Description and measure	Source
0-Compensation	All payments related to labor	CGR
0.01-Basic Compensation	Wages paid to both permanent and temporary staff	CGR
0.01.01-Wage	Wages paid to both permanent and temporary staff	CGR
0.02-Contingent Compensation	Wages paid to both permanent and temporary staff	CGR
0.02.01-Extra hours	Wages paid to both permanent and temporary staff	CGR
0.02.05-Subsistence allowance	Wages paid to both permanent and temporary staff	CGR
1-Services	Wages paid to both permanent and temporary staff	CGR
1.01-Rentals	Wages paid to both permanent and temporary staff	CGR
1.01.02-Machines, equipment and mobiliary rentals	Wages paid to both permanent and temporary staff	CGR
1.03-Financial and commercial services	Wages paid to both permanent and temporary staff	CGR
1.03.02-Advertisement and Publicity	Payment for time worked outside of regular workday	CGR
1.07-Training and Protocol	Payment for time worked outside of regular workday	CGR
1.07.02-Protocolary and Social Activities	Payment for time worked outside of regular workday	CGR
1.08-Maintenance and Repairs	Payment for time worked outside of regular workday	CGR
1.08.01-Buildings, constructions and lands maintenance	Payment for time worked outside of regular workday	CGR
5-Durable goods	Payment for time worked outside of regular workday	CGR
5.01-Machinery, Equipment and Mobiliary	Payment for time worked outside of regular workday	CGR
5.02-Construction, Additions and Remodelating	Payment for time worked outside of regular workday	CGR
5.02.02-Roads	Payment for time worked outside of regular workday	CGR
Total expenses	Payment for time worked outside of regular workday	CGR

Table 2: Demographic and Economic Variables per Municipality ($\mathbf{Mun}'_{\mathbf{it}}$)

Variable	Description and measure	Source
Pop.15	Population under 15 years old, percentage	CCSS
Pop.65	Population over 65 years old, percentage	CCSS
K12	Number of K-12 centers	CCSS

Table 3: Political Context and Personal Characteristics of Mayors ($\mathbf{May}'_{\mathbf{m}(\mathbf{i},\mathbf{t})}$)

Variable	Description and measure	Source
Age	Mayor's age at the beginning of the electoral period	TSE
Gender	Mayor's gender, 1 for man, 0 for woman	TSE
Inc.Adv	Incumbent advantage in last election, difference in percentage of votes	TSE
Pol.par	Type of political party, 0 for municipal, 1 for provincial, 2 for national	TSE