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1. Introduction

Formal theoretical and empirical work on the political business cycle (PBC), that is, on political determinants of macroeconomic cycles, began in the early 1970s. On the empirical side, there was Kramer's (1971) influential study of economic determinants of U.S. congressional voting, followed by the work of Tufte (1975, 1978) and Fair (1978). Nordhaus's (1975) presented a pioneering formal model of the political business cycle (PBC) due to opportunistic pre-electoral manipulation.[2]

The Nordhaus model of an opportunistic PBC, and many subsequent models, is based on monetary policy as the driving force. Expansionary monetary policy leads to a temporary increase in economic activity, followed with a lag by an increase in inflation. The models differ in the motivation of policymakers, as well as in the modeling of formation of expectations, and these differences led to very different types of politically induced economic cycles, but share a reliance on monetary surprises as the driving force.

As argued in Drazen (2000a, 2000b), PBC models that are based on manipulating the economy via surprise monetary policy are unconvincing both theoretically and empirically, and we review that evidence here. Explanations based on fiscal policy conform much better to the data and form a stronger basis for a convincing theoretical model of electoral effects on economic outcomes. In short, in many countries we see an increase in government expenditures and/or a cut in taxes at the national level before elections, rather than an electoral manipulation of monetary policy.

The apparent political fiscal cycle in many countries raises two questions of special interest for Colombia. First, do we observe a similar fiscal cycle in Colombia?

[1] We thank Lina Ladino for excellent assistance in the construction of part of our data, and the people at the Economics Studies Unit of the DNP for their support on many matters concerning this project.
[2] Drazen (2000a, chapter 7) presents an extensive discussion of these and other papers.

Second, are fiscal electoral effects stronger at the regional or local level rather than the national level? The importance of this second question extends beyond Colombia. As discussed in section 2, it has been argued that fiscal manipulation is used by politicians to affect election outcomes, but that such changes occur at the regional or local level, being observable neither in the national fiscal data nor in macroeconomic outcomes. Testing this claim empirically has been hampered by the unavailability of good data below the national level. Hence, collecting local and regional level data for Colombia and testing for the existence of a political fiscal cycle, as we do in this paper, is of great relevance not only for Colombia itself, but also for the study of political business cycles in general.

The plan of this report is the following. In the next section we present a conceptual background, reviewing the basic opportunistic political business cycle, the problems with monetary theories, and the theory and evidence supporting the existence of a political fiscal cycle. In section 3, we describe the data and the basic format of the empirical tests. As indicated above, a major contribution of this study is both the collection of regional and local data and novel use of these data to test for policy effects of elections. In section 4 we discuss the empirical results at the national level. In section 5 we consider the results for fiscal variables at the regional (state and city) level. A key result of these sections is the effect of elections on investment spending prior to the election. We look at the effects of both national and regional elections on regional level data, giving special emphasis to the question of whether the regional results reflect a response to national elections or to regional elections themselves. In these two sections we also examine more closely some of the more surprising results. The final section contains a summary and conclusions.

2. From Monetary to Fiscal Based PBCs

In an opportunistic political business cycle model, an incumbent policymaker uses economic policy to improve his chances of re-election. Since voters decide whether or not to re-elect the incumbent on the basis of macro-economic performance, in the basic model policy is used to improve the economic situation as viewed by voters. These

models are motivated by empirical studies, some of which have found that voters are especially sensitive to economic activity in the year before an election[3].

A. The Monetary Based Model

In the classic Nordhaus (1975) model, there is an equation giving the relation between changes in the rate of money growth or inflation on the one hand and economic activity on the other (a Phillips curve), so that unanticipated inflation increases economic activity and decreases unemployment. Hence, an incumbent seeking re-election engineered a surprise monetary expansion before an election, which led to a temporary increase in economic activity, followed with a lag by an increase in inflation. After the election the incumbent reversed course, using a monetary contraction to "cool down" the economy and reduce inflationary expectations, and hence set the stage for "surprise" monetary expansion in the next election.

There are a number of very basic conceptual criticisms of this approach. First, the crucial assumption is that the incumbent running for re-election controls monetary policy, an assumption that is inconsistent with independence of central banks. Second, one may question the central role assigned to inflation surprises in determining unemployment. The idea of inflation surprises as the main cause of fluctuations in economic activity does not square with our current views of determinants of economic activity, nor are inflation surprises the sole, or even the primary factor in political business cycles. A third problem specific to the Nordhaus model is its reliance on *irrational* behavior on the part of voters. Voters are naive, not simply in the way they form expectations of inflation (inflation expectations are backward-looking, that is, adaptive, which is what allows an opportunistic policymaker in the model to engineer an inflation surprise to increase economic activity before an election), but also in the way they assess government performance. Any voter who has lived through an election cycle in Nordhaus's world should not be fooled into voting for an opportunistic, manipulative policymaker. He will

[3] Several studies document the relation between economic activity before an election and votes for the incumbent. Fair (1978, 1982) finds that a one percent increase in the growth rate of real economic activity in the year of the election increases the incumbent's vote total by about one percent. Lewis-Beck (1988) found similar effects of election year economic activity in Britain, France, West Germany, Italy and Spain; Madsen (1980) reported similar results for Denmark, Norway, and Sweden.

know that the pre-election period of low inflation and high economic activity will be followed by a post-election period of both high inflation and high unemployment.

A final problem with the monetary-based model is that it gives no role to fiscal policy, while, in fact, transfers and other types of fiscal policy appear to play an important role in many episodes of pre-electoral policy manipulation. On a conceptual level, the lack of fiscal policy in an opportunistic PBC model would be surprising, as both discussions and many models of gaining political influence assign a central role to explicit or not-so-explicit transfers. The point is also empirical, for an apparent manipulation of fiscal policy is observed before elections in many countries.

There have been numerous tests of the predictions of Nordhaus's opportunistic PBC model. (See Drazen (2000a) for a detailed description of the econometric results or Drazen (2000b) for a shorter summary.) To summarize, there is a general consensus that the opportunistic PBC receives little support in the pre-electoral behavior of GNP or unemployment in developed countries. There is no significant pre-electoral increase in aggregate economic activity prior to elections in either the U.S. or the OECD countries.

B. Fiscal-Based PBCs

An alternative approach stresses fiscal policy as the key driving force in pre-electoral manipulation. Basing PBC models on fiscal rather than monetary policy addresses the three basic problems for which monetary PBC models have been criticized. First, politicians have more control over fiscal than monetary policy in countries with independent central banks, even if these are only partially independent. Second, fiscal policy has real effects on economic activity even if anticipated. Third, there are models that suggest why rational voters may be induced to vote for incumbents who increase expenditures or transfers or cut taxes before elections, independently of whether this actions actually boost economic activity in the pre-election period.

Why might increases in expenditures and transfers or cuts in taxes affect the voting behavior of rational voters? One argument, first formalized by Rogoff (1990) and Rogoff and Sibert (1988) is that the enactment of policies that appear to be opportunistically short-sighted and the influence they have on voters may be due to a *signaling* effect: voters have imperfect information about relevant characteristics of

potential policymakers, and what appear to be gimmicks have an effect because they are taken to provide relevant information about candidates for office. Specifically, a government signals its "type" by taking actions that worsen his budget situation with the notion that only someone who is very competent would put himself in that situation. Hence, upon observing such worsening of the budget, the public infers that the incumbent is more competent and, therefore, it is worth reelecting him.

A second argument here is that fiscal expansion affects electoral outcomes because expenditures or transfers are targeted to more politically "impressionable" voters, as in Dixit and Londregan (1996). To the extent that these expenditures have concentrated benefits, but widespread costs, they are termed "pork barrel" spending, which is seen as quite prevalent in most countries. (See Weingast, Shepsle, and Johnsen [1981] and the discussion in chapter 8 in Drazen [2000a].) Voters are aware of the fact that they are being targeted, and this makes them obviously more likely to vote for the incumbent. Under this view, fiscal expansion can affect voting behavior even if there are no aggregate effects, addressing the empirical criticism raised above.

Pre-electoral fiscal expansions are seen in many countries. Tufte (1978) documents a number of clear incidents of pre-electoral opportunistic manipulation of fiscal transfers in the US, both social security payments and veterans' benefits. Alesina, Cohen, and Roubini (1992), as well as Alesina and Roubini (1990), find evidence for an opportunistic cycle in transfers, though they argue that there is no evidence of fiscal cycle for instruments other than transfers. Recent studies (for example, Persson and Tabellini [2002] and Shi and Svensson [2000]) suggest that many developed countries display pre-electoral fiscal cycles, with taxes being reduced before elections. In short, there is evidence of pre-electoral increases in transfers and other fiscal policy instruments in a number of countries. In the U.S., this appears strongest prior to 1980.

It has long been argued that this effect appears especially strong in developing countries**.** In Israel, Ben-Porath (1975) shows convincingly that opportunistic policymaking in light of elections was quite consistent over the period 1952-73, with tax cuts implemented before elections, but tax increases only after. Pre-electoral fiscal manipulation was especially strong in the 1982 elections. Brender (1999) finds evidence of pre-electoral expansion in regional and local Israeli elections from the late 1980s to

mid 1990s (though argues that electoral manipulation was punished in the later elections, rather than rewarded as it had been previously). Krueger and Turan (1993) argue that pre-electoral fiscal manipulation was common in Turkey in the period 1950-1980. Pre-electoral fiscal manipulation is common in Latin America, the increase in the quasi-fiscal deficit in Mexico before the 1994 elections being but one of many examples. (Gonzalez [1999] shows the existence of an electoral cycle in government spending in Mexico over the period 1958-1997 in both presidential and congressional elections.) Several studies have found significant pre-electoral increases in public spending in India before elections.

Cross-country studies yield similar results. Ames (1987) presents a panel study of 17 Latin American countries in which he shows that over the period 1947-1982, government expenditures increased by 6.3% in the pre-election year and decreased by 7.6% in the year after the election. Schuknecht (1996) presents a comprehensive study of the political business cycle in 35 developing countries over the period 1970-92 and finds a clear significant effect of elections on the fiscal balance, but no significant effect on output. Block (2000) presents evidence of a political business cycle in both fiscal and monetary policy in a cross-section of 44 Sub-Saharan African countries. Gonzalez (1999) considers the relation between the level of democracy and the strength of the political cycle in a sample of 43 countries over the period 1950-97 and finds that the cycle is strongest in countries with intermediate levels of democracy. Shi and Svensson (2000) consider a sample of 123 developed and developing countries over the period 1975-95 and also find that a fiscal political business cycle is especially strong in developing countries.

One should note that all of these studies (with the exception of Brender [1999] use national level data, rather than regional and local level data. Since pre-electoral manipulation is often believed to take place at the local level, one would think that that is where we should see the strongest effects. By the same argument, the absence of effects at the national level need not indicate the absence of a political business cycle, since all the “action” may be at the regional or local level. This is why the collection of fiscal data and the testing for political effects on government expenditure at the regional and local level in Colombia is so important.

3. Data and Regression Description

A. Data

For both the national and regional levels we collect measures of economic policy as dependent variables, measures of economic activity as control variables, and "political dummies" -designed to capture the timing of elections- as independent variables. This section describes each set of variables in more detail.

A1. Data for the National Level

We use quarterly data for the national level, for the period 1974.1-2000.1 (105 observations). Exceptions are GDP and tax revenue, for which we only have data for the periods 1977.1-1999.4 and 1980.1-1999.4, respectively.

Table 1 lists the variables we use: the first column lists the identifier each variable receives in the results tables (although in the results a "d" will appear before the variable's name if the first difference is used), while the second describes the variable. Although the table is self-explanatory, three facts should be noted. First, the series for unemployment has missing values for 78.2, 78.4, and 80.2. We filled these gaps using the average of adjacent quarters. Second, data for population are annual, so that the measure for GDP per capita uses the same value of population for all quarters in a same year. Finally, all variables, except for transfers, current expenditure, inv+tr, and DM1, were found to have unit roots, while no relevant cointegration relations were found. Hence, except for those exceptions just mentioned, all variables are used in first differences.

The data come from different sources. The series for exchange rate comes from the Banco de la República (Central Bank), tax revenue is from the National Planning Department (DNP), M1 and government deficit are from IFS, and the unemployment series is from DANE (the National Bureau of Statistics). For GDP, no unique quarterly series exists that covers the whole period: for 1977-1995 there is a series from DNP, while the DANE has been in charge of reporting quarterly GDP data since 1994. We construct a unique series from these two. Finally, the fiscal data were constructed from reports by the Contraloría General, Revista Informe Financiero, using the figures for "Agreements" (commitments to pay in the respective period). To make the investment

series consistent over time, "regional contributions" were always included in the definition of investment. Similarly, the definition of current transfers always includes "operation contributions".

The political dummies capture the timing of national elections, specifically presidential elections. These are held every four years, in the second quarter of the election year (hence we observe 7 election quarters in our period). It should be noted, however, that congressional elections take place one quarter before presidential elections. Hence, it is impossible to separate the effects of congressional elections from those of presidential elections, at least with the methodology used in this project. We will, therefore, interpret these broadly as effects of any national level election.

Table 1: National Level Variables:

	Identifier	Variable
Policy variables (dependent variables)	gsurpl	Government surplus (Level, deflated with CPI)
	gexpen	Government Expenditure (Log, deflated with CPI)
	gcrexp	Government Current Expenditure, net of interest payments (Log, deflated with CPI)
	transf	Transfers (Log, deflated with CPI)
	invest	Investment (Log, deflated with CPI)
	inv+tr	transf+invest
	tax_rev	Tax Revenue (Log, deflated with CPI)
	m1_4dif	M1 (Log, deflated with CPI, annual difference[4])
	exchrt	Exchange Rate (Log, nominal)
Control vars.	unempl	Unemployment (Log)
	GDP	Real GDP (Log)
	GDP_pc	Real GDP per capita (Log)
Political (election)	Presidf	1 in first quarter following a President election, 0 elsewhere
	Presid1	1 one quarter before a President election, 0 elsewhere
	Presid2	1 two quarters before a President election, 0 elsewhere
	Presi12	1 one and two quarters before a President election, 0 elsewhere

[4] Our series for M1 is not stationary, but this is due to the seasonality of the series. This is why we use the annual difference.

A2. Data for the Regional Level:

The "regional level" here refers to all states and their capital cities. We have a panel of data with annual observations for each state and each capital for the period 1984-1998. There are 64 regional units (32 states and 32 capital cities[5]), for a total sample size of 960 observations.

The different variables we use are listed in Table 2. The GDP data are from DANE. It should be noted, however, that we only have data for state-level GDP. Hence, while for a given state the variable GDP does correspond to the GDP of that regional unit, for a city this variable corresponds to the GDP of the state in which the city is located. Also, GDP for new states[6] is only reported since 1995. Previously, only the sum for all new states was reported. We impute pre-1995 GDP for these new states using the average 1994-1996 participation of each state in the total GDP for new states, and this total value[7].

The fiscal data come from the Contraloría General, and correspond to the figures in the financial report each regional unit files with the Contraloría annually. The Contraloría acts as an auditor of these reports, so the data are expected to be of very high quality. The reports contain a detailed description of the revenues and expenditures of the regional government, so disaggregate measures are available. In particular, we use a broad disaggregation of expenditures, dividing them into current expenditure and investment expenditure. Within the former category, we also extract data for the subcategory "transfers", which captures pensions and other non-wage items of the salary bill, as well as other targeted expenses.

In the regional level exercises we use, as we do for the national level, a political dummy capturing the timing of presidential elections. However, in this case we also use a dummy capturing regional elections. This variable is defined with respect to the timing of elections of the highest official in the respective regional unit (the mayor for a city, and

[5] There is no capital city for the "departamento" of San Andrés and Providencia, while Bogotá is a capital city that belongs to no "departamento".

[6] The "new states" are states that were previously classified as "intendencias" or "comisarías" (until the 80's the Colombian political division did not give the status of state to all regional units). These are: Amazonas, Arauca, Casanare, Guanía, Guaviare, Putumayo, San Andrés y Providencia, Vaupés, y Vichada.

[7] Imputing these values is potentially problematic. Hence, as discussed below, we will perform all our empirical exercises both including and excluding these new states. We obtain similar results for both cases.

the governor for a state). It should be mentioned that mayors are only elected by popular vote since 1988, while governors are elected only since 1991. Regional elections are held every three years, and governors and mayors are elected at the same time. Meanwhile, national elections are held every four years, at a date different that that of regional elections. As a result, for the 15-year period we have 5 regional-election years, and 4 national-election years. Overall, we have 8 years with either regional or national elections.

Table 2. Regional level variables

	Identifier	Variable
Policy Variables	expendt	Government Expenditure (Log, deflated with CPI)
	currexp	Government Current Expenditure (Log, deflated with CPI)
	investm	Investment (Log, deflated with CPI)
	transfr	Transfers (Log, deflated with CPI)
	taxrev	Tax Revenue (Log, deflated with CPI)
Control Variables	GDP	Real state GDP (Log)
Political (election) Dummies	presidnt	1 in year preceding a President election, if election is in first semester. 1 in same year as a President election, if election is in second semester
	reg_elec	1 in year preceding a regional election, if election is in first semester(mayor election if the "region" is city, governor election if the "region" is state). 1 in same year as a regional election, if election is in second semester.
	pres_for	1 in same year as a presidential election, if election is in first semester. 1 in year following a presidential election, if election is in second semester.

B. Regression Formulation

B.1. Regressions with the National Level Data:

Using the national level data, we run regressions of the following general form:

$$y_t = \alpha + \delta I_t + \beta x_{t-1} + \gamma d_t + \sum_{s=1}^{l*} \phi_s y_{t-s} + \varepsilon_t \qquad \textbf{(1)}$$

where y_t is a policy variable, x_t is a control variable and the d_{kt}'s are political dummy variables, as listed in table 1. I_t=1 for variables that were found to be trend-stationary (transfers, current expenditure, DM1, and inv+tr), and I_t=0 in all other cases. The number of lags of the dependent variable, $l*$, is chosen optimally according to the Akaike criterion.

The coefficients γ_k capture the effect of the timing of elections, which is the one in which we are interested. In our discussion of the results, therefore, the focus will be on these coefficients.

The auto-regressive specification for the policy variable is adopted as a parsimonious representation of its time series behavior, instead of using a full structural model. However, we also include an economic-activity control variable to try to account, as much as we can with the very limited data available for the period, for all the variation in the policy variable not due to the timing of elections. These control variables are intended to capture the size of the economy around the respective period. Note that we use them lagged one period with respect to the dependent variable to avoid a potential endogeneity problem. As a robustness check, we also run regressions with the control variable entering contemporaneously.

B.2. Regressions with the Regional Level Data:

At the regional level, we run regressions of the form:

$$y_{it} = \alpha_i + \beta x_{it-1} + \delta y_{it-1} + \sum_{k=1}^{D} \gamma_k d_{kt} + \varepsilon_{it} \qquad \textbf{(2)}$$

The notation is the same as in equation **(1)**, adding an index **i** for each regional unit. The errors are robust to heteroscedasticity (White's method). Notice that here we only include one lag of the dependent variable, due to the small number of periods we have. Notice also that D (the number of political dummies in the regression) can be greater than one because we use regional and/or national level elections, and pre- and/or post- election periods.

We run this regression for different subsets of the regional data: pooling all regional units, using only cities, using only states, using only old states and their capital cities, using only old states.

4. Effects of the Electoral Cycle on Economic-Policy variables: the National Level

At the national level, we used quarterly data for the period 1974.1 to 2000.1 when available. As mentioned above, the exceptions are the data for GDP, which was available only for 1977.1 to 1999.4 and the data for tax revenue, available only for 1980.1 to 1999.4. The policy and control variables are summarized in Table 1 in section 3A, and the regression equation is equation **(1)**.

Regression results for the coefficient on the political dummy are presented in Tables 3 through 6 (one table for each political cycle dummy). Each row in these tables represents a different regression, characterized by a different dependent variable and a different control variable. The dependent variable relevant in each case is listed in the second column, and the control variable in the third column. The fourth column presents the estimate obtained for γ -the coefficient on the political dummy- in each regression, with its standard error in the fifth column. The last column lists the optimal number of lags of the dependent variable included in each regression. A ** represents significance at the 1% level, a * represents a result that is significant at the 5% level, and a ~ stands for significant at the 10% level. The units of each variable are as listed in Table 1. We do not report here the results from entering the control variable contemporaneously[8], but in most cases the magnitude, direction, and significance of the results do not differ in any important manner from those we do report. We specifically note in the text all those cases in which there is any difference.

It should be noted that the fit of the regressions is in general good, with R-squares in the neighborhood of 0.65-0.88. Our first main result at the national level is the absence of any pre- or post-electoral political cycle for both monetary variables and aggregate fiscal variables. This is evidenced in the results for M1 (rows 1-3 in the tables), exchange rate

[8] Tables with the full set of results are available from the authors upon request.

(rows 4-6), total government expenditure (rows 10-12), and government surplus (rows 7-9), although for the last we do find some non-robust and mildly significant evidence of a expansionary cycle. Similarly, we find no political cycle in tax revenues (rows 25-27). These results are robust to the control variable used, the political cycle dummy, and the timing of the control variable (lagged or contemporaneous). The absence of a pre-electoral monetary cycle over a relatively long sample is consistent with findings for many other countries. It is also consistent with the view presented above that if there is an opportunistic political business cycle, it is not observed in monetary policy.

The absence of a pre-electoral cycle in total government expenditure is perhaps more surprising, but not inconsistent with the general arguments presented above. First, a model of targeted expenditures or transfers suggests that we may see a political cycle in the components of expenditure, though not necessarily in total expenditure. We return to this point in the next paragraph. Second, as was argued, fiscal changes to affect election results may be seen at the regional or local rather than the national level. We return to this effect in the next section.

The view that we may see a political cycle in components of government expenditure rather than in the total is supported by the data. At the national level we obtain a strong result for capital investment (rows 16-18). Investment is found to be significantly higher two quarters before a presidential election, and, in some regressions, also in the quarter immediately before the election. The magnitude of the effect implies that the growth rate of investment almost doubles in the quarters preceding an election (remember that the variable is expressed in first differences of the log), and the effect is significant at the 5%, sometimes the 1%, level.

Table 3. National Level: Results for the existence of a pre-electoral cycle one and two quarters before the election (*dt = Presid12*).
Each row is a different regression.

	Depend. (policy) Variable	Control	γ (coeff. on political dummy)		Stand. Error	Lags dep. var.
1	M1_4dif	gdp	0.005		0.026	4
2	M1_4dif	gdp_pc	0.004		0.026	4
3	M1_4dif	unempl	0.005		0.024	4
4	dexchrt	gdp	0.002		0.009	3
5	dexchrt	gdp_pc	-0.002		0.009	4
6	dexchrt	unempl	0.003		0.008	3
7	dgsurpl	gdp	-1.633		1.004	3
8	dgsurpl	gdp_pc	-1.624		1.016	3
9	dgsurpl	unempl	-1.078		0.892	3
10	dgexpen	gdp	0.149		0.102	3
11	dgexpen	gdp_pc	0.148		0.102	3
12	dgexpen	unempl	0.068		0.105	3
13	gcrexp	gdp	0.141		1.759	0
14	gcrexp	gdp_pc	0.262		1.496	0
15	gcrexp	unempl	-1.021	**	0.369	0
16	dinvest	gdp	0.849	**	0.275	3
17	dinvest	gdp_pc	0.843	**	0.275	3
18	dinvest	unempl	0.5628	*	0.262	4
19	transf	gdp	1.382		3.065	1
20	transf	gdp_pc	0.331		2.588	1
21	transf	unempl	-1.354	*	0.615	3
22	inv+tr	gdp	-0.780		2.203	1
23	inv+tr	gdp_pc	0.894		1.851	1
24	inv+tr	unempl	-1.492	**	0.452	1
25	dtax_rev	gdp	0.046		0.044	4
26	dtax_rev	gdp_pc	0.047		0.044	4
27	dtax_rev	unempl	0.043		0.045	4

** Significant at 1% level
* Significant at 5% level
~ Significant at 10% level
A "d" before the name of the variable means that the variable is expressed in first differences.

Table 4. National Level: Results for the existence of a pre-electoral cycle one quarter before the election (*dt = Presid1*).
Each row is a different regression.

	Dependent (policy) Variable	Control	γ (coeff. on political dummy)		Stand. Error	Lags dep. var.
1	M1_4dif	gdp	0.026		0.038	4
2	M1_4dif	gdp_pc	0.025		0.038	4
3	M1_4dif	unempl	0.040		0.034	4
4	dexchrt	gdp	-0.008		0.012	3
5	dexchrt	gdp_pc	-0.008		0.012	4
6	dexchrt	unempl	-0.006		0.010	3
7	dgsurpl	gdp	-0.637		1.444	3
8	dgsurpl	gdp_pc	-0.579		1.459	3
9	dgsurpl	unempl	-0.093		1.236	3
10	dgexpen	gdp	0.141		0.141	3
11	dgexpen	gdp_pc	0.140		0.141	3
12	dgexpen	unempl	0.018		0.143	3
13	gcrexp	gdp	0.125		1.754	0
14	gcrexp	gdp_pc	0.301		1.469	0
15	gcrexp	unempl	-0.997	**	0.358	0
16	dinvest	gdp	0.751	~	0.406	3
17	dinvest	gdp_pc	0.742	~	0.406	3
18	dinvest	unempl	0.250		0.376	4
19	transf	gdp	1.345		3.050	1
20	transf	gdp_pc	0.332		2.556	1
21	transf	unempl	-1.295	*	-0.598	3
22	inv+tr	gdp	-0.601		2.233	1
23	inv+tr	gdp_pc	1.219		1.863	1
24	inv+tr	unempl	-1.557	**	0.440	1
25	dtax_rev	gdp	-0.003		0.061	4
26	dtax_rev	gdp_pc	-0.005		0.062	4
27	dtax_rev	unempl	-0.009		0.062	4

* Significant at 5% level
** Significant at 1% level
~ Significant at 10% level
A "d" before the name of the variable means that the variable is expressed in first differences.

Table 5. National Level: Results for the existence of a pre-electoral cycle two quarters before the election (*dt = Presid2*).

Each row is a different regression.

	Depend. (policy) Variable	Control	γ (coefficient on political dummy)	Stand. Error	Lags dep. var.
1	M1_4dif	gdp	-0.016	0.037	4
2	M1_4dif	gdp_pc	-0.016	0.038	4
3	M1_4dif	unempl	-0.030	0.034	4
4	dexchrt	gdp	0.011	0.012	3
5	dexchrt	gdp_pc	0.011	0.012	3
6	dexchrt	unempl	0.011	0.010	3
7	dgsurpl	gdp	-2.5010 ~	1.379	3
8	dgsurpl	gdp_pc	-2.5177 ~	1.389	3
9	dgsurpl	unempl	-1.909	1.209	3
10	dgexpen	gdp	0.145	0.143	3
11	dgexpen	gdp_pc	0.143	0.143	3
12	dgexpen	unempl	0.109	0.143	3
13	gcrexp	gdp	0.037	1.767	0
14	gcrexp	gdp_pc	0.064	1.495	0
15	gcrexp	unempl	-0.8949 *	0.366	0
16	dinvest	gdp	0.8673 *	0.387	4
17	dinvest	gdp_pc	0.8667 *	0.386	4
18	dinvest	unempl	0.7935 *	0.353	4
19	transf	gdp	1.298	3.061	1
20	transf	gdp_pc	0.144	2.579	1
21	transf	unempl	-1.206	0.607	3
22	inv+tr	gdp	-0.790	2.188	0
23	inv+tr	gdp_pc	0.870	1.836	1
24	inv+tr	unempl	-1.4358 **	0.445	1
25	dtax_rev	gdp	0.088	0.060	4
26	dtax_rev	gdp_pc	0.091	0.060	4
27	dtax_rev	unempl	0.087	0.061	4

* Significant at 5% level
** Significant at 1% level
~ Significant at 10% level
A "d" before the name of the variable means that the variable is expressed in first differences.

Table 6. National Level: Results for the existence of a post-electoral cycle one quarter after the election (*dt = Presidf*).

Each row is a different regression.

	Dependent (policy) Variable	Control	γ (coefficient on political dummy)	Stand. Error	Lags dep. var.
1	M1_4dif	gdp	0.041	0.034	4
2	M1_4dif	gdp_pc	0.042	0.035	4
3	M1_4dif	unempl	0.043	0.034	4
4	dexchrt	gdp	-0.016	0.011	3
5	dexchrt	gdp_pc	-0.015	0.011	4
6	dexchrt	unempl	-0.014	0.010	3
7	dgsurpl	gdp	0.326	1.319	3
8	dgsurpl	gdp_pc	0.318	1.330	3
9	dgsurpl	unempl	0.198	1.240	3
10	dgexpen	gdp	-0.029	0.128	3
11	dgexpen	gdp_pc	-0.032	0.129	3
12	dgexpen	unempl	-0.042	0.139	3
13	gcrexp	gdp	0.136	1.749	0
14	gcrexp	gdp_pc	0.273	1.476	0
15	gcrexp	unempl	-0.891 *	0.356	0
16	dinvest	gdp	0.275	0.351	4
17	dinvest	gdp_pc	0.271	0.354	4
18	dinvest	unempl	0.263	0.348	4
19	transf	gdp	1.339	3.065	1
20	transf	gdp_pc	0.231	2.568	1
21	transf	unempl	-1.180	0.593	3
22	inv+tr	gdp	-0.581	2.236	1
23	inv+tr	gdp_pc	1.275	1.870	1
24	inv+tr	unempl	-1.526 **	0.436	1
25	dtax_rev	gdp	-0.017	0.060	4
26	dtax_rev	gdp_pc	-0.018	0.060	4
27	dtax_rev	unempl	-0.015	0.060	4

* Significant at 5% level
** Significant at 1% level
~ Significant at 10% level
A "d" before the name of the variable means that the variable is expressed in first differences.

Somewhat more puzzling are the results for transfers (rows 19-21). We find that, no matter which political dummy is used (that is, one quarter, two quarters, or both one and two quarters before the election), there is a strong *negative* pre-electoral effect on transfers when unemployment is used as a control variable. Although this effect is not robust to the change in control variables, we stress it here because we find a similar result with the regional-level data. Interestingly, Maria Gonzales has a similar finding for the case of Mexico (Gonzales (2001), tables 2 and 3): in the baseline PBC model, which is the one estimated here, the growth of current transfers falls significantly previous to the elections.

One possible explanation for this finding is that cuts in transfers two quarters before the election "make room" for increases in investment, so that the overall budget is not significantly affected. The rationale for this type of behavior is, again, related to the "pork-barrel-politics" hypothesis: an increase in spending resulting from an electoral motivation should be focused on the items that generate the most political benefits (like investment). If the politician is also worried about the perception the general public has about how competent an official he is, other items with less political impact (less concentrated benefits) can be used to soften the effect of that increase in, say, investment on the overall budget. Although this is the only plausible explanation we have found for this result, it is not free from problems. First, there is the fact, already mentioned, that the effect on transfers is not robust. Second, the very nature of the items registered under the "transfers" account (pensions and other non-wage contributions, as well as some contributions to the operation of regions) makes this account less suitable than others for manipulation from the part of politicians. Hence, this result demands further research[9].

We found no *post*-electoral effects on any of the fiscal variables (see Table 6), either on the expenditure or on the revenue side.

To summarize the national level results, the absence of a political monetary cycle seems quite clear. The evidence on the fiscal side, for an increase in expenditures or a cut in taxes seems quite mixed at best. However, we find strong evidence of an increase in

[9] An alternative explanation of this finding is that we are picking up seasonal components of transfers with our election variables. However, as we will discuss later, the result is particularly strong for our regional data, which is annual. Moreover, the timing of elections (both in terms of the time of the year in which they are held and in terms of their frequency) is very different for national and regional elections, and we find the

investment in the two quarters before the election. This is consistent with the view that voters may be strongly influenced by expenditure on specific projects, which may be "pork barrel" spending as mentioned in section 2. If so, this should turn up strongly in the regional data. For the case of Colombia, many economists believe that a political business cycle is more likely to show up at the regional than the national level. We now turn to the regional level results.

5. Effects of the Electoral Cycle on Economic-Policy variables: the Regional Level

Regional data are quite important in studying the opportunistic PBC both in general and in Colombia in particular. This is motivated by the belief that fiscal manipulation for electoral purposes in Colombia is more likely to occur at the local or the state level. This would reflect, among other things, the less strict regulations that constrain expenditure by regional governments and the greater ease in targeting relevant groups of voters. Regional officials may be interested in manipulating government expenditure when a national election is approaching since they are in general members of the parties that compete for the presidency or for Congress. Hence, we might expect some components of regional spending to increase in the months before a national election. Alternatively, it may be that there is a PBC, but one characterized by the effects on regional spending being most influenced by regional elections.

On the regional level we test for a political cycle in regional expenditure and its components. We test the effects of both regional (mayoral or gubernatorial) and national (presidential) elections, first having only one or the other political dummy in any regression, then running regressions with both dummies[10]. The data frequency for the economic policy and control variables is annual, so we cannot test for political effects one or two quarters before the election as we did on the national level. Annual data makes it more difficult to isolate pre-electoral and post-electoral effects, since one must be careful

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effect on transfers for both cases.

[10] In view of a potential missing-variable bias, the preferred specification should be the one that tests for both pre- and post- electoral effects simultaneously. However, we will also present the results of the separate regressions for two reasons: One, a major contribution of this paper is the study of the effect of regional versus national elections. Two, as discussed below in the text, with annual data the identification of post- versus pre-electoral effects is difficult. This plays a note of caution about the inclusion of both dummies in the same regression.

about when in the year the election is held. Given the timing of regional elections (held either on quarter 1 or quarter 4 of a year), this should not be a major problem for regional elections. However, it could affect the results at the national level: since national elections are held in the second quarter, the post election dummy actually covers also one quarter before the election. As a result, caution must be exercised when interpreting the results of regressions that include the post-electoral dummy.

A. Effects of Regional Elections Alone

We begin with pre-electoral effects of regional elections. The regression equation is equation **(2)**, with *reg_elec* being the only dummy in the regression. As indicated above, we run the regression for different subsets of the data. We only report the results obtained for all states, all cities, and the pool of all cities and states. However, the results for only "old" states, and only cities in "old" states do not differ in any important manner. The little difference between regressions with all states and regressions only with old states indicates that the imputation of GDP for new states (as discussed in section 3) does not appear to be affecting the results.

Overall, the fit in these regressions is good, with the non-political control variables highly significant in all regressions, and the R^2 measuring overall fit between .8 and .95, depending on which component of government expenditure is considered. Specific results for γ_1, the coefficient on the political dummy reg_elec, are reported in Table 7. This table presents results only for all states and all cities, and with the control variable lagged, but (unless otherwise noted in the text) these results are robust to the change to contemporaneous control variable and to the change of the sample to a subset of the data. When interpreting the results, remember that the policy variables are expressed in logs. As with previous tables, a ** marks significance at the 1% level, a * marks significance at the 5% level, and a ~ is for significance at the 10% level.

We begin with the results for total expenditure. Unlike the national level results, where there was no significant political cycle for total government expenditure, we do observe a pre-electoral cycle at the regional level. No matter which subset of the data or timing of the control is used, there is a positive increase in total expenditure, with significance of 10% or better.

Table 7. Regional Level: Results using a regional election dummy (*d_{1t}=reg_elec*)

Sample	Dependent (policy) variable	γ_1 (coefficient on d_{1t})	Stnd. error
All	Total expenditure	0.060 *	0.027
	Current Expenditure	-0.060 **	0.022
	Investment	0.230 **	0.054
	Transfers	-0.376 **	0.080
	Investment + Transfers	0.093 *	0.042
	Tax Revenue	-0.018	0.019
Cities	Total expenditure	0.055 ~	0.032
	Current Expenditure	-0.025	0.024
	Investment	0.162 **	0.063
	Transfers	-0.211 **	0.077
	Investment + Transfers	0.100 *	0.051
	Tax Revenue	-0.012	0.027
States	Total expenditure	0.090 ~	0.048
	Current Expenditure	-0.0812 *	0.037
	Investment	0.422 **	0.105
	Transfers	-0.644 **	0.199
	Investment + Transfers	0.136 ~	0.075
	Tax Revenue	0.010	0.020

** Significant at the 1% level.
* Significant at the 5% level.
~ Significant at the 10% level

In terms of disaggregate categories of expenditure, investment is also found to rise significantly prior to regional elections, by a very large amount. These results are broadly consistent with what we found for the national level. The magnitudes of these effects are, for the pool of all states and cities, about 7% increase for total expenditures and about 23% increase for investment. As in the national level regressions, the investment effect is large.

As in the national level data, we obtain the surprising result that the political dummy has a negative effect on transfers. This result appears in all of our regressions (both different subsets of data and timing of the control) and is always significant, often at the 1% level. In the national level data, we obtained a similar result only when using unemployment as a control variable, but not when using GDP as the control. These results at the regional level suggest that the effect may indeed be robust. Different from the national case, however, in the regional level it seems to be the case that the change in

transfers is outweighed by the change in investment, as indicated by the positive effect on total expenditure and in the sum of transfers and investment. In any case, as explained for the national level, we still have no clear explanation for the negative effect on transfers. Turning next to the effect of elections on total current expenditures, we obtain a negative relationship, but this result is not robust across different subsets of the data. The fact that some of our results indicate that current expenditures fall in pre-electoral periods probably reflects the negative effect on transfers reported in the previous paragraph, since transfers are a component of current expenditures.

B. Effects of Presidential Elections at the Regional Level

We now consider the pre-electoral effect of presidential elections alone on the regional level fiscal data (regression **(2)** with *presidnt* as the only political dummy). The results for are summarized in Table 8, which, as above, only discusses results for the case of lagged control variable and all states and cities pooled. Unless otherwise stated in the text below, these results are robust to the use of subsets of the sample and to the change to contemporaneous control variable.

Broadly speaking, the results indicate milder effects of the national level elections. There is a positive effect on total expenditure, but it is not consistent to the change in regional units (seems to be important only for states). The effect on regional public investment also disappears. There is generally no significant effect on current expenditure and a significant and large negative effect on transfers, which is consistent with the results on transfers found previously.

Interestingly, presidential elections seem to have a *positive* pre-electoral effect on tax revenue, which was not affected by regional elections. This difference between the effects of national and regional elections suggests that each of these political dummies captures a somewhat different phenomenon, indicating the importance of using both variables in the regression. We now turn to these results.

Table 8. Regional Level: Results using a national election dummy (*d_{1t}=presidnt*)

Sample	Dependent (policy) variable	γ_1 (coefficient on d_{1t})	Stnd. error
All	Total expenditure	0.048 *	0.023
	Current Expenditure	-0.004	0.017
	Investment	0.085	0.052
	Transfers	-0.401 **	0.069
	Investment + Transfers	0.035	0.038
	Tax Revenue	0.083 **	0.017
Cities	Total expenditure	0.019	0.034
	Current Expenditure	-0.011	0.026
	Investment	0.063	0.070
	Transfers	-0.474 **	0.089
	Investment + Transfers	-0.013	0.052
	Tax Revenue	0.116 **	0.029
States	Total expenditure	0.077 **	0.030
	Current Expenditure	0.004	0.025
	Investment	0.102	0.076
	Transfers	-0.323 **	0.103
	Investment + Transfers	0.081	0.052
	Tax Revenue	0.043 **	0.015

** Significant at the 1% level
* Significant at the 5% level
~ Significant at the 10% level

C. Results Using both Regional and National Elections

We begin with the regression with political dummies only for pre-elections periods. We ran regressions in which both political dummies for regional and presidential elections are included (*d_{1t}=presidnt*, *d_{2t}=reg_elec*), trying to identify the effect of regional elections when national elections are controlled for, and vice versa. Given that the regressions for cities and states separately in general do not yield important differences, we only ran this regression pooling all cities and states. The results for the coefficients on national and regional elections, γ_1 and γ_2 respectively, are presented in Table 9. As before, these are only the results from entering the control variable lagged, but they are not significantly affected by shifting to the contemporaneous control.

Table 9. Regional Level: Results using both national and regional election dummies (d_{1t}=*presidnt*, d_{2t}=*reg_elec*). All states and cities pooled.

Dependent (policy) variable	γ_1 (coefficient on presidnt)	Standard error	γ_2 (coefficient on reg_elec)	Standard error
Total expenditure	0.038 ~	0.023	0.051 ~	0.027
Current Expenditure	0.006	0.017	-0.057 **	0.021
Investment	0.042	0.054	0.221 **	0.057
Transfers	-0.350 **	0.061	-0.308 **	0.071
Investment + Transfers	0.017	0.038	0.089 *	0.043
Tax Revenue	0.090 **	0.018	-0.039 ~	0.021

** Significant at the 1% level.
* Significant at the 5% level.
~ Significant at the 10% level

Regional elections are still found to have a positive and significant impact on total expenditure and investment, and a negative effect on transfers and current expenditure. The magnitude of these effects is large: during prior to regional elections total expenditures rise about 5%, investment rises about 22%, transfers fall 30% and net current expenditures fall 6%. The positive effect on investment outweighs the negative effect on transfers, as can be seen from the fact that the sum of investment and transfers is positively affected by the regional election dummy, and total expenditures are positively affected (although only with mild significance). Hence, besides the specific increase in investment, there appears to be an overall expansionary effect.

With a regional pre-election dummy in the regressions, presidential elections are still associated with a slightly significant increase in total expenditures (of about 4%) and a fall in transfers (of about 35%). On the other hand, with both political dummies in the regression equation, we see a significant negative pre-electoral effect of regional elections on net current expenditures, but no significant effect of presidential elections. The positive effect on investment is also significant only for regional elections.

With both political variables included in the investment equation, the effect of regional elections remains statistically significant and economically large, but presidential elections lose statistical significance. This is in contrast to the effect to the effect of national elections on the national level data reported in section 4. Hence, it

appears to be the case that it is in fact regional elections that affect investment by the local and state governments. Notice the inconsistency between the lack of a significant effect in these regressions of the presidential dummy on either investment or net current expenditures, and the significant positive effect on total expenditures[11]. Our view is that the positive effect of national level elections on total expenditure should be taken with caution.

On the revenue side, tax revenues fall in the period preceding a regional election (-4%, although only with marginal significance) and increase in the period preceding a presidential election (9%). Both effects are significant at the 5% level. The regional effect is consistent with a basic view of pre-electoral fiscal manipulation. The effect of the dummy for presidential elections is hard to explain, but consistent with what we found using only national level elections.

One key question that we raised at the beginning of this section on regional effects is whether the effects on regional spending that are observed are responses to national elections or to regional elections. Although our results show some inconsistencies, our view on the basis of the results we have is the latter. The main electoral effects that are observed seem to be the effect of regional elections, and they are consistent with a pork-barrel-politics view of electoral manipulation of the fiscal variables.

We also ran regressions that included dummies for both pre- and post-election periods[12], where d_{1t}=*presidnt,* d_{2t}=*reg_elec,* d_{3t}=*pres_for,* d_{4t}=*reg_for*. As above, these are only for the full set of regional units, that is, pooling cities all and states. Table 10 presents this results for the case in which the control variable is lagged.

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[11] Of course, total expenditure not only includes net current expenditure and investment, but also interest payments. However, there is no reason why these payments could vary with the electoral cycle. In fact, when we run regression (2) using interest payments as dependent variable, none of the election dummies has a significant effect (results in diaryinterest.txt).

[12] As stressed in section 3, a note of caution in interpreting the post-electoral effects should be considered: the data here are annual, so the post-electoral dummies for national elections may be capturing both pre and post election periods. The same does *not* apply for the pre-electoral national dummies, or for the dummies for regional elections,as discussed in the text.

Table 10. Regional Level: Results using both national and regional election dummies (d_{1t}=*presidnt*, d_{2t}=*reg_elec*, d_{3t}=*pres_for*, d_{4t}=*reg_for*). All states and cities pooled.

Dependent (policy) variable	γ_1 (coeff. on president)		Stnd. error	γ_2 (coeff. on reg_elec)		Stnd. error	γ_3 (coeff. on pres_for)		Stnd. error	γ_4 (coeff. on reg_for)		Stnd. error
Total expenditure	0.024		0.027	0.022		0.032	0.006		0.029	-0.067	*	0.033
Current Expenditure	-0.006		0.021	-0.086	**	0.024	0.009		0.019	-0.065	*	0.026
Investment	0.030		0.059	0.196	**	0.068	0.007		0.053	-0.058		0.067
Transfers	-0.446	**	0.068	-0.390	**	0.084	-0.096	~	0.054	-0.234	**	0.076
Investment + Transfers	0.005		0.045	0.048		0.051	0.026		0.042	-0.092	~	0.052
Tax Revenue	0.069	**	0.019	-0.076	**	0.024	0.003		0.020	-0.086	**	0.025

** Significant at the 1% level.
* Significant at the 5% level.
~ Significant at the 10% level

With the inclusion of four political dummies (pre- and post-election dummies for both regional and presidential elections), we find that the pre-electoral effect of either type of election on total expenditure is no longer significant. There is however a negative post-electoral effect of regional elections, that is, total expenditure falls after regional elections. Both problems in timing of post-electoral effects (see footnote 4) and possible problems of distinguishing various electoral effects when four political dummies are included in our regressions suggests we need to be careful in interpreting these and subsequent results.

The effects of the pre-electoral regional political dummy on investment, transfers and tax revenue that we found previously are robust to the introduction of post-electoral dummies in the same regression. Consistent with the regressions using only pre-electoral variables, presidential elections appear to have no effect on investment in equations including regional elections. One may also note that the post-electoral effect of regional elections on investment is negative (investment expenditures fall in the year after

elections), though this effect is statistically insignificant. A similar result arises in regressions with only regional pre- and post- electoral dummies (nor reported here).

We do find that transfers, and therefore current expenditure, fall both before *and* after the regional elections. To our minds, this still leaves a puzzle as far as what is happening with the transfer data. We also find that tax revenues *fall* after a regional election, a result that is also puzzling.

6. Conclusions

The political business cycle in fiscal policy observed especially in developing countries raises two questions of special interest for Colombia. First, do we observe a similar fiscal cycle in Colombia? Second, are fiscal electoral effects more at the regional or local level rather than the national level? As we indicated in the introduction, the importance of this second question extends beyond Colombia, since many researchers (and politicians) argue that political effects on fiscal spending, especially on infrastructure and new projects, is strongest at the local or regional level, rather than the national level.

To test this proposition obviously requires good data. Hence, a significant part of the contribution of this project is in the use of reliable fiscal data for Colombia at the local and regional level data. This should be of great value to any researcher interested in government policy in Colombia. It is of broader interest as well. There has been relatively little testing of this argument across countries due to the unavailability of good data below the national level. Hence, this project should be of great relevance not only for Colombia itself, but also for the study of political business cycles in general.

Our results indicated some significant political effects. At the national level, we found no evidence of a political cycle in either monetary aggregates or the exchange rate. The evidence for a political cycle in overall expenditures or taxes seems quite mixed at best. However, we do find very strong evidence of an expansion in investment by the government prior to elections. This effect is large in size and statistically significant, and is robust to changes in control variables. There is also evidence of pre-electoral decreases in transfers, a finding that was also found for Mexico by Gonzales (2001).

This pattern of investment expansion and transfers contraction seems to be consistent with a view in which investment expenses are more effective in generating political support than other types of expenditure. Hence, politicians may prefer expanding investment, while contracting other types of investment (transfers in this case) to avoid a sharp increase in the overall budget, which may also be politically harmful. There are, however, problems with this argument, such as characteristics of transfers and Colombian regulations that limit the space politicians have to manipulate transfer expenses. Further work is therefore needed to prove or disprove this hypothesis, and to arrive at a plausible explanation of our result on transfers.

At the regional level we do observe a significant political cycle for total government expenditure. We also observe, as we did in the national level, an electoral cycle at the regional level in investment, with quite large (on the order of 20-25%) and significant increases before regional elections. By comparing the effects of regional and presidential elections on regional expenditure, we conclude that it is the former that drives the investment and total expenditure results. On the negative side, we obtain the surprising result, as in the national level data, that the political dummy has a negative effect on transfers. Again, we have no good explanation for this effect, other than the one postulated above.

The effect of regional elections on investment is worth stressing, as it gives support to the view that pre-electoral manipulation may be seen in investment expenditures at the local level. It is here that the project seems to have yielded the greatest returns, since the investment effect that is often stressed in studies of "pork-barrel" spending arises quite strongly. This paper also shows the great importance of using regional as well as national data in studying political business cycles

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