Political Budget Cycles in Municipalities: Evidence from Costa Rica*

André Campos,† Augusto del Solar‡ and José I. González-Rojas, §

October 31, 2021

This paper

JEL Codes: XXXX

*We thank ....

†School of Economics and School of Political Sciences. University of Costa Rica Email: andre.camposreyes@ucr.ac.cr

‡School of Economics. University of Costa Rica Email: augusto.delsolar@ucr.ac.cr

§School of Economics. University of Costa Rica Email: joseignacio.gonzalez@ucr.ac.cr

1 Context

Hypothesis 1. *There are Political Budget Cycles in Municipalities' different types of expenditures.*

Hypothesis 2. *If the PBCs exists, majors seeking reelection spend more on voter-friendly types of expenditure.*

Hypothesis 3. *If majors seeking reelection spend more on voter-friendly types of expenditure, this strategy increases their probabilities of winning the election.*

2 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) Given this, the municipalities in Costa Rica have been defined in the Municipal Code 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. It is hoped that through these capacities, a municipality should be capable of promoting 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.

In order to go further in a PBC study, it requires a clear identification of the flow of resources in the Costa Rican municipalities, explained in table N.1.

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.

Having said that, it is important to identify two fundamental facts that should be taken into consideration in this research, since they could influence the behavior of PBCs in Costa Rican municipalities: First of these is the change in the electoral period in Costa Rica. Before the 2016 election, the municipal elections were divided, the election of the councilors was presented simultaneously in February (along with the national elections). On the other hand, the mayoral election took place the same year in December. It was defined by the congress that, in order for the municipalities to achieve greater autonomy and give more relevance to the municipal elections, local authorities will be elected in midterm

elections, two years after the national ones. The renewal of all 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). Secondly, we consider the emergence of micro-parties (or municipal parties). Their inscription and functions are limited to the municipal one, therefore they can't interfere in national politics in a direct manner. In the last two decades, the country has observed an emergence of new local leadership, 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) With this in mind, it can be argued that the dynamics behind budget management can be greatly dependent on the party's classification. This being national, provincial or municipal. These factors will be evaluated throughout this research.

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, de Los Ángeles 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. With this in mind, 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 magintude 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 Methodology

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:

$$y_{jit} = \sum_{k=1}^{P} \rho_{jit-k} y_{jit-k} + \gamma \text{Elec}_t + \sum_{k=1}^{K} \mathbf{Mun}'_{\mathbf{it-k}} \beta_{t-k} + \mathbf{May}'_{\mathbf{m(i,t)}} \theta + \mathbf{Nat}'_{\mathbf{t}} \alpha + \lambda_i + \varepsilon_{jit} \quad (1)$$

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. Below we explain the process to decide how many lags should be included. 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.[1] 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 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 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, provin-

[1] 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.

cial 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. There are two reasons why standard fixed-effects estimators would be 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.

The second potential source of bias is the mayor's age. The Age variable could be endogenous in (1), even after accounting for municipality fixed effects. The reason is that

changes in voter preferences for spending could be correlated with changes in the age profile of the pool of candidates —rendering Age endogenous. We address this possibility by treating Age and its interaction as endogenous. We borrow an instrument from Alesina et al. (2019): we use the Old variable and its interaction as instruments. The variable Old_{it} equals 1 if the mayor of municipality i in year t was the older of the top two candidates in the most recent election and 0 otherwise.

There could be macroeconomic shocks or weather disasters that affect specific groups of municipalities. This could be due to the culture of certain municipalities or the geography they're placed in. To make our results robust to this shocks, we cluster the standard errors at the municipality level, provincial level, socioeconomic region of planification and economic specialization zones, as in Alfaro Figueroa (2019).

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.

References

Aidt, T. S., Veiga, F. J., & Veiga, L. G. (2011). Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice*, *148*, 21–44. https://doi.org/10.1007/sl11127-010-9644-3 (cit. on p. 6)

Alesina, A., Cassidy, T., & Troiano, U. (2019). Old and Young Politicians. *Economica*, *86*, 689–727. https://doi.org/10.1111/ecca.12287 (cit. on pp. 6, 10)

Alesina, A., & Passalacqua, A. (2016). In J. B. Taylor & H. Uhlig (Eds.). Elsevier B.V. https://doi.org/10.1016/bs.hesmac.2016.03.014. (Cit. on p. 7)

Alfaro Figueroa, J. A. (2019). *Elecciones municipales en Costa Rica: Efecto del entorno económico sobre la reelección del partido político en el poder, 2006-2016* (Master's thesis). Universidad de Costa Rica. (Cit. on pp. 6, 10).

Alfaro Redondo, R. (2009). *El régimen municipal costarricense a inicios del siglo XXI* (1st ed.). Editorial Universidad de Costa Rica. (Cit. on p. 2).

Arellano, M., & Bond, S. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *The Review of Economic Studies*, *58*, 277–297. https://doi.org/10.2307/2297968 (cit. on p. 9)

Asamblea Legislativa de Costa Rica. (1998). *Código municipal*. (Cit. on p. 2).

Asamblea Legislativa de Costa Rica. (2009). *Código electoral*. (Cit. on p. 4).

Beers González, R. F. (2006). Partidos políticos en el ámbito local. *Revista de Derecho Electoral del Tribunal Supremo de Elecciones*, *2*, 1–29 (cit. on p. 4).

Blanco, R. (2011). *Análisis de las elecciones municipales 2010: Resultados, tendencias y desafíos*. Estado de la Nación. (Cit. on p. 4).

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*, 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8 (cit. on p. 9)

Bonfatti, A., & Forni, L. (2019). Fiscal rules to tame the political budget cycle: Evidence from Italian municipalities. *European Journal of Political Economy*, *60*. https://doi.org/10.1016/j.ejpoleco.2019.06.001 (cit. on p. 6)

Cassette, A., & Farvaque, E. (2014). Are elections debt brakes? evidence from French municipalities. *Economics Letters*, *122*, 314–316. https://doi.org/10.1016/j.econlet.2013.12.022 (cit. on p. 7)

Chortareas, G., Logothetis, V., & Papandreou, A. A. (2016). Political budget cycles and reelection prospects in Greece's municipalities. *European Journal of Political Economy*, *43*, 1–13. https://doi.org/10.1016/j.ejpoleco.2016.02.001 (cit. on pp. 6, 8)

Corvalan, A., Cox, P., & Osorio, R. (2018). Indirect political budget cycles: Evidence from Chilean municipalities. *Journal of Development Economics*, *133*, 1–14. https://doi.org/10.1016/j.jdeveco.2018.01.001 (cit. on p. 6)

de Los Ángeles González, M. (2002). Do Changes in Democracy Affect the Political Budget Cycle? Evidence from Mexico. *Review of Development Economics*, *6*, 204–224. https://doi.org/10.1111/1467-9361.00150 (cit. on p. 5)

Drazen, A., & Eslava, M. (2010). Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics*, *92*, 39–52. https://doi.org/10.1016/j.jdeveco.2009.01.001 (cit. on pp. 5–8)

Hernández Saborío, B., Loaiza Monge, M. E., & Ramírez Gamboa, F. (2014). *Efectividad de las decisiones electoralistas en Costa Rica 1953-2010: ¿funciona el ciclo político-económico?* Universidad de Costa Rica. (Cit. on p. 7).

Kiviet, J. F. (2020). Microeconometric dynamic panel data methods: Model specification and selection issues. *Econometrics and Statistics*, *13*. https://doi.org/10.1016/j.ecosta.2019.08.003 (cit. on p. 10)

Kripfganz, S. (2019). Generalized method of moments estimation of linear dynamic panel data models. *London Stata Conference*, 1–128. http://repec.org/usug2019/Kripfganz_uk19.pdf (cit. on p. 10)

Labonne, J. (2016). Local political business cycles: Evidence from Philippine municipalities. *Journal of Development Economics*, *121*, 56–62. https://doi.org/10.1016/j.jdeveco.2016.03.004 (cit. on p. 6)

Lankester-Campos, V. A. (2017). *Political budget cycles in Latin America: Fiscal policy effectiveness or regulated markets?* (Doctoral dissertation). University of Essex. (Cit. on p. 5).

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, *49*, 1417–1426 (cit. on p. 9).

Nordhaus, W. D. (1975). The Political Business Cycle. *The Review of Economic Studies*, *42*, 169–190. https://www.jstor.org/stable/2296528 (cit. on pp. 5, 6)

Rogoff, K., & Sibert, A. (1988). Elections and Macroeconomic Policy Cycles. *Review of Economic Studies*, *55*, 1–16 (cit. on p. 5).

Roodman, D. (2009). Practitioners' corner: A note on the theme of too many instruments. *Oxford Bulletin of Economics and Statistics*, *71*, 135–158. https://doi.org/10.1111/j.1468-0084.2008.00542.x (cit. on p. 9)

Sakurai, S. N., & Menezes-Filho, N. (2011). Opportunistic and partisan election cycles in Brazil: New evidence at the municipal level. *Public Choice*, *148*, 233–247. https://doi.org/10.1007/sl (cit. on p. 6)

Setiawan, D., & Rizkiah, F. (2017). Political Budget Cycles in Municipalities: Evidence from Indonesia. *International Journal of Business and Society*, *18*, 533–546 (cit. on p. 6).

Veiga, L. G., & Veiga, F. J. (2007). Political business cycles at the municipal level. *Public Choice*, *131*, 45–64 (cit. on pp. 5, 6).

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics*, *126*, 25–51. https://doi.org/10.1016/J.JECONOM.2004.02.005 (cit. on p. 9)