

Is there an economic and political cycle in social spending? Evidence from a panel of Argentine provinces for 1993-2020

María Angélica Tan Jun Ríos

Universidad Nacional de Tucumán

atanjunrios@gmail.com

Abstract: The Political Budget Cycles (PBC) are fundamental features of democratic regimes. Theoretical models and most of the empirical literature sustain that opportunistic incumbents manipulate fiscal policy to retain power. Using a panel data of 24 Argentine subnational districts spanning over the lapse 1993 - 2020, I study the behavior of social spending in election and non-election years for the whole period and for different subperiods. I also explore the performance of social spending subgroups as well as partisan effects. My dynamic panel data estimations confirm that social spending increases in election years, although there are substantial differences across spending subgroups. In contrast with Calvo and Murillo (2004) I find no partisan effects in election years.

Resumen: Los Ciclos de Presupuesto Político (PBC) son rasgos fundamentales de los regímenes democráticos. Los modelos teóricos y la mayor parte de la literatura empírica sostienen que los gobernantes oportunistas manipulan la política fiscal para conservar el poder. Utilizando un panel de datos de los 24 distritos subnacionales argentinos, que abarcan el lapso 1993 - 2020, analizo el comportamiento del gasto social en años electorales y no electorales para todo el período y para diferentes subperíodos. Además, exploro el desempeño de los subgrupos del gasto social, así como los efectos partidistas. Mis estimaciones de datos de panel dinámico confirman que el gasto social aumenta en años electorales, aunque existen diferencias sustanciales entre los subgrupos del gasto. A diferencia de Calvo y Murillo (2004) no encuentro efectos partidistas en años electorales.

Key words: social spending; subnational fiscal policy; opportunistic behavior; elections.

JEL Classification: D72; P16.

I) Introduction

The Political Budget Cycles (PBC) are fundamental features of democratic regimes (Cahan, 2018). Despite broad agreement among scholar on this, there is a considerable debate on its effects on public policies. Spending on health, education, and social welfare is an essential part of what governments do to improve the quality of life of their citizens and the foundation of human capital in their societies. Furthermore, these expenditures are fundamental for correcting structural problems in historical unequal countries, where large portion of their population lives below the poverty line. Fluctuation may affect severely the wellbeing of vulnerable population. Studying the behavior of social spending is normatively, socially and politically important. Previous studies show social spending correlates with poverty reduction and human development indicators improvements like health, education and personal income (González 2014). This study examines whether the election year affects social spending positively or negatively.

There is extensive literature on PBC that concludes that opportunistic governors are more likely to succeed in their mission to retain power when they increase government spending to please their voters. This occurs whenever the governors act in a context characterized by an electorate that does not fully perceive, or underestimates, the consequences of greater public spending financed with increased taxes or indebtedness. It also happens when there are heterogeneous voters, who have different capacities to process the available information or who have different degrees of knowledge regarding economic policies and their consequences.

Argentine provinces are particularly valuable for studying the determinants of social spending because many of the possible independent variables presented in the literature vary considerably across provinces, such as, electoral competition (González, 2017), the level of economic development, and reelection limits. Therefore, it is not immediately obvious which are the factors associated with increased (or not) social spending in Argentine's provinces. In addition, there are many other variables that can be controlled since they do not vary among provinces, such as ethnic, linguistic fragmentations (presented in countries like India or Nigeria), federal institutions, government system, and other unobservable factors of possible explanatory relevance that may vary substantially across nations. I focus on provincial governments (rather than on municipalities) because of the nature of Argentine federalism, where a lot of administrative power is delegated to provincial government. Thus, the local

government possess very little fiscal or administrative autonomy, especially in the delivery of public goods.

Using descriptive statistic and regression model for original budget panel data for the 24 Argentine provinces between 1993 and 2020, I study the behavior of social spending in election years. To preview my results, I find that social spending is slightly larger than non-election years, and that the gubernatorial election year is significant in explaining social spending. I also find that spending manipulation is less pronounced when governors belong to the same party as the President.

The rest of the article continue as follows: Section II discusses the literature on the subject and describes the particular characteristics of social spending in Argentina, mainly through graphical analyzes and non-parametric tests. Section III operationalizes the variables, provides the data sources, and identify the methodological strategy. Section IV presents and discusses the empirical results. Section V explores a couple of extensions related to: a) the effect on social spending of the different types of dominant political parties in Argentina (Peronists, Radicals and Provincial parties); b) the effect of the gubernatorial election year on each subgroup of social spending. Finally, section VI has some concluding remarks.

II) Review of the literature

One of the most established theoretical expectations about spending is the presence of political budget cycles. There are cycles in some components of the government budget induced by the electoral cycle. More specifically, the term most often refers to increases in government spending or the deficit or decreases in taxes (including changes relative to long-term trends) in an election year which are perceived as motivated by the incumbent's desire for re-election of himself or his party. Political budget cycles are undesirable because they have been shown to be expensive through several lines.

The electoral cycles ensure that politicians engage in pre-electoral fiscal manipulation. In order to explain why this phenomenon is generated, that is to say why incumbents engage in political budget cycles, two fundamental aspects can be explored.

One line of research relies on the opportunism of politicians to answer the question. Voters like low taxes and high government expenditures and vote for incumbents who provide them. The intertemporal budget constraint implies that expansionary policies in one period must be offset in the following period. Opportunistic incumbents will therefore use expansionary fiscal policy before elections to increase the probability of re-election.

Numerous examples of manipulation can be found in the literature. Cahan (2018) found evidence of electoral cycles in government employment by manipulation in the US. This means that employment tends to increase leading up to elections, after which it abruptly returns to normal levels. Manipulation is observed, also, in taxes like the municipal tax IMU (*“Imposta municipale unica”*) in Italy where the empirical evidence shows the closer the local governments were to a new election, the lower the tax rate chosen (Alesina and Paradisi, 2014). In this last example, the authors also allude that lower levels of civicness are associated with less controls of politicians who can then engage in strategic manipulations of policies, so the evidence on cycles is strong.

Another possible argument is related to ideology of the incumbent party. This important part of the literature analyzes the difference between right-wing and left-wing governments in relation to the spending. Castro and Martins (2015) found empirical evidence for Portugal which confirms that right-wing governments tend to be more concerned in reducing expenditures and the government deficit after the elections than left-wing ones. Also, right-wing governments are more likely to usually pay more interest on debt than left-wing ones.

The magnitude of political budget cycle is another relevant aspect when analyzing this phenomenon. An area of the literature takes into consideration the relationship between popularity and the magnitude of the political budget cycle. Some models declare it is linear (Schultz, 1995), while others affirm it is a non-linear pattern (Aidt et al., 2011). However, Hanusch and Magleby (2012) propose a model which suggests that both relationships are intuitive and can be reconciled, conditional on the degree of polarization in the party system. Environments with low polarization should exhibit a non-linear pattern; linear relationships should be present in polarized political environments. These authors affirm that under high polarization, governments augment spending on their preferred policies whilst leaving the financing to their likely successors. But, if polarization over expenditure composition is low, fiscal policy is likely to be misused and overused for electoral gain.

The environment is also an important factor in determining the presence of political budget cycle. Under this aspect, both conditions, the state organization system (bureaucracy and non-bureaucracy) and the voter's information are fundamental.

With respect to the state organization system, Bostashvili and Ujhelyi (2019), who analyze real per capita highway expenditure by US state governments, affirm that political budget cycles are significant and may be more prevalent in political systems characterized by a more bureaucratic organization. On the contrary, they are less likely to occur under civil

service (less bureaucracy). Moreover, civil service may also have a “multiplier” effect by stabilizing the policies chosen by election-minded politicians.

Regarding to the voter’s information, if forward-looking voters are aware of government budget constraints both at a point in time and intertemporally, they should dislike deficits in general and especially those seen as electorally motivated. Hence, if voters are ‘fiscal conservatives’, they will punish rather than reward fiscal manipulation. That situation commonly occurs in developed countries. Peltzman (1992) found that US voters behave as fiscal conservatives. In relation to this, Janků and Libich (2019) suggest that the ignorance of voters is anything but bliss as far as fiscal policy goes, and it leads to budget cycles. In addition, Martins and Veiga (2011) argue that there may be a bias in decision making because voters tend to attach greater importance to recent economic performance than to more distant events. Alternatively, the authors just mentioned suggest that macroeconomic variables can affect the decision of voters: high rates of inflation and unemployment reduce the number of people who say they intend to vote for the ruling party.

A large part of the empirical evidence on PBC attributes some role in them to the lack of transparency or maturity of the democracy under analysis. Several studies sustain the established democracy hypothesis asserts that young and inexperienced democracies are more likely to exhibit more pronounced PBC given that voters face higher information costs (Akhmedov – Ravichez – Zhuravskaya, 2004; or Brender – Drazen, 2005). As long as there is a continuous practice of democracy, without interruptions, a learning mechanism of society is set in motion that softens PBC and, eventually, could make them disappear when democracy reaches its consolidation. Specifically, Argentina is not a consolidated democracy, neither a young democracy. The country had regular elections for President and provincial governors since 1862. However, in the 20th century, the constitutional regimen broke down six times weakening democracy and political parties. It is important to bear in mind that democracy is not only consolidated by the continuity of it, but also by the alternation of parties in power.

For the particular case of Argentina, the study of González (2017) finds that social spending increases the more electorally confidence governors are and the longer they have been in office. It also finds that the type of party in government is not relevant for explaining changes in the overall percentage of social spending. Another interesting finding in his model is that governors do not appear to reduce social spending in election years but in fact seem to increase personnel spending.

Calvo and Murillo (2004) use subnational level Argentina data. They show that while any political parties—either conservative or labor-based—with low-skilled constituencies in

less developed areas of the country should benefit from patronage redistribution, for conservative parties like UCR this mechanism often provides a venue to harness national majorities while minimizing welfare spending to high-skilled workers in the more developed regions. For labor parties like PJ, patronage and welfare can serve as complementary redistributive instruments which, given relatively rigid budget constraints, must be managed to maximize electoral gains and the relative incomes of their diverse constituencies.

Several of the studies mentioned above include suggestions for public policies to avoid or reduce the tendency of falling in political cycles. One of the most frequent and important recommendation in the literature is to increase investment into the educational system, it would help to produce more informed voters, and in this way, probably, there would be less political budget cycle. Other suggestions are those made by Janků and Libich (2019). They recommend penalizing politicians for budget deficits (“Deficit ends”) to reduce their incentives to bribe voters with additional pre-election spending, and taxing every voting-age individual in the case that the budget deficit exceeds a certain pre-announced level (“Deficit tax”) in order to incentivize voters to acquire politic information.

Most of all the literature mentioned so far is summarized in [Appendix A](#). Its purpose is to provide context from where to start the investigation of the political budget cycle. Also, the previous literature generates a background to understand the main object of the present article, which is to check for manipulation of social spending for electoral purposes in the Argentine provinces

III) A brief look at Social Spending in Argentine provinces

Argentina is a middle – income developing country organized as a federal republic with 23 districts and the central federal state, CABA. Gubernational elections in the Argentine Republic are held every four years. Sometimes, the governors can decide and change the month in which the elections will be held, but they are rarely anticipated or postponed for more than three or four months.

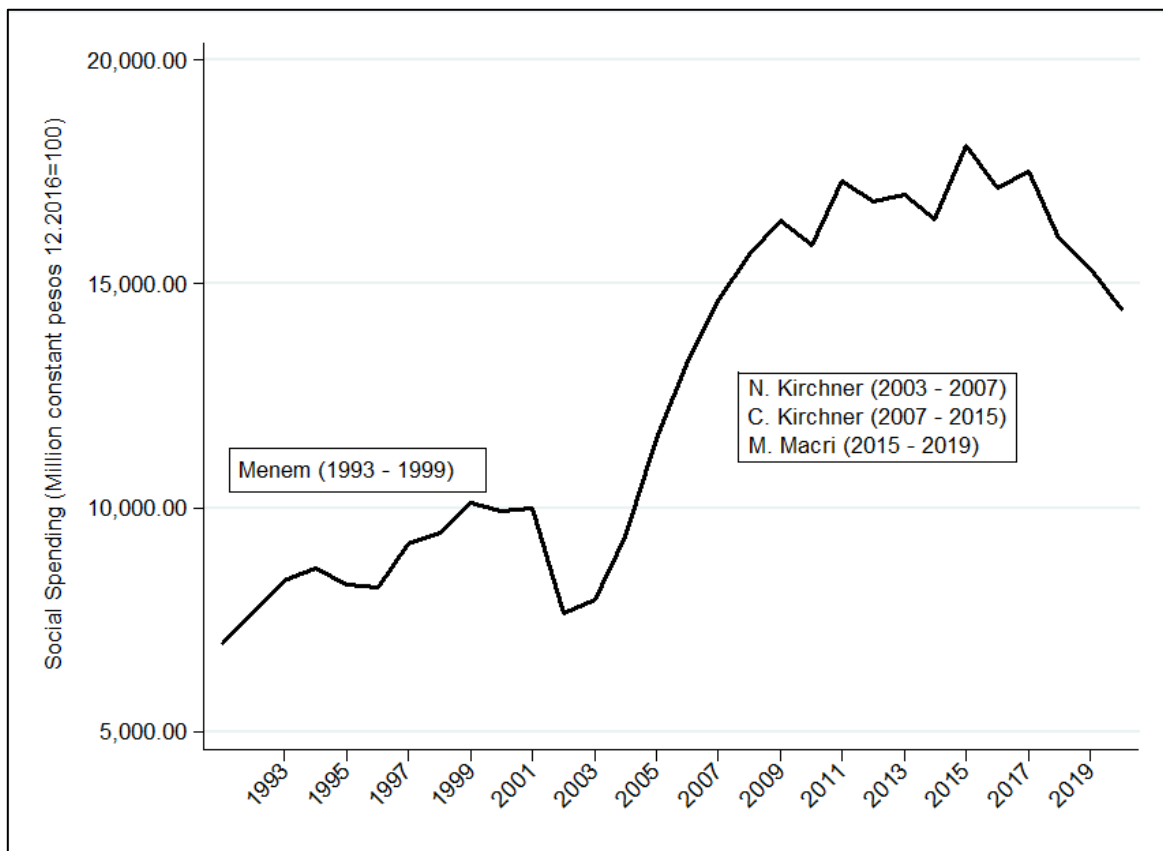
How does social spending behave in the Argentine provinces around elections years? Is there any regularity in the variables that affect social spending before, after and during the government elections? A preliminary answer to these questions can be given by graphical analysis and some non-parametric tests.

As a starter, it is relevant to analyze the evolution of social spending in Argentina. [FIGURE 1](#) shows the evolution of total social spending per capita (measured in millions of

constant pesos at 2016 prices) in the years from 1993 to 2020. It can be seen that the year 2002 is a clear turning point. From that moment on, the level of social spending increases sharply compared to the previous decade. During the currency board period the social spending available was an average of 9000 million pesos. However, in the decades following currency board, with the Kirchners in the government, social spending increased to an average of 15 billion pesos. Thus, my analysis will be based on two moments. I will first analyze the entire period, and then the subperiods generated by this turning point.

FIGURE 1

EVOLUTION OF REAL SOCIAL SPENDING (AT CONSTANT 2016 PRICES) PER CAPITA (ARGENTINA 1993 – 2020)



Another characteristic of social spending in Argentina is its composition. More than 50% of spending is allocated to education and culture, that is, intended for actions that seek to develop or perfect the intellectual and moral faculties of the child or young person, and for the dissemination and teaching of all aspects of human’s knowledge. Another 30% of social spending is allocated to health and assistance and social promotion, that is destined to actions that ensure the optimum health status of the community and provide concrete help to people in need. The remaining 12% is allocated to other remaining subgroups such as housing and

urbanization, drinking water and sewerage, work, etc (see **FIGURES 2**). The composition of social spending is practically the same for the two subperiods analyzed, the greatest percentage differences are observed in the areas of "Health" and "Education and culture", although they do not exceed 1.5%.

FIGURE 2 a)
 PIE CHART OF THE COMPOSITION OF SOCIAL SPENDING (ARGENTINA 1993 – 2020)

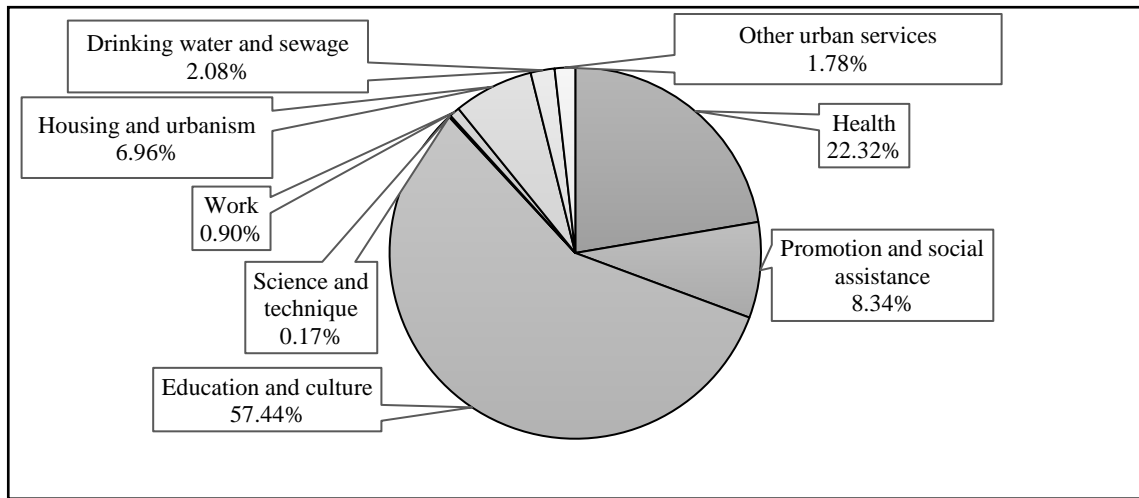


FIGURE 2 b)
 PIE CHART OF THE COMPOSITION OF SOCIAL SPENDING (ARGENTINA 1993 – 2001)

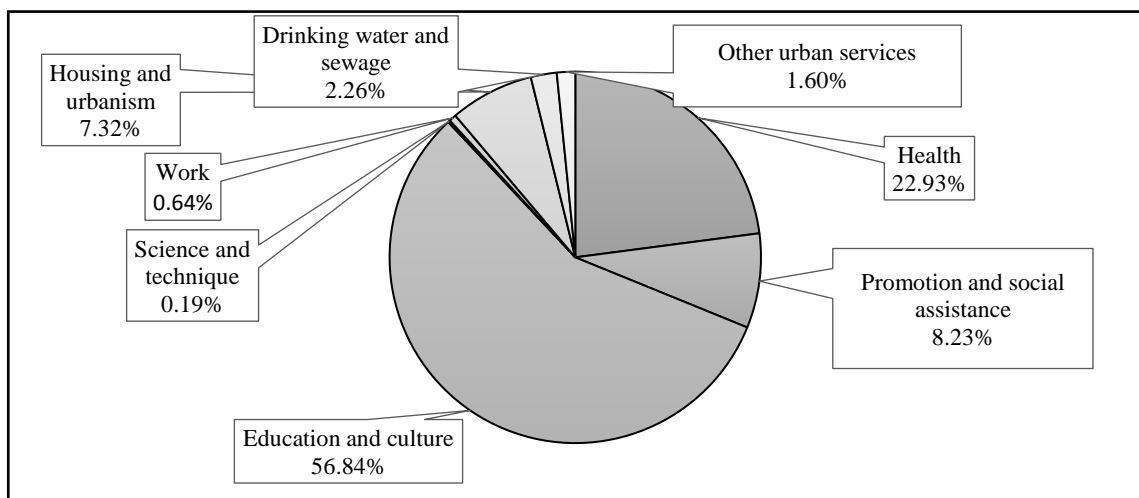
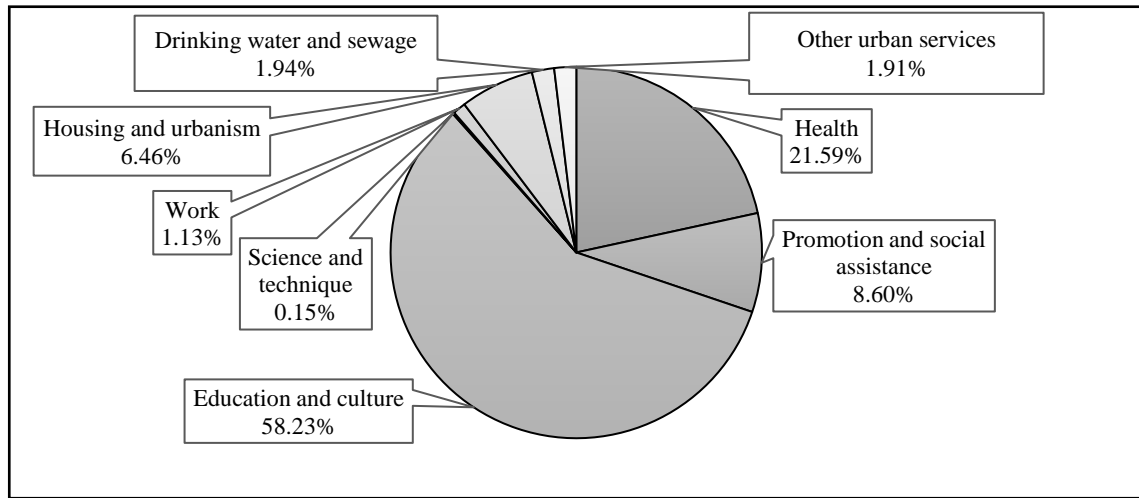


FIGURE 2 c)
PIE CHART OF THE COMPOSITION OF SOCIAL SPENDING (ARGENTINA 2002 – 2020)



Graphical analysis

[FIGURE 3](#) shows two graphical analysis of the behavior of social spending, the average for the whole period of analysis (1993 – 2019)¹ in the PANEL A, and also for the subperiods from 1993 to 2001 and from 2002 to 2019 in the PANEL B.

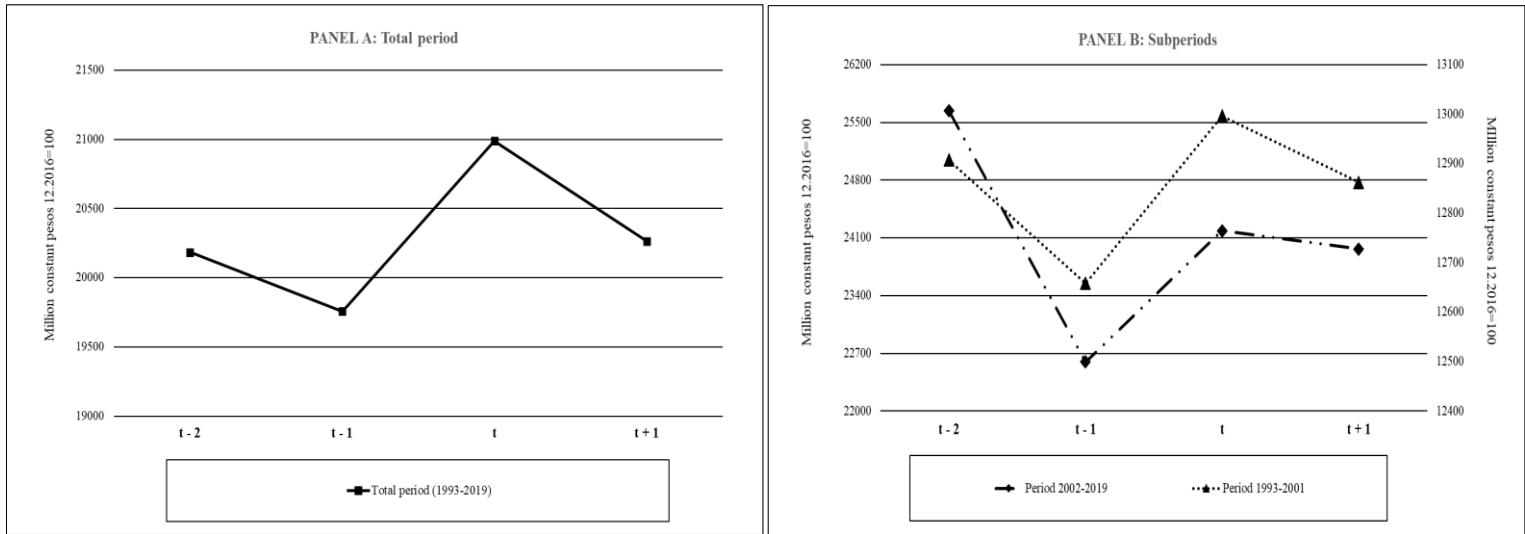
The graphical analysis consists of averaging social spending across all provinces and all periods for the two years before the election (denoted by $t - 2$), the year prior to the election (called $t - 1$), the electoral year (denoted by t), and the year after them (called $t + 1$)².

It is observed that social spending coincides with the behavior generally described by the PBC theory. Per capita expenditures present an inverted V shape with a peak at t (election year). It is also evident that the period between 2002 and 2019, in addition to presenting higher levels of social spending, has a more pronounced behavior than the previous years (period between 1993-2001).

¹ It is important to clarify that the year 2020 was eliminated from the graphic analysis, although it is taken into account in the rest of the study. I did it this way given that the social spending reported for that year is considerably higher than the average of previous years, therefore its inclusion could affect the analysis. A possible explanation for this increase in social spending in 2020 is COVID – 19 pandemic.

² Graphical analysis has the average that it does not impose a parametric structure on the data.

FIGURE 3
 BEHAVIOR OF PER CAPITA SOCIAL SPENDING AROUND THE GOVERNOR ELECTIONS (ARGENTINA 1993 – 2020)



Another way to answer the question posed at the beginning of this section is to carry out non-parametric tests to compare the behavior of social spending in electoral and non-electoral years in each district. I use Kruskal – Wallis test and Kolmogorv – Smirnov test, but the results obtained were not as expected, I did not find statistically significant difference in social spending between election years and non-election years (see [TABLE B](#) - Appendix B).

IV) Model and data

The graphical analysis and the non-parametric tests used in the previous section are informative, but they have an obvious limitation: they are univariate. To establish the existence of a political and economic cycle in social spending and its determinants, I will carry out an econometric analysis consisting of two steps.

In a first step, I use a panel of 648 observations (24 districts for 27 years) to estimate a typical equation used in studies of political budget cycle with the objective of verifying if there is manipulation of social spending in the Argentine provinces. Furthermore, the subnational analysis allows me to control for historic and cultural variables at the country level that may affect our explanatory variables.

In this equation, the social spending variable (ss_{it}) depends on its value lagged one period; of a *dummy* variable that takes the value 1 in the electoral year and 0 in the rest (coded

GubYear) and of social, economic and political control variables that can explain the variety in the data due to factors unrelated to the elections. The equation is the following:

$$\log(SS_{it}) = a_i + \beta_0 \log(SS_{it-1}) + \beta_1 GubYear_{it} + \beta_{2i} CONTROLS_{it} + \varepsilon_{it} \quad (1)$$

Where *i* corresponds to each of the 23 Argentine provinces and the autonomous city of Buenos Aires, and *t* represent the time measured in years from 1993 to 2020.

In a second step, I use the same equation described above, but I analyze two subperiods. Thus, I estimate social spending between 1993 to 2001 and from 2002 to 2020, then I compare the results. I did it this way, since as seen on [FIGURE 1](#), there is a break point in 2002.

In the explanation of the political budget cycles (PBC), I consider total social spending per capita as the dependent variable. However, it is made up of different subgroups (see [TABLE C](#) – Appendix C). In the base model, I will work with the first one and, in the extension models, I will work with the subgroups.

A key variable in my analysis is the year of the Governor's election. According to the PBC theory, rulers are expected to increase total spending and decrease local tax pressure in election years. That is why, if the argument of manipulation in social spending is to be believed, we should expect *GubYear* to be positively correlated with social spending.

My analysis controls for, among other influences, the Governor's political alignment. Jones, Sanguinetti and Tommasi (2000) found that provinces where the Governor belongs to the same political party as the President have lower spending. These authors conjecture those provincial governors politically associated with the President are more likely to internalize spending because they must comply with internal party discipline. To capture this effect, I included the *dummy* variable called *Alignment*.

Additionally, Argentine democracy is characterized by strong provincial leaders who adopt the attribution (removing this role from political parties) to choose candidates from the National Congress and to establish party policies. Therefore, the interests and incentives of the party and the rulers do not necessarily match, they may even be opposite. Thus, political budget cycles are expected to be more prominent when the governors are running for re-election than when other party candidates are running. The *dummy* variable *ReelectionGub* attempts to reflect the importance of this on social spending.

Socioeconomic conditions can also affect social spending, so I added four control variables in various specification of equation (1): the level of gross geographic product per capita and its growth rate (coded by *GGP* and *GGPdif* respectively), the unemployment and

demanding underemployment rate at the beginning of the election year (coded by *Unemployment* and *DemandingUnderemployment* respectively) and the infant mortality rate (denoted as *IMR*). My expectation for these variables is that the wealthiest and fastest growing districts will have higher levels of spending. In addition, I hope that provinces with serious labor market problems spend more resources to alleviate unemployment and its consequences.

Finally, as a complement, for the estimation from 2002 to 2020, I add the poverty and indigence variables (coded by *Poverty* and *Indigence* respectively) in the regression. These variables become more important in this period, since the unemployment rate increase abruptly in almost all districts and consequently the population below the poverty line shot up.

It is necessary to remember that, with the exception of the *GGPdif* variable and the *dummy* electoral variables, the rest of them were incorporated as logarithms in the regression. The data sources used for the construction of each model variable are diverse, therefore, I will specify Social Spending below, and the coding of the rest of the variables included in the econometric estimates are found in [TABLE 1](#).

Social Spending

There is a significant discussion in the literature about how to conceptualize different types of governmental spending. In this study I define the dependent variable, social spending, following the definition used by Lucas Gonzales (2017), who consider it spending on a specific group of public goods. Social spending comprises programmatic spending on health, education, and social infrastructure (e.g., schools, hospitals, housing, urban development, and health infrastructure) all of which are public goods. It also includes programmatic social welfare programs, which are technically not universal or excludable.

The definition of social spending excludes legally required expenditures (e.g., on basic education and primary health care) and expenditures on pensions and social security. The main reason for this decision is that these budget items significantly reduce variation of the dependent variable across districts.

The dependent variable of my model is reported in millions of constant pesos (December 2016 = 100) per capita, the data for which was provided by the National Directorate of Provincial Affairs and the Center for Studies and Services of the Santa Fe Stock Exchange.

TABLE 1
 VARIABLE DEFINITION

| Kind of variable | Variable | Definition | Data source |
|----------------------------|---|---|--|
| Dependent variable | <i>Social Spending_{it}</i> | Total social spending per capita (millions of constant pesos - prices 2016) of province <i>i</i> in year <i>t</i> . | National Directorate of Provincial Affairs and the Center for Studies and Services of the Santa Fe Stock Exchange. |
| Key variable | <i>Gub Year_{it}</i> | <i>Dummy</i> that is equal to 1 in the year of the governor's election and 0 otherwise. <i>t</i> is the electoral year if the voting took place from May to December (in Argentina two thirds of the elections analyzed took place from July to December ^(1*)). | Andy Tow's Electoral Atlas and the National Electoral Directorate. |
| Economic activity variable | <i>GGP_{it}</i> | GDP per capita (millions of constant pesos - prices 2016) of province <i>i</i> in year <i>t</i> . | Ministry of Economy - Consultant Muñoz & Associates - Nacional University of La Plata ^(2*) |
| Social variables | <i>IMR_{it}</i> | Infant mortality rate in year <i>t</i> , in province <i>i</i> . | INDEC. |
| | <i>Unemployment_{it}</i> | Unemployment rate in year <i>t</i> , in province <i>i</i> . | |
| | <i>Demanding Underemployment_{it}</i> | Demanding underemployment rate in year <i>t</i> , in province <i>i</i> . | |
| | <i>Poverty_{it}</i> | Percentage of household below the poverty line in year <i>t</i> , in province <i>i</i> . | |
| | <i>Indigence_{it}</i> | Percentage of household below the indigence line in year <i>t</i> , in province <i>i</i> . | |
| Political variables | <i>Alignment_{it}</i> | <i>Dummy</i> that takes the value 1 if the governor of province <i>i</i> is aligned with the party of the President of the Nation and 0 otherwise. | Andy Tow's Electoral Atlas and the National Electoral Directorate. |
| | <i>Reelection Gub_{it}</i> | <i>Dummy</i> that takes the value 1 if the governor seeks re-election in province <i>i</i> , in elections <i>t</i> and 0 otherwise. | |
| | <i>PJ_{it}</i> | <i>Dummy</i> that takes the value 1 if the governor is from the political party "Partido Justicialista" in province <i>i</i> , in elections <i>t</i> and 0 otherwise. | |
| | <i>UCR_{it}</i> | <i>Dummy</i> that takes the value 1 if the governor is from the political party "Unión Cívica Radical" in province <i>i</i> , in elections <i>t</i> and 0 otherwise. | |
| | <i>Provincial Parties_{it}</i> | <i>Dummy</i> that takes the value 1 if the governor is from a provincial political party in province <i>i</i> , in elections <i>t</i> and 0 otherwise. | |

(1*) See [TABLE D](#) - Appendix C.

(2*) I chose to generate the gross geographic product using the computation of the GGP of a base year (2004) calculated by the Ministry of Economy and applying the growth rates of the basic activity computing by the National University of La Plata, and the growth rate of the synthetic indicator of provincial economic activity (ISAP) computed by the consultant Muñoz & Associates. GGP is reported in millions of constant pesos (December 2016 = 100).

This study covers seven of the ten gubernatorial elections held in Argentina since democracy was re-establish in 1983. Governor's elections have been held regularly in most

of the 24 district every four years in 1983, 1987, 1991, 1995, 1999, 2003, 2007, 2011, 2015 and 2019. In the database I used for estimates, I only took into account the elections from 1995. [TABLE 2](#) provides the descriptive statistics of each one of the analyzed variables.

TABLE 2
 DESCRIPTIVE STATISTICS. 24 ARGENTINE DISTRICTS (1993 – 2020)

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|------------------------------------|-----|-----------|-----------|----------|-----------|
| Dependent variable | | | | | |
| <i>Social Spending</i> | 672 | 17912.47 | 9931.14 | 5214.30 | 56002.99 |
| Key variable | | | | | |
| <i>Gub Year</i> | 672 | 0.25 | 0.43 | 0 | 1 |
| Economic activity variables | | | | | |
| <i>GGP</i> | 672 | 226555.60 | 161116.10 | 48939.37 | 827189.10 |
| <i>GGPdif</i> | 672 | 0.16 | 0.08 | -0.23 | 0.34 |
| Social Variables | | | | | |
| <i>IMR</i> | 672 | 14.51 | 5.85 | 4.10 | 34.40 |
| <i>Unemployment</i> | 672 | 8.75 | 4.56 | 0.20 | 23.00 |
| <i>Demanding Underemployment</i> | 672 | 6.77 | 3.30 | 0.13 | 18.65 |
| <i>Poverty</i> | 500 | 14.87 | 12.86 | 0.40 | 63.95 |
| <i>Indigence</i> | 500 | 6.87 | 6.30 | 0.40 | 34.90 |
| Political variables | | | | | |
| <i>Alignment</i> | 672 | 0.49 | 0.50 | 0 | 1 |
| <i>Reelection Gub</i> | 672 | 0.10 | 0.30 | 0 | 1 |
| <i>PJ</i> | 672 | 0.59 | 0.49 | 0 | 1 |
| <i>UCR</i> | 672 | 0.19 | 0.39 | 0 | 1 |
| <i>Provincial Parties</i> | 672 | 0.15 | 0.35 | 0 | 1 |

NOTE: The poverty and indigence variables only have observations from 2001.

Method

I estimate the dynamic equation (1) using the systematic estimator developed by Arellano – Bover (1995) and Bundell – Bond (1998). This estimator is based on the Generalized Method of Moments (GMM), which uses instrumental variables based on lags and differences of all the variables of the model. The possible instrumental variables and their lags are obtained from the method developed by Hansen (1982).

Some important restrictions of the estimator, which must be corrected with a corrected modeling, are that second order autocorrelation cannot exist in the first difference of the errors

and that the equations must be overidentified. In order to prove this, I carry out the Arellano – Bond test and the Sargan test respectively.

The tests results show, as desired, that the model specification complies with first-order autocorrelation of the first differences, but there is no second-order autocorrelation (the Arellano-Bond Test p-value is 0.149, which accepts the null hypothesis of no autocorrelation). In addition, the model presents correctly overidentification equations (the Sargan Test p-value is 0.2840, which accepts the null hypothesis of correct overidentification is accepted), another desirable characteristic for estimation. Thus, the tests prove that the model is well design.

Results

The results of the econometric estimates of the typical PBC equation for the logarithm of social spending are presented in [TABLE 3](#). It can be seen that in column (1) all the years of the analysis are taken. In columns (2) and (3) the estimation of the same equation is observed but for two subperiods (1993-2001 and 2002-2020 respectively). Finally, column (4) contains the regression for the second subperiods (2002-2020), but the controls for poverty and indigence were included in the equation.

My estimates show that governors manipulate social spending in the total period of analysis. Analyzing the subperiods, this manipulation becomes more evident in the first, and is also significant at 10% in the second when controlling for poverty and incidence. The elasticity of social spending in election years is 1.12%. In other words, in election years social spending is 1.12% larger than non-election years. The gubernatorial election year is significant at 1% to explain social spending. Furthermore, I find that this proportion increases slightly from 1993-2001 being 1.66%, and decrease slightly from 2002-2020 being 0.854%.

My estimates prove to be valid since the results estimated above are also similar in level and significance to those found by the robustness checks. [TABLE E](#) (Appendix C) shows the *GubYear* coefficient for the same regression estimated by the systematic estimator method, but for the linear-linear and linear-log models. In the same table, the estimation coefficients of the same model are also found, but using methods that are not specific for dynamic panels, nevertheless they can be useful for robustness checks. These are GEE (Generalized estimated equation), PCSE (Panel- corrected standard errors), GLS (Generalized least squared). I included the elasticity (calculated with the mean values of the variables) in the table in order to the coefficients are comparable with those obtained in the log-log model.

TABLE 3
REGRESSION RESULTS

| VARIABLES | 1993 – 2020 (1) | 1993 – 2001 (2) | 2002 – 2020 (3) | 2002 – 2020 (4) |
|-------------------------------|--|-------------------------|-----------------------|------------------------|
| | Dependent variable: Log Social Spending | | | |
| Log Social Spending (t – 1) | 0.702*** (0.0230) | 0.305*** (0.0749) | 0.692*** (0.0278) | 0.651*** (0.0390) |
| GubYear | 0.0112*** (0.00414) | 0.0166** (0.00811) | 0.00697 (0.00492) | 0.00854* (0.00496) |
| Log GGP | 0.203*** (0.0341) | -0.0574* (0.183) | 0.259*** (0.0380) | 0.245*** (0.0384) |
| Log IMR | -0.0845*** (0.0220) | -0.155*** (0.0540) | -0.0343* (0.0322) | -0.0567* (0.0407) |
| Log Unemployment | -0.0572*** (0.0132) | -0.141*** (0.0378) | -0.0331** (0.0136) | -0.0324** (0.0133) |
| Log Demanding Underemployment | 0.00328 (0.0138) | 0.0935*** (0.0298) | -0.00695 (0.0123) | -0.00376 (0.0135) |
| Alignment | 0.00160 (0.00453) | -0.0226*** (0.00711) | 0.00745 (0.00586) | 0.00492 (0.00624) |
| Reelection Gub | 0.00474 (0.00620) | 0.00586 (0.0121) | -0.00140 (0.00715) | -0.000874 (0.00669) |
| Log Poverty | | | | -0.00966 (0.00940) |
| Log Indigence | | | | -0.0159 (0.0139) |
| GGPdif | 0.282*** (0.0221) | 0.0993* (0.0801) | 0.277*** (0.0303) | 0.256*** (0.0320) |
| Constant | 0.325** (0.162) | 3.386*** (1.012) | -0.000678 (0.159) | 0.291 (0.229) |
| Observations | 622 | 168 | 406 | 406 |
| Number of ID | 24 | 24 | 24 | 24 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

With the exception of *Demanding Underemployment*, all socioeconomic variables are statically significant, although in the case of *Unemployment* with the opposite sign. On the contrary, political controls are not significant except for Alignment in regression (2). As expected, provincial social spending per inhabitant increases as GGP per capita grows. Note that lags of the dependent variable are significant in all regression, reflecting the inertia of social spending.

The negative *Alignment* coefficient in regression (2) indicates that spending manipulation is less pronounced when governors belong to the same party as the President, which is consistent the Jones, Sanguinetti and Tomassi (2000) findings. Finally, regression (4) shows that neither poverty nor homelessness are significant in explaining social spending, which is similar to the evidence found by Gonzales (2017).

V) Extensions

Partisan effects

In this section, I intend to explore whether there are differences in the behavior of different political parties regarding social spending when they look forward to retaining the power. In other words, can there be different varieties of opportunism when it comes to social spending, depending on the ruling party? The literature on clientelism shows that there are partisan effects in Argentina. Both in terms of access to public resources to finance patronage activities and in terms of returns on the distribution of public resources. In other words, not all political parties behave in the same way when elections are approaching.

To determine if the parties manipulate public spending according to the preferences of their electorate, I modified equation (1) to incorporate the P_{itj} , which is a *dummy* variable that takes the value 1 if party j governs province i at time t and 0 if the ruling party is another. That is:

$$\log(SS_{it}) = a_i + \beta_0 \log(SS_{it-1}) + \beta_1 GubYear_{it} + \beta_2 P_{itj} + \beta_3 CONTROLS_{it} + \varepsilon_{it} \quad (2)$$

During the analyzed period, there were two parties with predominant national coverage whose candidates governed numerous provinces: the Peronist Party (PJ) with strong cleavage in laborers union, and constituencies blue collar low-middle income sector; and the Radical Civic Union (UCR) constituency largely white collars middle-high income sectors. The latter participated in alliance with FREPASO, forming the so-called ALLIANCE in several districts in the provincial elections of 1995, 1999 and 2003. In addition to these, there were 7 parties with provincial or regional coverage (they only managed to present candidates in the province of origin or in a limited number of provinces). These were: Bloquista Party (San Juan), Neuquino Popular Movement (Neuquén), Liberal Autonomist Pact (Corrientes), Republican Force (Tucumán), Renovating Party (Salta), Fuegoino Popular Party (Tierra del Fuego) and Chaqueña Action. (Chaco). Although these parties at no time formed an electoral alliance, for the purposes of their behavior towards social spending. They had incentives to behave in a similar way, which is why I grouped them under the name of Provincial Parties.

Econometric results

My results are presented in [TABLE 4](#). They suggest that, for the entire period, there are no party effects on social spending. In other words, parties are not relevant for explaining

changes in the social spending analyzed for the entire period. Because the coefficients of PJ and UCR are almost 0%, and they are not statistically significant in the first column. Another interesting finding in column (2) and (3) is that governors do not appear to reduce social spending in election years (the coefficient of *GubYear* is not statistically significant). These findings are similar to those of González (2004).

Conversely, my results for the 1993-2001 subperiod indicate that the Peronist Party does not use social spending to improve its chances of maintaining political power. In fact, it is observed that PJ reduced social spending per capita by 4.38% in the subperiod analyzed (this coefficient is statistically significant at 99%). This evidence contrasts with Calvo and Murillo (2004) who points out that political parties whose adherents are more dependent on transfers from the public sector obtain higher electoral returns from their investments in patronage networks.

TABLE 4
REGRESSION RESULTS: PERONISTS, RADICALS AND PROVINCIAL PARTIES

| VARIABLES | 1993 - 2020 | 1993 - 2001 | 2002 - 2020 |
|-------------------------------|-------------------------|-------------------------|-------------------------|
| | Log Social Spending (1) | Log Social Spending (2) | Log Social Spending (3) |
| Log Social Spending (t – 1) | 0.700*** (0.0229) | 0.291*** (0.0756) | 0.689*** (0.0326) |
| Gub Year | 0.0113*** (0.00408) | 0.0123 (0.00861) | 0.00704 (0.00501) |
| Log GGP | 0.192*** (0.0325) | -0.0516 (0.170) | 0.260*** (0.0435) |
| Log IMR | -0.0863*** (0.0223) | -0.135*** (0.0516) | -0.0345 (0.0349) |
| Log Unemployment | -0.0589*** (0.0124) | -0.155*** (0.0347) | -0.0350*** (0.0143) |
| Log Demanding Underemployment | 0.00263 (0.0130) | 0.0905*** (0.0255) | -0.00625 (0.0127) |
| Alignment | 0.00198 (0.00440) | -0.0196*** (0.00749) | 0.00716 (0.00584) |
| Reelection Gub | 0.00388 (0.00614) | 0.0103 (0.0118) | -0.00146 (0.00696) |
| PJ | -0.00752 (0.00503) | -0.0438*** (0.00979) | 0.00228 (0.00571) |
| UCR | -0.00922 (0.00776) | -0.00245 (0.0114) | 0.000601 (0.0147) |
| GGPdif | 0.283*** (0.0235) | 0.0716 (0.0844) | 0.274*** (0.0299) |
| Constant | 0.396** (0.163) | 3.431*** (0.977) | 0.00986 (0.162) |
| Observations | 622 | 168 | 406 |
| Number of ID | 24 | 24 | 24 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Social spending's subgroups

In this section, I will analyze whether the electoral year and the control variables affect all the subgroups that make up social spending in the same way. Given that there are no significant changes in the composition of social spending (the proportions of the subgroups within the total social spending per capita remain similar in the two subperiods), this analysis can be carried out cross-sectionally for the entire period of analysis (1993 -2020).

To determine how political budget cycles affects each subgroup of social spending, I modified equation (1) to replace the dependent variable (SS_{it}) with SSS_{qit} . This is defined as the expenditure per capita in each subgroup of the social spending. That is:

$$\log(SSS_{qit}) = a_i + \beta_{0q} \log(SSS_{qit-1}) + \beta_{1q} GubYear_{qit} + \beta_{2iq} CONTROLS_{qit} + \varepsilon_{qit} \quad (3)$$

Where i corresponds to each of the 23 Argentine provinces and the autonomous city of Buenos Aires, t represent the time measured in years from 1993 to 2020 and q represent each subgroup of the social spending.

Econometric results

[TABLE 5](#) presents the estimates for social spending using the technique for dynamic panels developed by Arellano – Bover (1995) and Bundell – Bond (1998). In each column of the table, the regression of equation (3) run for the different subgroups' social spending.

My results suggest that there is a strong manipulation of social spending by governors in some of the subgroups' social spending. This manipulation becomes more evident in the areas of “*education and culture*” and “*drinking water and sewage*”. The difference in spending on *education and culture* between the years in which there are government elections and those in which there are not is 2.87%. Furthermore, spending on *drinking water and sewage* in election years is 14% larger than in non-election years. The gubernatorial election year is significant at usual levels to explain *education and culture*, and *drinking water and sewage*. On the contrary, spending on “*other urban services*” in election years is 41.6% less than in non-election years.

TABLE 5
 REGRESSION RESULTS: SOCIAL SPENDING'S SUBGROUPS (1993 – 2020)

| VARIABLES | (1) Log Health | (2) Log Promotion and social assistance | (3) Log Education and culture | (4) Log Science and Technique | (5) Log Work | (6) Log Housing and urbanism | (7) Log Drinking water and sewage | (8) Log Other urban services |
|---|-----------------------|--|--|--|----------------------|------------------------------------|--|---------------------------------------|
| Log Health (t – 1) | 0.696*** (0.0394) | | | | | | | |
| Gub Year | 0.0199 (0.0146) | 0.0495 (0.0352) | 0.0287*** (0.00923) | 0.0332 (0.0785) | 0.0242 (0.0748) | 0.0137 (0.0282) | 0.140** (0.0633) | -0.416** (0.164) |
| GGP | 0.565*** (0.114) | -0.110 (0.233) | 0.580*** (0.114) | 0.733 (0.637) | -0.764 (0.725) | 0.369 (0.339) | 1.649*** (0.599) | -4.360 (4.801) |
| IMR | -0.298*** (0.0529) | -0.308* (0.174) | -0.113* (0.0628) | 0.295 (0.459) | 0.248 (0.519) | 0.209 (0.189) | 0.753 (0.617) | -0.318 (2.405) |
| Unemployment | -0.152*** (0.0396) | -0.0587 (0.0951) | -0.101*** (0.0306) | 0.0328 (0.280) | -0.370* (0.190) | -0.228 (0.184) | -0.967*** (0.247) | -2.174 (1.897) |
| Demanding Underemployment | 0.0391 (0.0361) | 0.105 (0.0670) | -0.0145 (0.0310) | -0.0921 (0.275) | -0.469* (0.255) | -0.0969 (0.126) | -0.275 (0.266) | 2.140 (1.961) |
| Alignment | 0.000503 (0.0125) | 0.0253 (0.0249) | -0.00827 (0.0130) | 0.0110 (0.0719) | 0.0949 (0.131) | 0.0364 (0.0393) | 0.156 (0.114) | 0.00190 (0.274) |
| Reelection Gub | 0.0104 (0.0220) | 0.0422 (0.0420) | 0.00333 (0.0140) | -0.0243 (0.105) | 0.0412 (0.0809) | -0.00237 (0.0571) | -0.115 (0.139) | 0.288 (0.303) |
| GGPdif | 0.464*** (0.0997) | 1.037*** (0.188) | 0.520*** (0.0724) | 0.858* (0.439) | 0.267 (0.398) | 1.417*** (0.221) | 0.376 (0.552) | 3.460 (2.300) |
| Log Promotion and social assistance (t – 1) | | 0.747*** (0.0477) | | | | | | |
| Log Education and culture (t – 1) | | | 0.720*** (0.0379) | | | | | |
| Log Science and Technique (t – 1) | | | | 0.548*** (0.0684) | | | | |
| Log Work (t – 1) | | | | | 0.672*** (0.0311) | | | |
| Log Housing and urbanism (t – 1) | | | | | | 0.645*** (0.0359) | | |
| Log Drinking water and sewage (t – 1) | | | | | | | 0.519*** (0.0621) | |
| Log Other urban services (t - 1) | | | | | | | | 0.657*** (0.157) |
| Constant | -0.0642 (0.445) | 2.643** (1.255) | -0.309 (0.393) | -2.787 (3.539) | 6.078 (4.497) | 0.605 (1.778) | -6.051* (3.550) | 25.49 (27.44) |
| Observations | 622 | 622 | 622 | 455 | 412 | 622 | 542 | 130 |
| Number of ID | 24 | 24 | 24 | 24 | 23 | 24 | 24 | 14 |

Robust standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

VI) Concluding remarks

This paper contributes to the PBC literature. I analyze the behavior of Argentine social spending at subnational level for two periods 1993 – 2020. I find that governors manipulate social spending. Different from Gonzalez (2017) who assures that governors do not appear to reduce social expending in election. My study also concludes that not all social spending subgroups were manipulated in the same way.

Besides, there is a large body of empirical evidence from subnational government data showing that governors, regardless of their ideology, behave opportunistically and manipulate social spending to improve the electoral chances either for themselves or their party. The econometric exercise carried out in section V provides evidence that validates what was found by González regarding the behavior of Argentine social spending. However, note that these findings are not incompatible, but rather complementary to the evidence from the political cycle literature. Which points to the opportunistic behavior of the rulers without going into the specific analysis for each subperiod (1993-2001 and 2002-2020) in which social spending per capita experiences significantly different averages.

It is important to note that these findings have important implications not only for the theoretical discussion about the effects of governor elections or PBC, but also for the social policies that define development strategies. This has special importance in developing countries and federal democracies, like Argentina.

References

- Akhmedov, A., Ravichev, A. and Zhuravskaya, E. (2004). “*Opportunistic Political Cycles: test in young democracy setting*”. Quarterly Journal of Economics, 119:1301-38.
- Alesina, A. and Paradisi, M. (2014). “*Political budget cycles: Evidence from Italian cities*”. NBER Working Paper Series 20570.
- Baum, C. (2013). “*Dynamic Panel Data estimators*”. EC 823: Applied Econometrics, Boston College.

- Bostashvili, D. and Ujhelyi, G. (2019). “*Political budget cycles and the civil service: Evidence from highway spending in US states*”. *Journal of Public Economics* 175: 17-28.
- Brender, A. and Drazen, A. (2005). “*Political budget cycle in new versus established democracies*”. *Journal of Monetary Economics*, 52 (7): 1271-1295.
- Cahan, D. (2018). “*Electoral cycles in government employment: Evidence from US gubernatorial elections*”. *European Economic Review* 111; 122-138.
- Calvo, E. and Murillo, M. (2004). “*Who Delivers? Partisan Clients in the Argentine Electoral Markets*”. *American Journals of Political Science*, 48, 4, 742-757.
- Castro, V. and Martins, R. (2015). “*Budget, expenditures composition and political manipulation: Evidence from Portugal*”. NIPE – Working Papers Series.
- Furdas, M., Homolkova, K. and Kis-Katos, K. (2015). “*Local Political Budget Cycle in a Federation: Evidence from West German Cities*”. IZA Discussion Paper Serie No. 8798.
- González, L. (2014). “*Transferencias Federales, Desigualdad Interregional y Redistribución*”. *América Latina Hoy*, 67, 167-190.
- Hanusch, M. and Magleby, D. (2014). “*Popularity, polarization, and political budget cycles*”. *Public Choice* 159: 457-467.
- Janků, J. and Libich, J. (2019). “*Ignorance isn't bliss: Uninformed voters drive budget cycles*”. *Journal of Public Economics* 173: 21-43.
- Jones, M, Sanguinetti, P. and Tomassi, M. (2000). “*Politics, Institutions, and Fiscal Performance in Federal Systems: An Analysis of the Argentine Provinces*”. *Journal of Development Economics*, 61(2): 305-333.
- Martins, R. and Veiga, F. (2011). “*Economic voting in Portuguese municipal elections*”. *Public Choice* 155: 317-334.

- Meloni, O. (2021) “*Feeding the Leviathan: political competition and soft budget constraints. Evidence from Argentine subnational districts*”. *Investigaciones Regionales – Journal of Regional Research*, 52: 119-135.
- Meloni, O. (2016). “*Electoral Opportunism and Vertical Fiscal Imbalance*”. *Journal of Applied Economics*. Vol XIX, No. 1, 145-168.
- Montero Granados, R. (2010). “*¿Cómo citar?: Panel dinámico*”. *Documentos de Trabajo en Economía Aplicada – Universidad de Granada (España)*.
- Peltzman, S. (1992). “*Voters as Fiscal Conservatives*”. *The Quarterly Journal of Economics*, 107 (2): 327-361.
- Roodman, D. (2007). “*A Short Note on the Theme of Too Many Instruments*”. *Center for Global Development, Working Paper 125*.
- Roodman, D. (2009). “*Practitioners’ corner: A Note on the Theme of Too Many Instruments*”. *Oxford Bulletin of Economics and Statistics*, 71, 1, 0305-9049.

Appendix A

TABLE A
SUMMARY OF PART OF THE BIBLIOGRAPHY

| Title | Author/s | Country | Period | Idea | About the model |
|--|--|------------------------------|--|--|---|
| Ignorance isn't bliss: Uninformed voters drive budget cycles | Jan Jankú, Jan Libich (2019) | OECD countries | 1995–2014/2000-2014 | <ul style="list-style-type: none"> In countries with uninformed voters, politicians attempt to 'buy' votes by substantially increasing government expenditures in election years. This generates budget cycles and costly macroeconomic fluctuations. In order to show how much informed voters are in OECD countries, authors built a comprehensive Informed-voter (INFOVOT) index and a yearly version of the index (YINFOVOT). | <ul style="list-style-type: none"> It examines the effect of elections (regressor) on fiscal variables (regressand) under certain conditions (different levels of the Informed-voter index). It does not examine the influence of the voters' awareness on either the general level of the fiscal balance. INFOVOT index is calculated as the weighted standard scores of each sub-indicator (provision, transmission and processing of information). It shows how many standard deviations a particular country differs from the average OECD country. YINFOVOT allows to know how was the change of the level of voters' awareness over time in some OECD countries. |
| Electoral cycles in government employment: Evidence from US gubernatorial elections | Dodge Cahan (2018) | USA (by districts) | 1990-1st quarter 2017 (quarterly info) | <ul style="list-style-type: none"> Incumbents may opportunistically design policies increasing employment before elections or postpone cuts until afterwards. Evidence that motivates the analysis: state and local government employment per capita are higher leading up to elections; afterwards, employment abruptly returns to normal. This is consistent with manipulation. | <p>Two complementary empirical strategies: 1) Author run fixed effect regressions of a general form where the dependent variable is employment per capita in the employment category of interest; 2) To help control for spatial heterogeneity, author include census division linear and quadratic time trends or census division-year-quarter fixed effects. He also implements a geographic discontinuity design that compares employment within pairs of counties that are generally similar (belonging to the same local market and experiencing similar economic fluctuations). The results are similar using either of two models.</p> |
| Economic voting in Portuguese municipal elections | Rodrigo Martins, Francisco José Veiga (2011) | Portugal (by municipalities) | 1979-2005 (panel) / 2001 (cross-section) | <ul style="list-style-type: none"> Investigate whether economic conditions affect local electoral in a way that is consistent with the responsibility hypothesis. According to the responsibility hypothesis, national economic conditions are expected to affect only the popularity and votes of the national government. | <ul style="list-style-type: none"> The empirical model for the vote functions has an autoregressive component. The dependent variable is the percentage of votes obtained in each municipality by the local incumbent government's principal party in the election for the Town Council. There is a independent variable $wich$ represents the set of r dummy variables interacting with a vector of economic variables in order to capture effects of alternative governance scenarios. It have been define three cases for r. The authors use the extended version of the GMM estimator proposed by Blundell and Bond (1998), the System-GMM estimator for linear dynamic panel data models. |
| Political budget cycles and the civil service: Evidence from highway spending in US states | David Bostashvili, Gergely Ujhelyi (2019) | USA (by states) | 1960-1995 (panel) | <ul style="list-style-type: none"> Bureaucratic organization is an important factor in determining politicians' ability or incentives to create electoral cycles in government spending. Highway spending: significant budget cycles when state bureaucracy is organized based on political patronage (more bureaucracy), but spending becomes smooth under a civil service system (less bureaucracy). | <ul style="list-style-type: none"> The main outcome of interest is per capita real highway expenditures by state governments. Our main independent variables are the merit system indicators and indicators for the gubernatorial cycle in the state. Attention was restricted to four-year cycles. |
| Popularity, polarization, and political budget cycles | Marek Hanusch, Daniel B. Magleby (2012) | | | <p>Some studies find a simple linear relationship between popularity and the magnitude of political budget cycles and some find a non-linear relationship, peaking at the point where the race for office is tight. This article presents a simple theoretical model, which suggests that party polarization may be the key mediator reconciling these alternative findings.</p> | <ul style="list-style-type: none"> The model is based on a relationship between voters (the principals) and governments (the agent) wherein the principals cannot perfectly monitor the agent's performance, resulting in a moral hazard model. This problem gives governments an incentive to "shirk". The model combines elements of the moral hazard model of political budget cycles with the argument by Alesina and Tabellini (1990) that governments may wish to borrow if they expect a challenger with different spending priorities to win. There is a voter's utility in period t. They have a maximization problem. Voters will support the candidate who is expected to be more competent. They have no information about competence of candidate b (the challenger), so they will thus form their expectations. In the case of incumbent a, voters observe the government's competence in period $t-1$. The government maximizes its expected utility for periods t and $t+1$. |
| Budget, expenditures composition and political manipulation: Evidence from Portugal | Vitor Castro, Rodrigo Martins (2015) | Portugal (by states) | 1991-1st semester 2013 (monthly data) | <ul style="list-style-type: none"> Examine the presence of political cycles in Portuguese governments' expenditures. Explore different levels and different aggregates related to fiscal policy. Veiga and Veiga (2007a) report an increase in local governments' total expenditures before elections and a change in their composition that favors items immediately visible to the electorate. This article attempts to check if this behavior of local authorities is also present at the national level of Portuguese governance. | <ul style="list-style-type: none"> Some political variables were added to the dataset to control for opportunistic and partisan effects at the two different dimensions/disaggregated levels considered in this study. Authors employ a dynamic time-series analysis where the dependent variables (Capital Expenditure, Government Budget Surplus, or each of the expenditures components) will depend upon some of their lags, the change in unemployment rate, and a set of political variables. |
| Political Budget Cycles: evidence from Italian cities | Alberto Alesina, Matteo Paradisi (2014) | Italia (by municipalities) | 2012 and 2013 (daily, monthly and annual data) | <p>The IMU ("Imposta municipale unica", unique municipal tax) is a property tax introduced in Italy in late 2011 on all 8092 municipalities. This real estate tax treated a well designed natural experiment to test the strategic choice of fiscal variables (a tax rate) in relation to elections.</p> | <p>First Model: Authors estimate the causal effect of having elections on an outcome that will be tax rates. The treatment (E) takes value 1 in cities where elections are held. There are potential outcomes for each city in the control and treatment group, and there is interest in the estimation of the average treatment effect. They must also assume that the treatment of each city does not affect the potential outcomes of other cities; and, they do not see an obvious strategic interaction between municipalities.</p> <p>Second Model: It wants to assess if the number of periods lasting to next elections can have an effect on the deliberated tax rates. A new variable is added which counts the number of years lasting to next elections for municipalities that do not elect.</p> |

| Title | Author/s | Test (some of most important) | Conclusions |
|--|--|---|---|
| Ignorance isn't bliss: Uninformed voters drive budget cycles | Jan Janků, Jan Libich (2019) | <p>Two approaches are featured as baseline: 1) Ordinary Least Squares (OLS) with Fixed Effects (FE) featuring a Within Group estimator; 2) Blundell and Bond's (1998) System Generalized Method of Moments (GMM) featuring a two-step estimator robust to panel-specific autocorrelation and heteroscedasticity, as well as Windmeijer's (2005) finite-sample correction. Additional specifications include first-differencing GMM and conventional OLS without Fixed Effects.</p> <p>Robustness tests: 1) tests the revenues and expenditures separately; 2) examines specifications featuring an alternative number of country groups and different INFOVOT thresholds, possible group-switching over time based on the time-varying YINFOVOT, interaction terms, a richer pre-election and post-election cycle, an exact within-year date of the election, jackknife resampling (excluding one country at a time).</p> | <ul style="list-style-type: none"> Ignorance is anything but bliss as far as fiscal policy goes. If voters are uninformed, budget cycles, which were shown to be costly through several studies, still exist. Jun Ríos (2022) Increase investment into the educational system would help to produce more informed voters. 'Deficit fines' for politicians: if they are penalized for budget deficits, their incentives to 'bribe' voters with additional pre-election spending would be reduced. 'Deficit tax': taxing every voting-age individual would pay a lump-sum amount in the case that the budget deficit exceeded a certain pre-announced level. That provides incentives for voters to acquire policy information. |
| Electoral cycles in government employment: Evidence from US gubernatorial elections | Dodge Cahan (2018) | <ul style="list-style-type: none"> Inclusion of interactions to test for differences across political settings. Sometimes, interactions are clearly not exogenous to local economic conditions. To better account for large baseline differences between counties in states with close elections compared to those in states without, the author include in such cases the one-year lagged dependent variable to control for recent economic conditions. A wide range of robustness and placebo tests. They are not specified in the paper. | Using both fixed effects models and a geographic discontinuity design that zooms in on county-pairs straddling state borders with different election cycles, the author finds evidence of electoral cycles in government employment (employment tends to increase leading up to elections, after which it abruptly returns to normal levels). This pattern is consistent with manipulation. |
| Economic voting in Portuguese municipal elections | Rodrigo Martins, Francisco José Veiga (2011) | <ul style="list-style-type: none"> Postestimation Wald test: it does not reject the equality of the estimated coefficients of the interaction economic variables. The cross-sectional data are used to test the responsibility hypothesis using <i>freguesia</i> and municipal level unemployment rates (using a different dataset), and as a robustness check of the panel data results. It was necessary to make changes to the base model. Authors use three alternative estimation methods that try to solve the typical problem of heteroscedasticity found in cross-section analysis: 1) the standard OLS regression with robust standard errors; 2) the weighted least squares (WLS) method; 3) Feasible Generalized Least Square (FGLS) in order to control for other unknown factors that may be causing heteroscedasticity. | <ul style="list-style-type: none"> Both national and local economic conditions influence electoral outcomes, and that the former plays a major role. Portuguese voters attach greater importance to recent economic performance than to more distant events. High rates of inflation and unemployment reduce the number of respondents who say they intend to vote for Portugal's ruling party. The inflation rate negatively affects local authorities that are not affiliated with the central government Authors do not find support for the proposition that government ideology affects the relationship between national economic performance and election outcomes. |
| Political budget cycles and the civil service: Evidence from highway spending in US states | David Bostashvili, Gergely Ujhelyi (2019) | <p>To check the robustness:</p> <ul style="list-style-type: none"> Various versions of difference GMM estimation. Findings appear robust to the use of these different estimation methods. Two alternative methods: 1) Compute two-way clustered standard errors by state and year. Results show that two-way clustering tends to decrease the standard errors of interest; 2) Authors address finite sample concerns by conducting randomization inference. In both cases they find that inference remains valid. Checking if the limited role of legislatures is also reflected in the data. The results confirm that highway spending follows the 4-year gubernatorial cycle, not the 2-year legislative cycle (confirm the importance of the executive rather than the legislature in creating spending cycles). | <ul style="list-style-type: none"> Significant budget cycles in the highway expenditures of US state governments under patronage but no cycles under civil service. Political budget cycles may be more prevalent in political systems characterized by patronage but less likely to occur under civil service. Civil service may also have a "multiplier" effect by stabilizing the policies chosen by election-minded politicians. |
| Popularity, polarization, and political budget cycles | Marek Hanusch, Daniel B. Magleby (2012) | <p>Proposition 1 is not a test, but it can summarize all the empirical predictions by the model.</p> <p>Proposition 1 Comparative statics of equilibrium pre-electoral deficit:</p> <ol style="list-style-type: none"> If polarization, $\gamma^a - \gamma^b$, is zero, the equilibrium deficit, d^*, is at its maximum when the incumbent and opponent are equally likely to win the election, $v = 0$. The equilibrium deficit, d^*, increases, as polarization, $\gamma^a - \gamma^b$, increases and $F(v) \geq 1/2$. The marginal effect of the likelihood of reelection, v, on the equilibrium deficit, d^*, increases in the degree of polarization, $\gamma^a - \gamma^b$. | <ul style="list-style-type: none"> The model suggests that linear and non-linear relationship between popularity and the magnitude of political budget cycles are intuitive and can be reconciled, conditional on the degree of polarization in the party system. Under high polarization, governments increase spending to increase expenditure on their preferred policies whilst leaving the financing to their likely successors (not to win the election). If polarization over expenditure composition is low, fiscal policy is likely to be abused for electoral gain (the temptation to increase spending before elections is largest when the race for public office is particularly tight). The model suggests that environments with low polarization should exhibit a non-linear pattern. Linear relationships should be present in polarized political environments. |
| Budget, expenditures composition and political manipulation: Evidence from Portugal | Vitor Castro, Rodrigo Martins (2015) | <ul style="list-style-type: none"> Authors start by considering as dependent variable the ratio of government capital expenditures to the total expenditures. Four lags of this variable are needed to control for the autocorrelation in the error term. Next, authors test for the presence of partisan effects. They test the traditional partisan theory using a dummy that takes value 1 for right-wing governments and -1 for left-wing ones. They test for the presence of opportunism and ideological effects concerning the government budget surplus. To make a robustness check to the overall results found, authors estimated each expenditure component considering the simultaneous inclusion of all political variables. | <ul style="list-style-type: none"> The empirical analyses revealed the existence of opportunistic and partisan effects in the expenditure, although electoral ones were found to be relatively more significant and robust. Pre-electoral expansions and post-electoral contractions are found in the expenditure, however this last effect disappears when the budget deficit is examined. The contraction of capital expenditures after elections is due to a reduction in the capital transfers and not related to variations on the Gross Fixed Capital Formation. Right-wing governments tend to be more concerned in reducing expenditures and the government deficit after the elections than left-wing ones. Also right-wing governments appear to pay more interests on debt than left-wing ones. |
| Political Budget Cycles: evidence from Italian cities | Alberto Alesina, Matteo Paradisi (2014) | <p>Robustness Tests:</p> <ul style="list-style-type: none"> As a further robustness check, authors run some regressions on the restricted sample for which they have all controls (Controls' Statistics - table 5) All results observed in the regressions are robust to the exclusion of one region at a time and the inclusion of regional fixed-effects instead of provincial fixed-effects | <ul style="list-style-type: none"> The election date in cities is staggered for reason completely unrelated to tax rate. This is evidence of this strategic manipulation. The closer the local governments were to a new election, the lower the tax rate chosen. However, the size of the cycle is smaller for cities in which deficits in 2011 were higher suggesting that budget concerns made it more difficult for cities to choose lower tax rates in that situation. The evidence on cycles is especially strong in the South of Italy which suggest that lower levels of civi... are associated with less controls of politicians who can then engage in strategic manipulations of policies. |

Appendix B

Non-parametric tests provide useful information on how each district responds fiscally before, during, and after the government elections. [TABLE B](#) shows a summary of a population inequality test (Kruskal - Wallis) and a distribution inequality test (Kolmogorov - Smirnov). The null hypothesis in both test is that social spending does not differ significantly during electoral and non-electoral periods. Note that the government elections dates are fixed in advance and rarely anticipated or postponed for more than six months, therefore, since this analysis uses annual data, they can be considered exogenous.

In [TABLE B](#), I report each district and the χ^2 obtained from each test. It is observed that, for all provinces, the null hypothesis of the tests is accepted, indicating that per capita social spending does not differ significantly in electoral and non-electoral years. At this point, the results are not consistent with the PBC hypothesis. However, it is not recommended to use these results to conclude the validity (or not) of the PBC hypothesis. First of all, nonparametric tests have asymptotic properties and my sample is relatively small. Second, there could be differences in social spending in electoral and non-electoral years that are not perceived by the test because the changes remain in the same level band.

TABLE B
 KRUSKAL–WALLIS AND KOLMOGOROV–SMIRNOV TESTS FOR GUB YEARS AND NON GUB YEARS (ARGENTINA
 1993-2020: ANNUAL DATA)

| Provinces | Social Spending | |
|---------------------|------------------|---------------------|
| | Kruskal - Wallis | Kolmogorv - Smirnov |
| CABA | 0.034 | 0.286 |
| Buenos Aires | 0.006 | 0.191 |
| Catamarca | 0.085 | 0.286 |
| Córdoba | 0.001 | 0.286 |
| Corrientes | 0.203 | 0.286 |
| Chaco | 0.001 | 0.191 |
| Chubut | 0.006 | 0.191 |
| Entre Ríos | 0.006 | 0.238 |
| Formosa | 0.057 | 0.286 |
| Jujuy | 0.310 | 0.286 |
| La Pampa | 0.034 | 0.286 |
| La Rioja | 0.158 | 0.191 |
| Mendoza | 0.085 | 0.143 |
| Misiones | 0.034 | 0.238 |
| Neuquén | 0.085 | 0.286 |
| Río Negro | 0.057 | 0.238 |
| Salta | 0.006 | 0.143 |
| San Juan | 0.001 | 0.191 |
| San Luis | 0.529 | 0.333 |
| Santa Cruz | 0.440 | 0.238 |
| Santa Fe | 0.119 | 0.238 |
| Santiago del Estero | 0.006 | 0.333 |
| Tierra del Fuego | 0.592 | 0.286 |
| Tucumán | 0.085 | 0.238 |

Notes: Values correspond to χ^2 .

***Significant at 0.01; **Significant at 0.05; *Significant at 0.10

Appendix C

TABLE C
 DEFINITION OF SOCIAL SPENDING SUBGROUPS

| Social Spending Subgroup | Definition |
|---------------------------------|---|
| Health | Inherent actions to ensure the optimal health status of the community. |
| Promotion and Social Assistance | Actions inherent to the protection and direct help to people in need, providing them with both financial and material contributions and those aimed at the reeducation and resocialization of the individual. Includes contributions to institutions with social purposes in order to provide them with the necessary means to promote their activities to benefit social development. |
| Education and Culture | Actions inherent to developing or perfecting the intellectual and moral faculties of the child or young person and to the dissemination and teaching of all aspects of human knowledge aimed at satisfying the needs of the individual. It includes intellectual, spiritual, sports and religious manifestations; public cultural shows, museums, libraries, monuments and historical places, as well as other actions aimed at providing recreation and entertainment to the population. |
| Science and Technique | Actions inherent to obtaining new knowledge or researching its applications. It includes research and development, postgraduate education for researcher training and promotion of scientific and technical activities. |
| Work | Actions inherent to the conciliation, harmony and balance of capital and work. Promotion of labor relations. Standardization and supervision of labor legislation, hygiene and safety at work, assistance and operation of professional associations of workers and employers. Studies and orientation of the potential of the workforce for the purposes of economic and social development planning. |
| Housing and urbanism | Actions inherent to the promotion of housing development in order to enable community members to access housing units. Actions aimed at ensuring adequate urban infrastructure. |
| Drinking water and sewage | Actions inherent to sanitary engineering, provision of drinking water and excreta disposal systems. |
| Other urban services | Actions inherent to other urban services such as: cemeteries, markets, parks, lighting and urban cleaning, etc. |

TABLE D
 DISTRIBUTION OF ARGENTINE GOVERNMENTAL ELECTIONS IN MONTHS (1993-2020)

| Months | Number of government elections | Percentage |
|---------------|---------------------------------------|-------------------|
| January | 0 | 0.00% |
| February | 1 | 0.60% |
| March | 6 | 3.57% |
| April | 5 | 2.98% |
| May | 24 | 14.29% |
| June | 27 | 16.07% |
| July | 6 | 3.57% |
| August | 12 | 7.14% |
| September | 29 | 17.26% |
| October | 51 | 30.36% |
| November | 5 | 2.98% |
| December | 2 | 1.19% |
| TOTAL | 168 | 100.00% |

TABLE E
 GOVERNOR ELECTION YEAR ROBUTNESS CHECKS (1993 – 2020)

| | Linear - Linear | Linear - Log | GEE | PCSE | GLS |
|------------|------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| GubYear | 510.80*** (152.37) | 500.27*** (156.00) | 546.13*** (165.27) | 507.91*** (194.49) | 470.42*** (125.04) |
| Elasticity | 0.0071 | 0.0070 | 0.0076 | 0.0071 | 0.0066 |