

Electoral Contexts and Political Budget Cycles: Evidence from Colombia, 1991 – 2011

Miguel García Sánchez – Santiago De la cadena Becerra

Abstract

As elections approach, politicians and political parties want to manipulate public expenditure as a mechanism to sustain or improve their electoral support. Scholars studying political budget cycles have debated over the type and characteristics of the manipulation of public budgets in electoral seasons, concluding, that manipulation can cast itself in either a higher investment or in an alteration of budget composition. This article aims to prove that the ability incumbents have to manipulate public spending composition is conditioned by some political context characteristics such as district competition, political market size and citizen perception about the incumbent's efficiency. By providing some evidence about the Colombian case, this study widens the literature about conditional political budget cycles (PBC) by proposing a different way to study sub-national PBCs. Using data for over 1000 municipalities in Colombia between 1991 and 2011, it concludes that higher levels of political competition and market size, and a widespread bad perception about the incumbent's efficiency represent higher levels of targeted expenditures in pre-electoral years.

Keywords: Political Budget Cycles, Subnational politics, Public Expenditure, Political Economy.

I. Introduction

One of the most important subjects in political economy literature is how politicians manipulate public resources to gain electoral support. The relationship between public investment and voting patterns has provided a widespread framework that aims to explain how individuals decide to cast their votes, knowing in advance the self- interested and strategic behavior their candidates and incumbents have. All this has led to the perception that public investment is related not only with economic decisions on efficiency and public need, but also with political considerations about electoral gains, private rents and voting, suggesting that public investment is thus both a political and an economic decision. As elections approach, politicians and political parties want to manipulate public expenditures as a mechanism to sustain or improve their electoral support and to increase their chances of reelection. Scholars studying political budget cycles have debated over the type and characteristics of the manipulation of public budgets in electoral times. They concluded that manipulation could cast itself in either a higher investment or in an alteration of budget composition. (Drazen, 2000)

Given this general background, the questions about how does political budget cycles work and how politicians get to effectively alter its size and nature are of vital importance. In consequence, this article aims to answer the question about the political factors that motivate incumbents and political parties to increase or decrease targeted expenditures during election years. Particularly, this article proves that incumbent's ability to manipulate

public spending is conditioned by some political context characteristics such as district competition, political market size and the citizen perception about incumbent's efficiency. This analysis is innovative since it attempts to take into account the political context in which politicians make decisions concerning the manipulation of public budgets during electoral seasons. This suggests that even though politicians do have the incentives to manipulate public budgets during electoral seasons, not all of them will be able to do so in the same way.

The article provides some evidence about the Colombian case. It widens the literature about conditional PBC by proposing a different way to study sub-national PBCs, specifically accounting for the possibility of a political scenario without re-election, where cycles are used to improve partisan electoral success. Additionally, a new and a more detailed definition of targeted expenditures is proposed, avoiding the traditional classification of some specific investments that do not match the main characteristics of this kind of investments. Consequently, it uses an original dataset that will serve to expand the time lens of the study, hopefully providing richer conclusions about PBC without reelection. Finally, it proposes a theoretical model in which some of the traditional assumptions, such as opportunistic voters, will be reconsidered, providing empirical test with a much more robust analytical environment. This paper will use municipal-level data from the Colombian case for the period between 1988 and 2011, covering almost all local elections held in Colombia since the introduction of the popular election of mayors in 1986.

The paper is organized in seven sections. After this introduction, there is a brief review of the literature on political budget cycles. The third section develops a theoretical framework and proposes the main hypotheses. The fourth section presents some characteristics of the Colombian case. The fifth section introduces data and methods. In the sixth section, theory is tested empirically by using Panel Data Estimations with both random and fixed effects, to conclude, finally in the seventh section.

II. Literature about Political Budget Cycles

A Political Budget Cycle (PBC) is a periodic fluctuation in a government's fiscal policies, induced by the cyclical nature of elections (Shi and Svensson 2003: 67). Thus, we can refer to a PBC when changes in the size or composition of public budgets match electoral periods. The political economy literature has shown that electoral cycles have an important effect on the way in which politicians allocate public resources. As elections approach, politicians and political parties want to manipulate public expenditures as a mechanism to sustain or improve their electoral support and increase their chances of reelection.

During the last 25 years, not only literature on PBC has been active, but also, it has led to some kind of common agreements about the nature and characteristics of this political phenomenon. The first agreement, which is also the most evident, is that PCBs do exist. Politicians not only have incentives to manipulate public finances in order to improve their electoral chances, but they actually exercise such faculty (Drazen, 2000). The second accepted agreement is that political manipulation of monetary policy does not lead to a long-term political success and thus, fiscal policy is the most popular instrument to accomplish this final end (Drazen, 2000). The third agreement is that it is neither common nor convenient to manipulate the size of the budget; rather it is better to use targeted expenditures to simultaneously create a general perception of fiscal stability and an enforced and lasting political support (Drazen & Eslava, 2005). Finally, the fourth agreement is that context matters in PBCs. Social and political backgrounds have an undeniable effect on the magnitude of the cycle and then, finding which are the factors that determine the political budget behavior is a challenge for the future both empirical and theoretical developments on this field (Franzese, 2002).

Some of the very first attempts to explain the nature of PBCs focused their attention in the way governments manipulated monetary policy key variables. Kraemer (1997) concluded that some politicians had incentives to cast an active monetary policy near elections in order to achieve higher levels of short-term macroeconomic output, which will increase their opportunities to win office. Drazen (2000), however, recognized the inconvenience of altering monetary balance for political purposes. An active monetary policy traduces, in the

long term, in inflationary pressures, which affect negatively the consumer's real wages, reducing general welfare. The concurrence of this drop of welfare with voter's rational expectations conduces to strong and lasting electoral punishments to those politicians that used monetary strategy to improve their electoral support. In the words of Alan Drazen himself: "(...) models on manipulating the economy via monetary policy are unconvincing both theoretically and empirically, while 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" (Drazen 2000).

As a result of the failure of monetary policy manipulation as a mechanism to increase political success, a new consensus appeared in the last 25 years, around the role of the fiscal policy as a reasonable candidate to explain the nature and characteristics of the PBCs. The literature on the dynamics of fiscal policies and government expenditures around election times can be divided into two groups. The first one studies the coincidence of elections with increases in government spending and deficits. Hence, it analyzes the effects of electoral cycles on the size of budgets. The main argument of this empirical literature is that as elections approach politicians incur in additional expenditures, increasing the size of the public budget (Alesina 1988; Schuknecht 1994; Shi and Svensson 2002b; Tufte 1978).

Early empirical studies on the impact of electoral cycles on the size of budgets focused on the experience of the United States. Tufte (1978) found pre-electoral manipulation in fiscal instruments, such as government transfers to veterans and Social Security. Similarly, Alesina (1988) showed that in election years there was a significant increase in net transfers over GDP in the period between 1961 and 1985. Later on, Alesina, Roubini and Cohen (1997) extended this analysis to OECD countries, showing that government budget deficits are 0.6% higher in election years than in off-election years. Finally, Kraemer (1997) examined the fiscal policies in 21 countries in Latin America and the Caribbean from 1983 to 1996, finding that budget surplus tended to be lower than normal in the pre-electoral and higher in the post-electoral years.

As the importance of the fiscal policy began to grow overtime, a second trend of the

literature rapidly developed. This trend proposes that the change in the composition of public expenditures during elections is a more effective way to cast PBCs than altering the size of public deficits. Specifically, it assumes that although voters have a preference toward high levels of spending they dislike deficits. This literature, thus, rests on the assumption of voters as conservative agents adverse to high public deficits (Drazen & Eslava, 2005). Rogoff (1990) and Drazen & Eslava (2005) showed that although people prefer more public investment than less, the cost of accepting higher deficits exceeds the benefits derived from the new public good provision. Thus, voters tend to penalize in the electoral field those politicians that incur in high fiscal deficits for political purposes. According to this critique, this trend states that politicians avoid increasing public expenditures while paying attention to their electorate. In this case, politicians alter the composition of budgets, moving resources from non-targeted expenditures (purchases of supplies and services) to targeted expenditures (projects of infrastructure development) in an attempt to sustain or increase their electoral support (Drazen and Eslava 2005, 2010; Rogoff 1990; Eslava 2005, 2006). More specifically, politicians have an incentive to increase the provision of local public goods or targeted investments at the expense of other less visible or more universal types of public goods.

As proposed by this group of authors, targeted expenditures are visible types of spending that benefit specific groups of voters. They are often associated with projects of infrastructure development, such as construction of roads, water plants, etc. On the other hand, non-targeted expenditures are less visible public investments that do not benefit a particular segment of voters. This is the case with defense spending and purchases of supplies. In terms of public goods, governments can provide universal public goods that can improve everyone (non-targeted expenditures), or they can target either localities or neighborhoods (local public goods) or individuals and specific groups (clientelism) (Diaz-Cayeros and Magaloni, 2003).

Recent studies have found that politicians have a real interest in manipulate certain categories of government spending prior to elections to sustain or increase their electoral support. Manipulation of the budget's composition has a double effect: It helps to provide

an atmosphere of general fiscal tranquility because the public deficit remains unchanged; and it avoids any kind of penalization from non-content conservative voters (Rogoff 1990). Recent empirical results sustain this latter statement. Kneebone and McKenzie (2001) for example, showed that for Canadian provinces during elections, there is a tendency to decrease spending in health, social services, and industrial development, and to increase expenditures in education, transportation and communication, and recreation. Similarly, González (2002) found, for the Mexican case, that current transfers are reduced while infrastructure spending increases prior to elections. Finally, Eslava (2005) showed that targeted expenditures in Colombia grow during election years and voters punished incumbents who ran higher deficits before elections.

The discussion above outlines a consensus that centers the composition of the public budget as the main instrument used by the politicians to gain electoral support; that is the reason why most of the recent literature on PBCs assumes that politicians always want to increase targeted expenditures during elections. However, as the number of democratic regimes has increased during recent decades empirical studies began to move outside the developed world and the U.S. context, showing that PBCs differ significantly when considering developing and developed countries. Ames (1987) in a comparison of 17 Latin American countries, found that, on average, government expenditures increased by 6.3% the year before elections. Similarly, Kraemer (1997) found that Latin American public good provision is conditioned by fiscal volatility, the amount of human capital, the size of the bureaucracy and the institutional quality. Remmer (1993) concluded that, although Latin American politicians have an explicit interest to manipulate the economy for electoral purposes, their ability to do so is limited due to a context of constant crisis and instability.

Shi and Svensson (2002a; 2002b; 2006) also found evidence that government spending increases before elections in both developing and developed nations. They demonstrated that PBCs are much larger in the former than in the latter group. Also, Tabellini and Persson's (2003) analysis of sixty democracies from 1960 to 1998 showed that taxes are cut before elections and painful fiscal adjustments are postponed until after elections; however, welfare-state spending displays no electoral cycle. Brender and Drazen (2003) found that

results regarding the existence of a PBC are driven only by new democracies; to them PBCs seems not to have a great importance to developed countries. Finally, Streb and Lema (2009) concluded from their 39 Latin American and OECD countries sample, that between 1980 and 2005, checks and balances and in particular institutional constraints on executive discretions tended to reduce the importance and magnitude of the cycle.

This evident difference between PBCs in developed and developing countries has motivated some authors to find and explain the factors that can moderate or constrain politicians' ability to manipulate budgets during electoral seasons. This new research in literature allows us to introduce the concept of conditional budget cycles, as situations in which the impact of electoral cycles on public budgets is conditioned by certain factors associated with the political context.¹ At this respect, González (2002) concludes that there is a link between the magnitude of a PBC and the degree of democracy. In fact, she found that in Mexico, during more democratic periods, the PBC tended to be greater than in less democratic times. In Shi and Svensson's 2002 model, the political environment also conditions the size of the PBC. Thus, they show that the size of the cycle is positively correlated with the rents politicians obtain by remaining in power, and negatively associated with the share of informed voters (Shi and Svensson 2002a, 2002b, 2006).

Recent literature on conditional PBCs has found several institutional and political features that shape the magnitude of the cycle. Chang (2008) for example, proved that while in single-member districts it is more likely to find a higher district-specific spending, in districts with proportional representation, general welfare investment is more likely to be higher. Other authors like Franzese (2002), Persson (2002), Milesi-Ferreti et al (2002) and more recently Klomp & De Haan (2012), focused on the importance of the institutional environment on the PBC's behavior. They conclude that institutional design variation is key to explain the incentives politicians face to manipulate public finances. Electoral rules, political regimes, government transparency and polarization are some of the elements that condition the size and the composition of government spending. Case studies about several

¹ Krause (2004) showed the existence of conditional business cycles in the U.S., in particular, that these macroeconomic cycles are conditioned by the party in power: during election years, Republicans are more likely to manipulate the economy than Democrats

countries have also been made in order to prove the conditional cycle hypothesis. Akmedov & Zhoravsjaya (2004) concluded for the Russian case, that the magnitude of the cycle decreased as media freedom, government transparency and voter awareness increased. Similarly, Kwon (2006) assured that political competition in South Korean electoral districts was a key element conditioning the size of PBCs.

In conclusion, the evolution of literature on PBCs has reached some well-defined consensus that allow us to frame this work in a wide theoretical and empirical framework, assuring that our contribution procures well for the advancement of this field of study. In particular, our work attempts to contribute to the literature about Conditional PBCs by exploring the effects of political competition, electoral market size and citizen's perception of efficiency, at the subnational level. As we have showed in this paper, empirical literature on PBC has focused mainly on explaining the difference between regions, countries or groups of countries, leaving the subnational level almost unexplored. Therefore, it is a principal objective of this paper to contribute to the literature on conditional PBC at subnational level, by proposing a new way to study this phenomenon both theoretically and empirically. Next section will offer a different approach of modeling the conditional PBCs.

III. Simple Model and Hypotheses

Traditionally, PBCs have been modeled as an adverse selection problem. However, recently some authors have suggested that PBCs can be better modeled as a moral hazard problem (Persson and Tabellini, 2000; Shi and Svensson, 2002b). Adverse-selection-type models assume that each politician competing in an election (incumbent and challenger) has a competence level (high or low). In this case, the competence level is linked to the politician's preferences over investing public resources in targeted expenditures versus other types of expenditures. Thus, a politician may want to invest in goods valued by the electorate (high type), or may want to invest public resources in goods that the politician values but voters do not (low type) (Drazen and Eslava, 2005). Voters want to elect the more competent politician (the high type); however they do not know the candidates' competence levels. This is only known by each competitor. Before an election, the high-type incumbent will attempt to signal his type by shifting government expenditures toward

targeted expenditures and away from non-targeted expenditures. Thus, following adverse-selection-type models we can expect competent incumbents to manipulate fiscal policies and public budgets prior to elections.

In these models, signaling is the driving force behind the PBC, which results from the asymmetry of information about the candidates' level of competence. Although these models have several advantages, some of the implications of a model based on signaling seem contradictory to empirical evidence. According to Shi and Svensson (2003), it is difficult to believe that the more competent (rather than the less competent) politician is the one who manipulates the budget, and it is also unconvincing that only competent politicians are reelected. As an alternative to modeling PBCs as an adverse selection model, Persson and Tabellini (2000) and Shi and Svensson (2002b) propose a moral hazard perspective. Like in the adverse selection case, in moral hazard models, each politician has a type (high or low). However, unlike the adverse selection perspective, it is assumed that neither the voters nor the candidates can observe the candidate's type contemporaneously. This means that politicians are uncertain about their ability to transform public resources into public output (Shi and Svensson 2003). Like in the previous approach, voters are rational and want to elect the more competent politician. Voters can infer the incumbents' type by observing policy output but not the actual policy.²

The key assumption in the moral-hazard-type model is that the incumbent can use a policy instrument, unobservable to the electorate (hidden effort), which is a substitute for competence. Thus, if competence is interpreted as targeted expenditures, the hidden effort may be cutting resources from supplies or services to increase investments in localized public goods. By doing this, incumbents expect that voters will attribute the increase in targeted expenditures to their competence.³ Unlike the adverse selection approach, under the moral hazard model all types of incumbents, regardless of their type, will attempt to increase targeted expenditures prior to elections. This leads us to expect that elections will have a positive effect on targeted expenditures. In other words, the distribution of the public budget is affected by the timing of elections.

² Voters can observe the actual policy only after the policy outcome occurred (in the following period).

³ Voters are expected to assume that an increase in targeted expenditures indicates that the incumbent is a competent politician.

Literature has, thus, demonstrated that PBCs do exist both in the adverse selection and moral hazard perspectives. Our model wants contribute to the theoretical literature by analyzing how political context adds significant constraints to the incumbent's ability to increase or decrease targeted expenditures. That is, that given some political context variables, how is it possible to account for an optimal size of targeted expenditures, and how changes in political context can alter this optimal level. We argue that factors like the level of political competition, the size of the electoral market and the citizen's retrospective beliefs about incumbent's performance, may affect the ability a politician has to manipulate the distribution of public expenditures during electoral seasons.

Our model analyses PBCs in a different perspective. As we have said before, both moral hazard and adverse selection models try to answer the question of the existence of PBC arguing that candidates want either to hide their real type or to incur in hidden efforts to manipulate voters' electoral preferences. Those approaches may be very useful to determine which are the main driving forces behind incumbents' decisions and voters' preferences over public spending, but, however, they do not provide a wide basis to interpret the effects of political contexts. We assume that PBCs are something politicians always want to perform and then we move our lens to analyze in some detail the manner in which politicians set the optimal amount of resources to get the optimal level of political support. Consequently, we do not want to compare scenarios with and without PBCs; we rather want to study how there are several constrains that difficult the optimal provision of public goods, which, given the incumbents incentives to always cast PBCs, would lead to significant differences in the amount of targeted expenditures.

We are going to use a probabilistic voting model in which voters have to choose both ideologically and opportunistically between K parties knowing that each one of them is trying to choose the political platform that maximizes their probability of winning elections (Coughlin, 1992; Lindbeck & Weibull, 1987).

Consider a Major's election. There are $K = \{A, B\}$ political parties -each of them is

represented exactly by one candidate- that must compete to win elections which are held by plurality rule.⁴ As we want to model the Major's election, we have no need to move outside a single region, which we are going to call a municipality. There are N voters in each municipality and we suppose that all of them will vote.

III.1. Voters

A voter is described by the following utility function:

$$U_i(TE^K, \theta_i^K) = u_i(TE^K) + \theta_i^K \quad [u'_i > 0; u''_i < 0]$$

$TE^K \in [0,1]$ is the percentage of total expenditures provided by K that are targeted and θ_i^K is the ideological utility premium voter gets if the candidate of party K gets elected or is in office. Both a higher level of targeted expenditures, and a higher ideological utility premium, represents a higher utility for the voter. This latter assumption means that, unlike traditional models on PBCs, voters are both ideological and opportunistic.

Each municipality has a particular ideological distribution of their population. Since party A and B are ideologically different, we are going to assume that the population can either be loyal to A, loyal to B or swing (S). A swing voter is a citizen whose ideology is neither close to A nor to B. In a continuum, the latter assumption implies that there is a set of at least two thresholds $I_j = \{I_A, I_B\}$ where $I_A, I_B \in \mathbb{R}$, that classify the population in loyal or swing, which are historically determined by nature. Therefore, the constants $I_A, I_B \in \mathbb{R}$ are going to be considered as given. This assumption is not strong if we consider that it is reasonable to expect that people use history and political tradition as a way to determine their political affiliation. If we draw a line that sets a continuum between the maximum levels of loyalty for party A and B, those two thresholds, that belong to common knowledge, allow us to classify individuals without assuming a pure rational ideology affiliation choice. People are then both ideological and opportunistic, which means that they use both political history and traditions, and rational expectations to define their level

⁴ The case of K-multiple parties is going to be discussed later on this document. We assume that there is no ideological or platform differences between political parties and their candidates.

of identification with a certain political party.

Assuming that α^j is the percentage of population that belongs to group $j = \{A, S, B\}$, a cumulate probability distribution can be assumed as follows:

$$CDF(I_i) = \begin{cases} \alpha^A & \text{if } I_i \leq I^A \\ \alpha^A + \alpha^S & \text{if } I^A < I_i < I^B \\ 1 & \text{if } I_i \geq I^B \end{cases}$$

Accordingly, the utility a certain voter obtains by voting A is:

$$U_{ij}^A(TE^A, \theta_{ij}^A) = u_{ij}(TE^A) + \theta_{ij}^A$$

If his decision is to vote for B, his utility will be:

$$U_{ij}^B(TE^B, \theta_{ij}^B) = u_{ij}(TE^B) + \theta_{ij}^B$$

Thus, a voter will choose to vote for party A if and only if:

$$U_{ij}^A(TE^A, \theta_{ij}^A) \geq U_{ij}^B(TE^B, \theta_{ij}^B)$$

That is:

$$\theta_{ij}^A - \theta_{ij}^B \geq u_{ij}(TE^B) - u_{ij}(TE^A) \quad (1)$$

So, a citizen will vote A if given the same amount of targeted expenditures, his utility ideological premium of having A in office is higher than with B. Let $\tilde{\theta} = \theta_i^B - \theta_i^A$ be the ideological bias of a voter i in a group j. We assume that $\tilde{\theta} \sim \text{Uniform}[\frac{-1}{2\varphi_j}, \frac{1}{2\varphi_j}]$, where φ_j is the ideological density of voters within a group.⁵ The latter assumption tries to capture that individuals inside a group are not identical, that is, that even though voters have similar ideological preferences, they obtain different utility when their common preferred party is

⁵ We assume a uniform distribution to make easier the calculus; this can be replaced by any other known distribution.

in office. If φ_j is lower, voters inside a group are more disperse, which means that they do not perceive the same utility of having their common preferred party in office; some of them, with a strong ideological affiliation, will perceive a very high ideological utility premium if a certain party is in office, and others, closer to the threshold (I_j), are going to perceive a lower utility. Note that to persuade such a disperse group of voters by using public expenditure is not a simple task. Consequently, if φ_j is lower, voters inside the groups are to be more ideologically disperse, which means also that a small segment of the voters is to be considered swing.

The retrospective evaluation that citizens make about the incumbents performance is also a factor that shapes voters behavior. An incumbent, whose political outcomes during office are highly valued by voters, will have a stronger natural popular support, reducing the amount of resources he has to devote in order to cast a PBC. Hence, the more “popular” an incumbent is, the less profitable is to devote a great portion in targeted expenditures to win electoral support. However, as politicians do not know which exactly his popularity among citizens is, he will assume that it has a certain distribution and a certain mean that he will incorporate in his strategic behavior. Let $\delta \sim Uniform[\frac{-1}{2\omega}, \frac{1}{2\omega}]$, with mean $\bar{\delta}$, be the level of popularity of incumbent from party A. Introducing this level of popularity to condition (1), we have that a voter will vote for A if and only if:

$$\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta \quad (2)$$

Note that the voters know his own evaluations, and that the information asymmetry is to be imposed upon the incumbent’s decision set. Using (2) we can calculate the probability that an individual vote for A as:

$$Prob(\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta)$$

This is:

$$Prob(\tilde{\theta} \leq C) = \frac{1}{2} + \varphi_j [u_i(TE^A) - u_i(TE^B) + \delta] \quad (3)$$

The percentage of the population that will vote A is then, by (3):

$$\pi_A = \sum_j \alpha^j \text{Prob}(\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta)$$

$$\pi_A = \frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \quad (4)$$

III. 2. *Incumbent*

An incumbent will win the election by plurality rule if he gets at least half of the votes of the municipality. So the main objective of any incumbent is to maximize his probability of victory. That is the probability of having at least half of the votes:

$$\text{Prob} \left(\pi_A \geq \frac{1}{2} \right) = \text{Prob} \left(\frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \geq \frac{1}{2} \right)$$

An incumbent will have half of the total votes if and only if:

$$\frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \geq \frac{1}{2}$$

That is,

$$\delta \geq \frac{\sum_j \alpha^j [u_i(TE^A) - u_i(TE^B)]}{\varphi} \quad (5)$$

So the probability of victory will be:

$$\text{Prob} \left(\pi_A > \frac{1}{2} \right) = \text{Prob} \left(\delta \geq \frac{\sum_j \alpha^j [u_i(TE^A) - u_i(TE^B)]}{\varphi} \right)$$

That is,

$$\text{Prob} \left(\pi_A > \frac{1}{2} \right) = \frac{1}{2} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} [\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]] \quad (6)$$

The problem of the incumbent form party A is then:

$$\max_{TE^A} \text{Prob} \left(\pi_A > \frac{1}{2} \right) = \frac{1}{2} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} [\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]] \quad (7)$$

The first order condition will be,

$$\frac{\partial Prob\left(\pi_A > \frac{1}{2}\right)}{\partial TE^A} = \frac{\omega}{\varphi} \sum_j \alpha^j \frac{\partial u_i(TE^A)}{\partial TE^A} = 0 \quad (8)$$

III. 3. Equilibrium

The timing of the model proscribes a rather dynamic game in which, in the first period the incumbent has to set his equilibrium amount of targeted expenditure, and in the second period votes are cast. So the type of equilibrium this model is trying to reach is a Perfect Sub-game Nash Equilibrium (PSNE) by using a backward induction approach.

As we have discussed above, the percentage of voters that will vote for party A is $Prob\left(\pi_A > \frac{1}{2}\right) = \frac{1}{2} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} \left[\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)] \right]$. This expression relies on the strategic behavior of voters, which are casting their best responses according to their ideological bias.

Once we clarify the voter's problem and best response correspondence, we need to include such results in the incumbent maximization problem. As we said before, an incumbent maximizes his probability of victory only where the following condition is met:

$$\frac{\partial Prob\left(\pi_A > \frac{1}{2}\right)}{\partial TE^A} = \frac{\omega}{\varphi} \sum_j \alpha^j \frac{\partial u_i(TE^A)}{\partial TE^A} = 0$$

However, in order to calculate such derivative, we need to define a more specific direct utility, that is, a particular $u_i(TE^A)$. For this purpose we are going to assume a direct utility, which depends on the consumption the individual have in a certain private good (C_{ij}) and a concave utility function dependent solely on the targeted expenditures:

$$u_{ij}(TE^A) = C_{ij} + H(TE^A) \quad [H'_i > 0; H''_i < 0]$$

Consumers inside a group also face an income restriction that impedes their consumption to

be higher than their total revenue (y_j) after paying taxes⁶:

$$C_{ij} = (1 - t)y_j$$

Let \bar{y} be the average revenue of a municipality. The latter restriction comes together with the government restriction on targeted expenditures:

$$t\bar{y} - NTE^A = TE^A$$

These two restrictions provide a utility function that can be specified as follows:

$$u_{ij}(TE^A) = (\bar{y} - [TE^A + NTE^A]) \frac{y_j}{\bar{y}} + H(TE^A)$$

We can calculate the derivative as:

$$\frac{\partial Prob\left(\pi_A > \frac{1}{2}\right)}{\partial TE^A} = \frac{\omega}{\phi} \sum_j \alpha^j \left[-\frac{y_j}{\bar{y}} + H'(TE^A) \right] = 0$$

Solving for $H(TE^A)$ we obtain:

$$H'(TE^A) = \frac{1}{\bar{y}} \sum_j \alpha^j y_j \quad (9)$$

This describes the equilibrium amount of targeted expenditures.

III.4. Conclusions and Work Hypotheses

From condition (5) party A will only have enough votes to win elections if his level of popularity δ is beyond a certain threshold. This will imply that a bad evaluation of incumbent's performance will led that no matter how hard he tries to incur in additional targeted expenditures, he will never be able to win. So the first proposition is that:

Proposition 1: If $\delta < \frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\phi}$, Party A will not be able to use PBCs as a way to guarantee his reelection.

Intuitively, if δ is high, there are more people densely concentrated around a good evaluation of incumbent's past performance and he will not need to incur in additional investments for he has already a natural electoral base that will support his reelection. However, as incumbents cannot anticipate properly this feature of the voters, there is always a high probability that the equilibrium expenditure will be more or less than it optimal level, so the effect on the targeted expenditures of a good evaluation is to be

⁶ Each group j has an average income, y_j , and municipality average income is \bar{y} .

perceived as an indirect effect.

As we said before, we can also assume then that φ_j is a measure of the political market size inside a group. As there are N fixed voters in the municipality, it is likely to think that market size is related not with the total amount of voters, but with the size of the electorally relevant portion them. In the literature those relevant voters are generally called swing voters. A swing voter is a citizen with a weak ideological bias, which is also easy to convince by using fiscal policy or any other public goods provision strategy. In our model there are two kinds of swing voters: in one hand there are pure swing voters which are the individuals composing the group S , and in the other hand, there are those voters that being ideologically identified with a particular party, can be easily convinced by using public expenditure. In this latter group, we expect that if φ_j increases, the majority of voters form a group j are going to be concentrated around a very small ideological bias towards party A , making them easily convincible with public expenditure. Thus, a group concentrated around a very small ideological bias towards a certain party will perceive better the effect of targeted expenditures (will be more swing) and will reward such investment in the form of electoral support. This latter effect occurs because there will be a high portion of the voters inside a group that are swing.

If on the contrary, voters were disperse, there will be some individuals whose ideological premium for having A in office will be much larger than the obtained if B is in office. In this latter case, we can assume that there will be a higher percentage of voters with a strong ideological identification to party A , meaning that even if the incumbent determines that his total expenditures are going to be targeted, his ability to convince these ideological voters is going to be very reduced. On the other hand, support is probably going to be more disperse, which will make less profitable to invest in a certain targeted area. Thus, when voters are disperse, politicians will tend to devote more public resources for providing universalistic or non-targeted public goods prior to elections. These types of goods will have an impact on a large portion of the electorate and consequently will contribute to sustain a large winning coalition.

Note that this model is assuming that the size of the electoral market concerns directly with the size of the relevant portion of voters inside a municipality (swing voters), rather than with the total number of voters. Some authors as Bueno de Mesquita et al (2002) have, however studied the effect of population growth over public expenditure, finding that in more populated countries, states, or municipalities, political survival depends on gaining the electoral support of a large number of citizens. Therefore, they conclude that there is a direct link between population and the size of the winning coalition. In populated areas, providing several localized public goods to various groups of voters may be a bad strategy since the number of beneficiaries of these goods may not be enough to sustain a winning coalition, once again reducing targeted expenditures and providing a more universalistic type of investment. This paper, however, is not going to contribute with this line of research.

From the discussion presented above we can observe that the market size, understood as the relevant portion of voters of each group or the swing voters, will be higher when φ_j increases, which led us to our second proposition:

Proposition 2: As φ_j increases, the number of swing voters is going to be higher, increasing the amount of votes a candidate from party A will obtain in a municipality (π_A).

Finally, as we said at the beginning, the idea to work with only two parties made the analysis mathematically simpler. If we leave the assumption of only two- parties, and allow political competition between K different parties, each one of them with a single candidate, it is demonstrable that the probability of victory of one of them, let's say 1, will change to be:

$$Prob\left(\pi_1 > \frac{1}{2}\right) = \frac{1}{K} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} \left[\sum_j \alpha^j \left[u_i(TE^1) - \sum_{K \in [2, K]} u_i(TE^K) \right] \right] \quad (10)$$

When there were only two parties, the worst scenario for A was to have a probability of victory of 1/2 which it is already high. This, as we already concluded above, means that there is no need to cast a great amount of targeted expenditures in order to win. Condition

(9) shows, however, that in the case of a K-party competition, party A will only have $1/K$ certain probability of winning, which, for $K > 2$, is always going to be less than $1/2$. This latter implies that when political competition increases, incumbents will try to increase targeted expenditures in an attempt to attract swing voters. The Lindbeck and Weibull (1987) model of budget redistribution highlights the effect of political competition on the distribution of public resources. According to these authors, policy choice is affected by the degree of competition, which is determined by the distribution of political preferences. Thus, when preferences are packed in favor of one party (low level of competition) policy benefits will exclusively favor core supporters. In this situation, we can expect high levels of targeted expenditures. The discussion above conduces to our third proposition:

Proposition 3: Given the same amount of targeted expenditures, as K increases, the probability of victory of a party, let's say I, $\text{Prob}\left(\pi_1 > \frac{1}{2}\right)$ reduces.

Conclusions provide us with a wide theoretical framework to set our empirical analysis. In particular, we can derive from the three propositions above four work hypotheses that are going to be tested empirically later on this document. In sum, the four work hypotheses are:

H1: Electoral cycles are expected to have a positive effect on targeted expenditures.

H2: As citizens have a better retrospective perception about the efficiency of the incumbent in office, electoral cycles are expected to have a negative effect on targeted expenditures.

H3: As the size of the electoral market increases, electoral cycles are expected to have a positive effect on targeted expenditures.

H4: As political competition increases, electoral cycles will produce a positive effect on targeted expenditures.

IV. A within-country study: the Colombian case

Although most of the literature on PBCs uses a cross-country strategy, in this paper we present a cross-municipality approach, accounting for the PBCs in Colombia at the sub-national level in a context of no-candidate reelection. This approach allows us to provide a wider analysis of the impact of electoral cycles on the distribution of public budgets, since public expenditures can be targeted more efficiently at the local level (Eslava, 2005). In

addition, a within-country study provide a better opportunity to naturally control by some factors that are common to all municipalities – such as institutional arrangements-, reducing the source of variation in targeted expenditures caused by variables different from those of interest (i.e. competition, market size and citizen evaluation).

IV.1. Electoral System in Colombia: Major's Elections

Major's election in Colombia describes a particular dynamics that, according to literature, should not represent an opportunity to cast significant PBCs. The 1991 Political Constitution of Colombia, in its Article 314, and the Law 136 of 1994, state that every municipality must have a major, who “(...) will exercise political authority, will be the chief of local administration and legal representative of the territorial entity.”⁷ This major, according to the law will be elected by plurality rule, conjointly with governors, deputies and council members, and will remain in office for four years. Law also states that majors will be elected once, and cannot be re-elected for the next electoral period.⁸

The fact that majors are elected by plurality rule with no possibility of reelection means that, no matter how hard a major tries to manipulate the allocation of resources in order to have a widespread political support, he will not be able to use that support directly in his own political aspirations for the next elections. However, as it will be straightforward later on this document, data shows that pre-electoral manipulation of the public budget is a common practice in almost every Colombia's municipalities.

There are at least two reasons that allow us to conclude that Colombian majors, indeed, have incentives to alter the allocation of public resources despite the fact that there is no immediate reelection. First, after the political reform of 2003, political parties acquired a better control of their incumbents and candidates, providing a much more homogeneous and centralized policy (Rodríguez-Raga & Botero, 2006). Consequently, a major has better incentives to favor party's interests, since, by making this, he will grant his political success in other future political activities (i.e. city council elections, departmental elections,

⁷ Artículo 314. Constitución Política de la República de Colombia de 1991. (Own translation to english)

⁸ Cf. Ley 136 de 1994, Artículo 85. (Own translation to english).

legislative aspirations or even presidential aspirations). Hence, there are incentives that motivate majors to cast PBC in order to assure electoral success to their parties.

Secondly, City Council members can be reelected immediately. We can assume that part of the manipulation of public expenditure during electoral periods is due to the influence of the members of this very powerful representative body. Parties are interested not only in keeping majors in office, but also in keeping a majoritarian coalition inside city council. If we assume that resource allocation is a joint responsibility of the major and the council, both institutions are interested in providing a better allocation regarding their own interests, and thus cast PBCs as a way to guarantee their political success.

Both of the reasons listed above show that Colombia's electoral system itself, provides enough incentives to Majors and any other political administration organization to alter budget distribution for political purposes. The latter constitutes a great opportunity to contribute to the understanding of conditional PBCs amidst a non-reelection environment.

IV.2. Municipality's incomes and expenditures: The "Sistema General de Participación" (SGP)

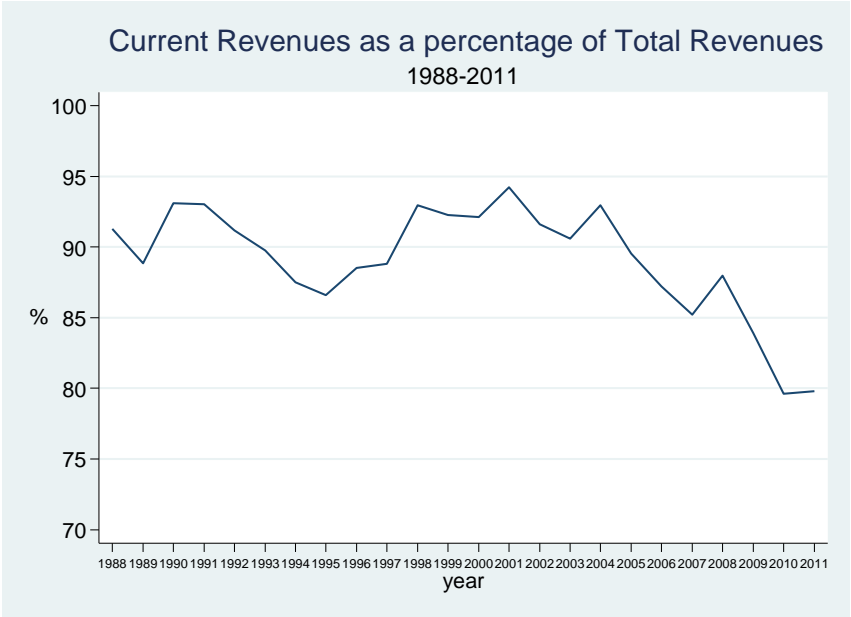
The actual legislation on public income distribution and allocation of expenditure resources was set by the Political Constitution of 1991, is called the *Sistema General de Participaciones* (SGP). It aimed not only to deliver higher incomes to sub-national level territorial entities but also to constrain them with stronger expenditure obligations, enhancing on the way the power they have to make their own decisions. At the end, the reform's main objective was fight against the extreme centralization that was the heritage of the past 1886 Political Constitution. It was then a way to enhance and strengthen the political and financial decentralization process, which started roughly in the late 80s, with the first popular election of sub-national and departmental authorities.

i. Revenues

In the early 80s, it took place one of the very first attempts to provide municipalities with

an autonomous increasing: the Law 14 of 1983. This legal framework aimed to organize the structure and control every aspect of current revenues, which, as shown in the graph 1, represent above 80% of the total revenues of municipalities in every year. Indeed, the legal environment strengthened the tax system collection capacity, and allowed the principal taxes for municipalities –property tax, industry and commerce, and car circulation- to increase or, at least, to improve the way they were collected. In 1990 the Law 44 boosted the effects of the Law 14 of 1983, by establishing a reform in the cadastral base used to calculate the property tax. This reform increased substantially the tax income also making it more stable overtime.

Graph 1. Current Revenues



As tax revenues are a very important income source for the municipalities, non-tax revenues are crucial. Between 1988 and 2011, non-tax revenues represented over the 80% of the current income, making them the principal source of funding for almost every local investment. Aware of the importance of this kind of income, legislation has aimed in history to provide local entities with steady national and departmental transfers. In 1986, transfers consisted on a percentage over the sales tax, known as the *Impuesto al Valor Agregado (IVA)*. In the 80s this percentage remained close to 25%, and was planed to grow to be 50% in 1992. However, the new political constitution eliminated this participation and

replaced it by a system of municipal participation in the national total current income. Law 60 of 1993 set the structure of this law and together with the principles of constitution founded the current transfers system. Table 1 shows the structure of the transfers system.

Table 1. Transfers of Central Government – Current Revenue
Transfers of Central Government Current Revenue

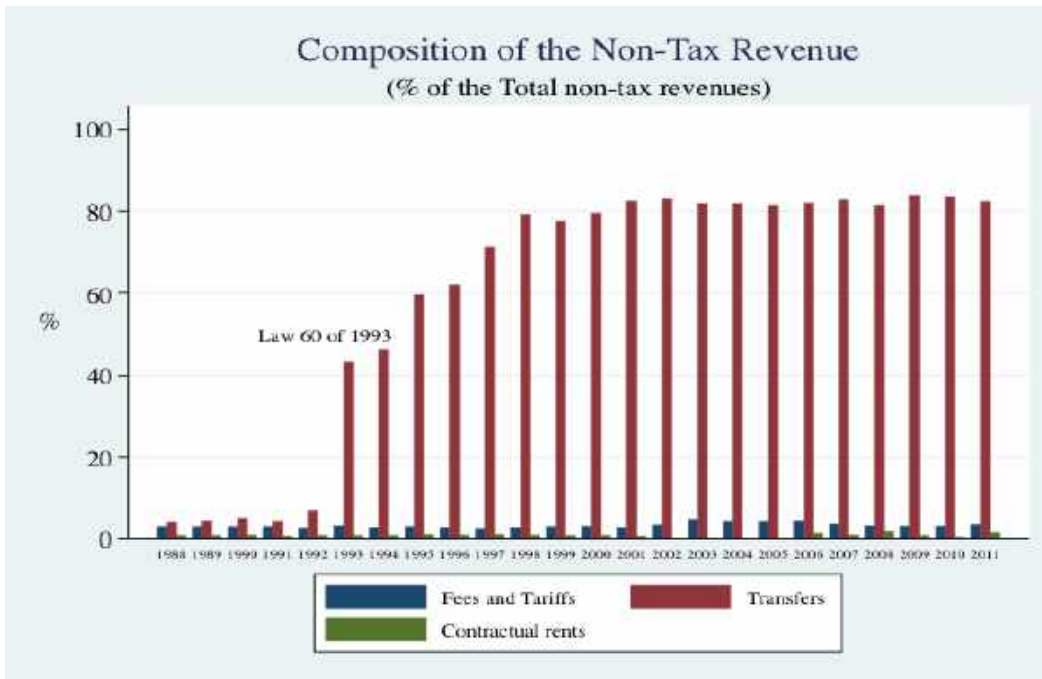
<i>Departmental Participations</i>		<i>Municipal Participations</i>	
Distribution	Uses	Distribution	Uses
Departments/ Districts (15%)	Health (20%)	Magdalena River (1,5%)	Recreation (5%)
Current and potential Users of health and education services	Education (80%)	Pop. < 50.000 (5%)	Discretionary (20%)
Fiscal Effort		Population with Basic Unsatisfied Needs (UBN) Fiscal and Administrative Efficiency in Public Services Supply	Water and Sanitation (20%)
Administration Efficiency (85%)			Health (25%)
		Relative Poverty Index and Indicators of Quality of Life	Education (30%)
		Proportion of the Population (93.5%)	

■ Law 60 of 1993
■ Political Constitution of 1991

Source: Monica Pachón.

As shown in the table 1, legislation set a specific set of rules to both, distribute public income and determine fixed destinations of local investments. Nevertheless, the effects of these reforms over municipal income were evident. As shown in the graph 2, after 1993 transfers as a percentage of non-tax income grew significantly reaching levels of around 80% from 1998 to 2011.

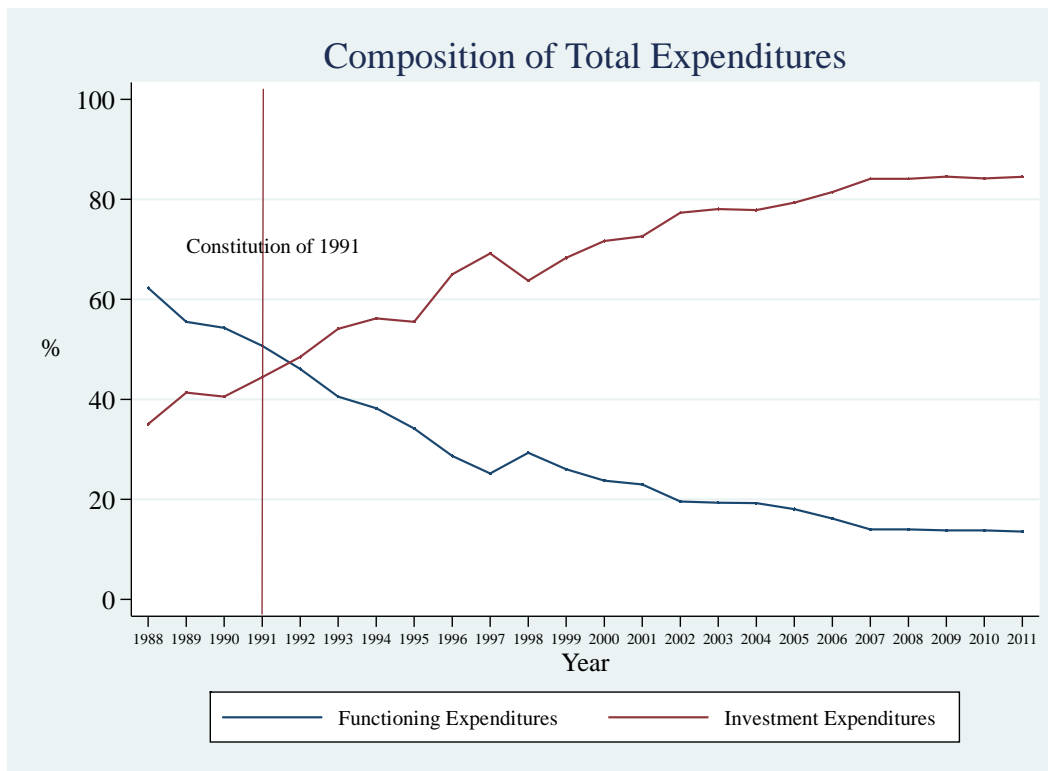
Graph 2. Composition of Non-Tax Revenues



ii. *Expenditures*

The SGP set by the new Constitution of 1991 also determined the way local expenditure was to be distributed. As seen in the table 1, 80% of the transfers' income of a municipality must be distributed strictly among recreation (5%), water and sanitation (20%), health (25%), and education (30%). The remaining 20% is the only space over which the majors have discretion. Evidently, this new distribution achieved very important effects on the local investments. Since law obliged majors to invest in certain specific areas, closely related to human development, not only the percentage of investment over total expenditure grew overtime, but also a perceptible improvement in human quality of live has been witnessed. Graph 3 illustrates the latter.

Graph 3. Composition of Total Expenditures.



This latter conclusion led to a perception of public investment, as something fixed that cannot be altered by political games. Data shows that it is, in fact, quite the opposite. Politicians do alter public investment as a way to improve their political support, however, they do not alter the total amount of investment but rather its composition.

IV.3. Towards a new measure of targeted expenditures

We can assume that every investment expenditure can be either targeted or non-targeted. As we stated before, targeted expenditures are visible types of spending that benefit specific groups of voters. They are often associated with projects of infrastructure development, such as construction of roads, water plants, etc. On the other hand, non-targeted expenditures are less visible public investments that do not benefit a particular segment of voters. This is the case with defense spending and purchases of supplies. This distinction has motivated the literature to empirically define targeted investment as the sum of the total expenditures in each of the crucial areas for human development –health, education, water,

etc.- (Eslava, 2005). These definitions, however, have, by construction, an important problem: they include expenses, such as salaries and sewerage, which are not necessarily targeted investments. As a result, this document presents a new way of measuring targeted expenditures, which is more detailed and precise than the standard in literature.

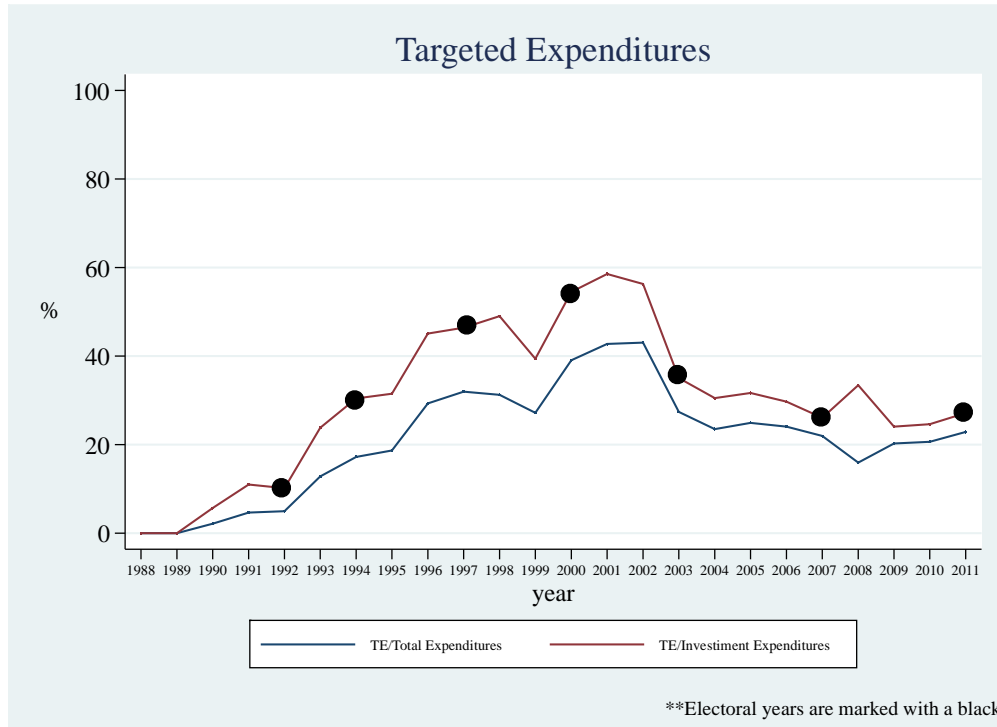
The main difference is that the new measure avoids the use of aggregate wide categories, which are, in general the sum of several diverse accounts of expenditures.⁹ It rather decomposes each of these wide categories in detailed accounts of expenditures, making it possible to identify, for the same category (i.e. health, education, etc.), those precise entries in which income was invested.

This level of detail allow us to include in our measure only the crucial expenditure accounts in which politicians may want to exercise a focalized or targeted expenditure. By making a qualitative analysis, we can resume those specific accounts in the following areas: construction, repairs, maintenance and dotation of schools, health centers, and libraries; indirect investment or capital transfers to individuals or groups of individuals; subsidies; attention programs to vulnerable groups of people; maintenance of already existent roads; public housing and community development. In addition, we consider that as it is hard to classify into specific accounts some focalized expenses, politicians tend to report such expenses as the “other” categories in every expenditure category, therefore, classifying potentially as targeted expenditures.

For the reasons listed above, this new measure is more specific and detailed than the one used in other analyses. Particularly, it allows us to accurately identify the political budget cycles overtime as it is shown in graph 4.

⁹ i.e. the Education account is the sum of all the infrastructure expenses in the sector, wages and other educational expenditures.

Graph 4. Political Budget Cycles with the new TE measure.



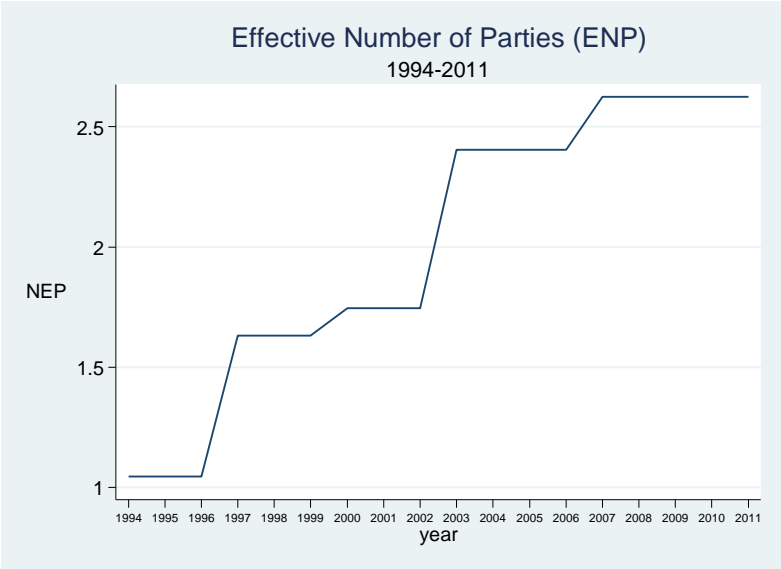
V. Data

We used a dataset of annual observations for 1071 Colombian municipalities between 1988 and 2011. Of the 24 years covered by the data, nine correspond to election years. The election years included in the sample are 1988, 1990, 1992, 1994, 1997, 2000, 2003, 2007 and 2011. The data on public expenditures was gathered from the Colombian *Contraloría General de la República*, a public entity with the task of monitoring public finances, and all the electoral data was obtained from the *Registraduría Nacional del Estado Civil*.

The dependent variable, targeted expenditures, is the new measure we proposed in section III.3. The electoral cycles (PBC) are measured through a dummy variable that captures the timing of elections. It takes the value of 1 in periods prior to elections, and zero in all other periods. A pre-election period is the year before elections if elections were held in the first semester of the year; if elections took place in the second semester, the pre-election year is the same year in which elections were held.

Competition is measured as the Effective Number of Parties Index (ENP) which provides the number of parties in competition weighted by their relative strength (Taagepera, 1979). The idea behind this measure is that not every party that participates in an election is important. Even if an election is held with plenty of parties competing, the ENP will account for only those of them which are politically strong. The total number of parties equals the ENP only when all of them have equal strength, in the rest of the cases the ENP is lower. We thus calculate the ENP by election for every municipality in the sample obtaining that between 1988 and 2002 there was virtually a single-dominant party system, which moved towards a two-party system from 2003 to 2011.

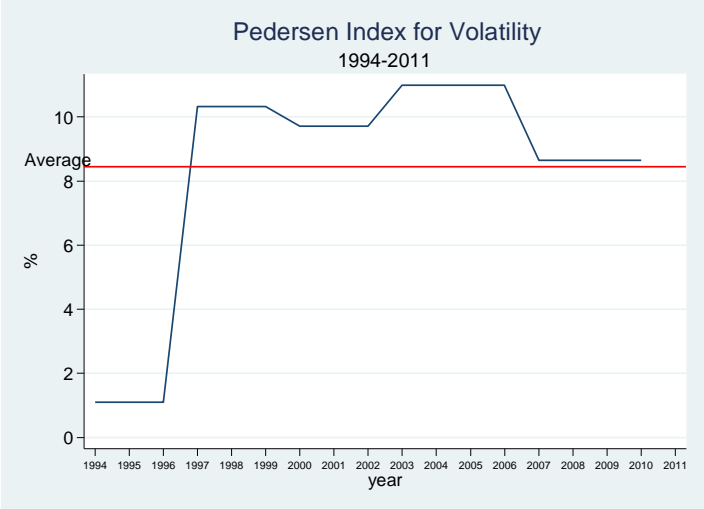
Graph 5. Effective Number of Parties (ENP)



Higher values of this variable indicate a more competitive electoral race. Since politicians do not know how competitive the upcoming elections are going to be, they base their decisions on budget distribution taking into account the level of competitiveness from the previous election. Thus, every year between two elections have the same ENP of the first election in the data base. For instance, if elections are held in 1990 and 1992, the data entries corresponding to 1991 and 1992 will have the competition score corresponding to 1990. We decided to use the same value of competition for off-election years and the “incoming” election year because we assume incumbents remember how competitive elections were the year they won office.

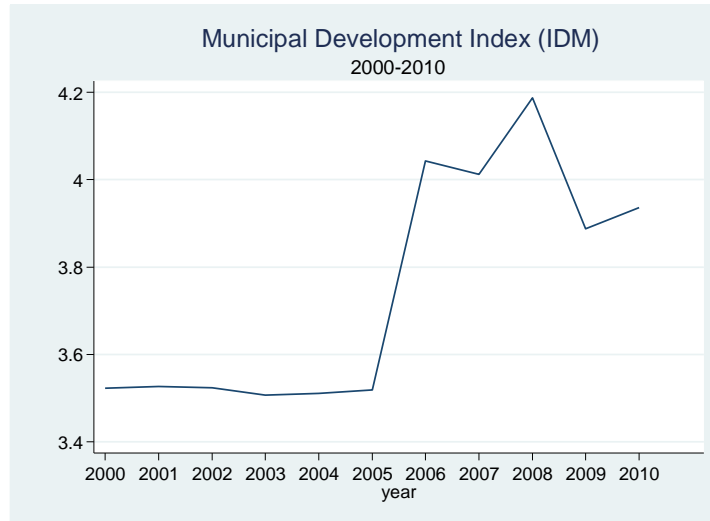
As we are interested not in the actual size of the electoral market but rather in its swing portion, we propose to measure electoral market as the percentage of electoral volatility, that is, how variable are votes between elections. We use the Pedersen Volatility Index, which accounts for the net change in electoral preferences from one election to the other (Pedersen, 1979). We argue that as volatility increases, there are a growing number of individuals changing their party support between elections, therefore there is an increase in the proportion of swing voters. Data shows that there are both municipalities in which party affiliation is strong and thus have zero or low levels of volatility, and municipalities with a great portion of swing voters that display levels of volatility equal or around 100%. Overtime we can conclude that volatility was around 2% in the period 1994-1996, rising to between 8% and 10% from 1997 to 2011.

Graph 6. Volatility



In order to measure incumbent’s efficiency we are going to use a Municipal Development Index (MDI), calculated by the *Departamento Nacional de Planeación* (DNP) which combines both fiscal and financial discipline, and social variables into one index. Higher levels of MDI imply a better administrative performance of the local administration which will lead to a better citizen’s perception about incumbent efficiency. Since evaluating the administrative performance of municipalities is a rather new practice in Colombia, the DNP only provides data from 2000 to 2011.

Graph 7. Municipal Development Index (IDM)



Finally, we include some economic and social controls traditionally considered in PBC models. We control for economic activity measured as the logarithm of current income, for poverty levels measured as the logarithm of the Unsatisfied Basic Needs Index (UBN), for size of the municipality measured as the size in squared kilometers, for size of the population measured as the total population reported in the last census, and for urbanization using an index capturing how rural is a municipality. The economic and social controls are included in the model since one can expect a relationship between the economic and social characteristics of a municipality and the public budget distribution.

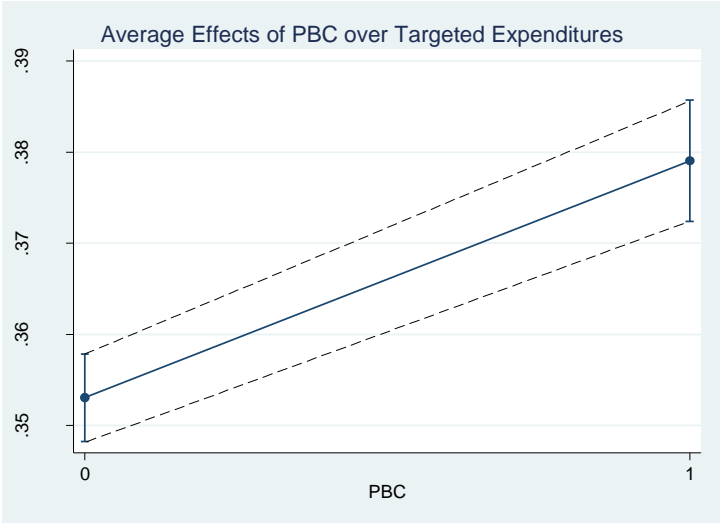
V. Methods and Results

One of the advantages of using panel data to analyze social problems is that it helps us to deal with unobserved heterogeneity, that is, the myriad of unmeasured explanatory variables that affect the behavior of our unit of analysis (Kennedy 2003). Fixed Effects regressions (FE) are generally used when there is evidence of omitted variables that differ between cases but are generally constant over time. However, if there are reasons to believe that some of these omitted variables may be constant over time but vary between cases, and others may be fixed between cases but vary over time, it is better to use Random Effects Regressions (RE) (Stock & Watson, 2003).

In subnational studies FE models, at first glance, seem to be the better technique for we are dealing with fixed units (i.e., Colombian municipalities), however, as it is shown in table 2, results in this case are robust to estimation strategy, that means that they do not vary significantly when using RE models. When computing the FE-RE Hausman test for panel data we obtained that FE suits better for the data available.

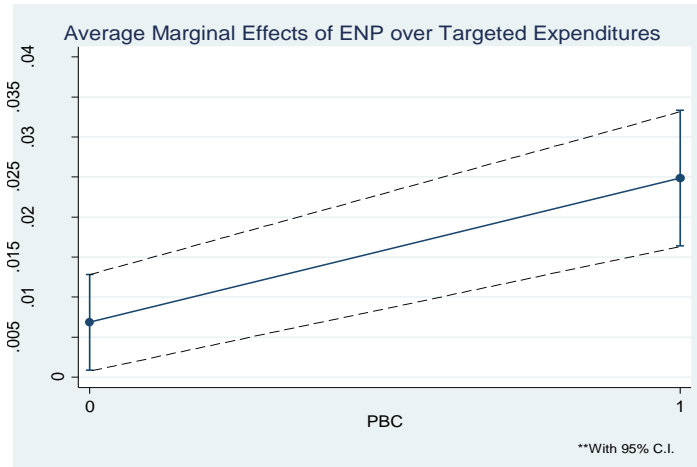
Table 1 displays results obtained from the regression models. As observed PBCs do exist at subnational level in Colombia. Equations (1) and (2) show that, without any other variables involved, PBCs increase targeted expenditures by about 4.8%. However, if competition and volatility are added to the model while the direct effect of PBC is negative, the average effect, as shown in graph 8, continues to be positive and significant. The latter result proves that PBCs alone do have an effect over TE but that political context effectively alters the incentives and ability of politicians to do so.

Graph 8. Average Effects of PBC over Targeted Expenditures



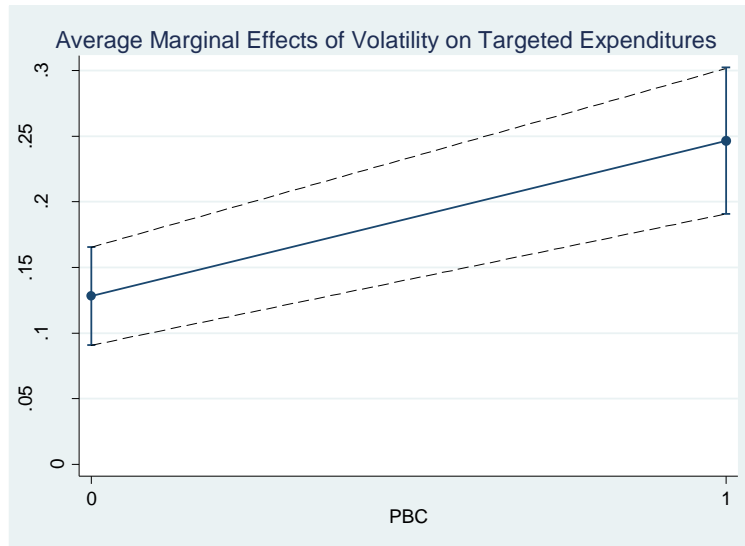
As we see in equations (3) and (4), higher competition itself cast higher targeted expenditures, effect that grows in pre-electoral years. As shown in graph 9, one additional party in competition increases targeted expenditures in 0.6% in non-electoral years, and in 2.5% in electoral or pre-electoral years.

Graph 9. Average Effects of ENP over Targeted Expenditures



If we move our lens to analyze the size of the electoral market, as shown in graph 10, we can conclude that higher levels of volatility, which means a wider market of swing voters, increase the level of targeted expenditures. Specifically an increase in 1% in volatility raises 0.13% the targeted expenditures in non-electoral years and 0.25% in electoral or pre-electoral years.

Graph 10. Average Effects of Volatility on Targeted Expenditures



The signs and significance of the control variables behave as expected. Data shows that municipalities with higher income do not necessarily cast higher targeted investments. As the principal revenue is transfers, and transfers are distributed by law, any increase this entry do not necessarily frees resources that could be used as targeted investment. Also,

municipalities with higher levels of poverty, have less space to manipulate resources for political purposes, and tend to invest in more universalistic good such as water plants and sewerage, reducing targeted investments.

Moving to citizen’s perception about the efficiency of the incumbent, as shown in table 3, results show the relation expected. In 2000-2011 the party system became wider and more volatile than in the 90s, however, both the NEP and volatility stopped growing. This pattern shows that in the decade from 2000 to 2010, neither competition nor volatility were crucial to determine Targeted Expenditures. In this decade, as the number of swing voters increased, citizens became more aware of incumbents efficiency regarding public management. In particular, in situations such as the Samuel Moreno scandal in Bogotá, citizens began to penalize electorally those parties whose incumbents behave inefficiently. Prove to the latter are the results in table 3 and graph 11 which prove that in electoral or pre-electoral years, a better perception about the efficiency of the incumbent leads to less targeted expenditures. As expected, citizens reward naturally a better public management and thus politicians and parties do not have incentives to cat PBCs. In those electoral years also competition has the expected positive effects on PBCs, and volatility does not have any effect.

Graph 11. Average Effects of MDI on Targeted Expenditures

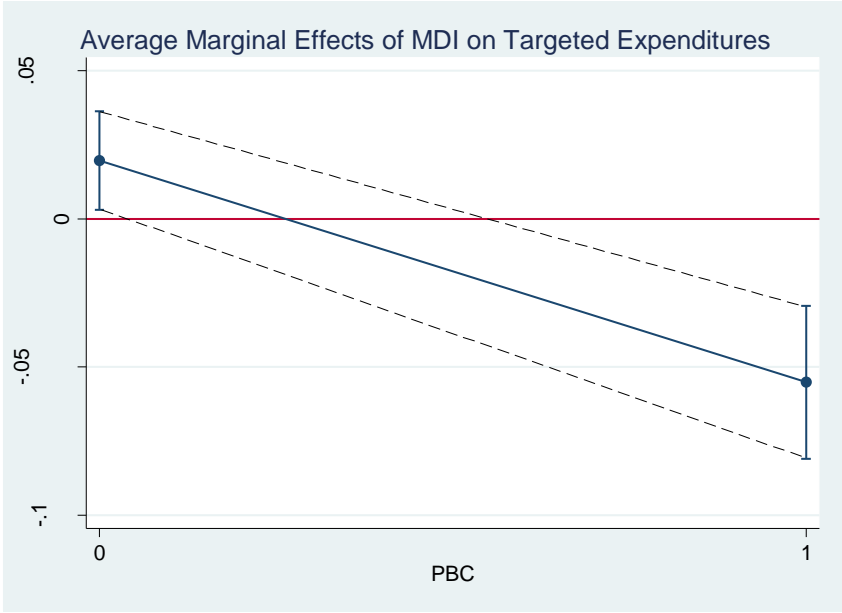


Table 2. Fixed and Random Effects Panel Data Regressions 1988-2011**

VARIABLES	FE	RE	FE	RE
	(1) TE_inv	(2) TE_inv	(3) TE_inv	(4) TE_inv
PBC	0.0482*** (0.00338)	0.0481*** (0.00337)	-0.0525*** (0.00881)	-0.0526*** (0.00877)
Effective Number of Parties (ENP)			0.0152*** (0.00334)	0.00664** (0.00295)
ENP*PBC			0.0180*** (0.00437)	0.0183*** (0.00435)
Pedersen Index (Volatility)			0.132*** (0.0204)	0.118*** (0.0186)
Volatility*PBC			0.132*** (0.0328)	0.130*** (0.0326)
log Current Income	0.00796*** (0.000332)	0.00810*** (0.000328)	-0.0201*** (0.000598)	-0.0187*** (0.000551)
log Index of Unisatisfied Basic Needs (UBN)		-0.0271*** (0.00443)		-0.0219*** (0.00542)
log Total Population		-0.0157*** (0.00203)		-0.00416* (0.00249)
Size of the municipality (Km2)		1.77e-06** (8.85e-07)		1.54e-06 (1.19e-06)
Rurality Index		-0.000177 (0.000264)		-0.000159 (0.000326)
Constant	0.125*** (0.00589)	0.378*** (0.0279)	0.693*** (0.00897)	0.810*** (0.0346)
Observations	19,950	19,950	12,419	12,419
R-squared	0.043		0.138	
Number of cod_dane	1,070	1,070	1,069	1,069
Hausman Prob>Chi2		0.0333		0.0000

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

** In FE regressions control variables were omitted because of the existence of collinearity.

Table 3. Fixed and Random Effects Panel Data Regressions 2000-2011

VARIABLES	FE	RE	FE	RE
	(3)	(4)	(1)	(2)
	TE_inv	TE_inv	TE_inv	TE_inv
PBC	-0.00566* (0.00342)	-0.00639* (0.00341)	0.251*** (0.0503)	0.242*** (0.0495)
Effective Number of Parties (ENP)			-0.00688* (0.00392)	-0.00930*** (0.00313)
ENP*PBC			0.0157*** (0.00522)	0.0155*** (0.00516)
Pedersen Index (Volatility)			0.0221 (0.0255)	0.0271 (0.0212)
Volatility*PBC			0.0148 (0.0370)	0.0110 (0.0365)
Municipality Development Index (logMDI)			0.0168* (0.00910)	0.0197** (0.00850)
logMDI*PBC			-0.0774*** (0.0136)	-0.0748*** (0.0134)
log Current Income	-0.0362*** (0.000585)	-0.0358*** (0.000574)	-0.0360*** (0.000852)	-0.0352*** (0.000791)
log Index of Unisatisfied Basic Needs (UBN)		-0.0150** (0.00591)		-0.0127* (0.00706)
log Total Population		0.0162*** (0.00270)		0.0182*** (0.00301)
Size of the municipality (Km2)		-1.24e-06 (9.87e-07)		-3.29e-07 (1.28e-06)
Rurality Index		0.00121*** (0.000340)		0.00122*** (0.000385)
Constant	1.111*** (0.0129)	0.947*** (0.0373)	1.052*** (0.0318)	0.848*** (0.0563)
Observations	9,475	9,475	7,809	7,809
R-squared	0.315		0.322	
Number of municipalities	1,070	1,070	1,069	1,069
Hausman Prob>Chi2		0.0000		0.0018

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

VI. Conclusions

This paper contributes to the discussion about PBCs in political context without reelection. It concludes that PBCs do exist, and that even in absence of reelection, politicians do have incentives to alter the composition of expenditures to gain political support. We showed

that these incentives are explained by strong relations to the political parties, which reward their good politicians with better future opportunities.

However, as it is a fact that politicians will try to manipulated public investment for political purposes, they are constrained by some political context factors such as competition, size of the electoral market and citizen's perception about the public management's efficiency. In particular we proved that higher competition, a wider portion of swing voters in electoral markets and a poorer perception about incumbent's efficiency leads to bigger PBCs. It also proved that in political context with party hegemony and pure ideological loyal voters, local powers tend to devote fewer resources to gain political support, since voters are not pure opportunist.

A very interesting conclusion is that a good public management is naturally rewarding for politicians. As we demonstrated voters are not naïve, they observe and judge constantly how well an incumbent is managing their municipality, and base a great portion of their electoral decisions in this observation. There is no way for a bad politician to assure the future victory of his party, not even if he casts the maximum targeted investment possible.

Conclusion is clear, democracy itself limit the ability politicians have to gain political rents from their investments. Higher competition and citizens constantly judging their politicians actions leads to better democracies and thus to more disciplined budgets.-

APENDIX 1

I. VOTERS

A voter is described by the following utility function:

$$U_i(TE^K, \theta_i^K) = u_i(TE^K) + \theta_i^K \quad [u'_i > 0; u''_i < 0]$$

Accordingly, the utility a certain voter obtains by voting A is:

$$U_{ij}^A(TE^A, \theta_{ij}^A) = u_{ij}(TE^A) + \theta_{ij}^A + \delta$$

If his decision is to vote for B, his utility will be:

$$U_{ij}^B(TE^B, \theta_{ij}^B) = u_{ij}(TE^B) + \theta_{ij}^B$$

Thus, a voter will choose to vote for party A if and only if:

$$U_{ij}^A(TE^A, \theta_{ij}^A) \geq U_{ij}^B(TE^B, \theta_{ij}^B)$$

That is:

$$\theta_{ij}^B - \theta_{ij}^A \leq u_{ij}(TE^A) - u_{ij}(TE^B) + \delta \quad (1)$$

Let $\tilde{\theta} = \theta_i^B - \theta_i^A$ be the ideological bias of a voter i in a group j:

$$\tilde{\theta} \leq u_{ij}(TE^A) - u_{ij}(TE^B) + \delta \quad (2)$$

Using (2) we can calculate the probability that an individual vote for A as:

$$Prob(\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta)$$

This is:

$$Prob(\tilde{\theta} \leq C) = \frac{C + \frac{1}{2\varphi}}{1/\varphi} = \varphi \left[C + \frac{1}{2\varphi} \right] = \varphi \left[u_i(TE^A) - u_i(TE^B) + \delta + \frac{1}{2\varphi} \right]$$

Thus:

$$Prob(\tilde{\theta} \leq C) = \frac{1}{2} + \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \quad (3)$$

The percentage of the population that will vote A is then, by (3):

$$\begin{aligned}\pi_A &= \sum_j \alpha^j \text{Prob}(\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta) \\ \pi_A &= \sum_j \alpha^j \left[\frac{1}{2} + \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \right] \\ \pi_A &= \frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \quad (4)\end{aligned}$$

II. INCUMBENTS

An incumbent will have half of the total votes if and only if:

$$\begin{aligned}\frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] &\geq \frac{1}{2} \\ \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] &\geq 0 \\ \varphi \delta &\geq \sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]\end{aligned}$$

Thus:

$$\delta \geq \frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\varphi} \quad (5)$$

So the probability of victory will be:

$$\text{Prob}\left(\pi_A > \frac{1}{2}\right) = \text{Prob}\left(\delta \geq \frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\varphi}\right)$$

That is,

$$\begin{aligned}\text{Prob}\left(\pi_A > \frac{1}{2}\right) &= \frac{1}{2} - \omega \left[\frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\varphi} \right] \\ \text{Prob}\left(\pi_A > \frac{1}{2}\right) &= \frac{1}{2} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} [\sum_j \alpha^j [u_i(TE^A) - u_i(TE^B)]] \quad (6)\end{aligned}$$

The problem of the incumbent form party A is then:

$$\max_{TE^A} \text{Prob}\left(\pi_A > \frac{1}{2}\right) = \frac{1}{2} \left[\frac{1-\omega}{\omega} \right] + \frac{\omega}{\varphi} [\sum_j \alpha^j [u_i(TE^A) - u_i(TE^B)]] \quad (7)$$

The first order condition will be,

$$\frac{\partial \text{Prob}\left(\pi_A > \frac{1}{2}\right)}{\partial TE^A} = \frac{\omega}{\varphi} \sum_j \alpha^j \frac{\partial u_i(TE^A)}{\partial TE^A} = 0 \quad (8)$$

III. EQUILIBRIUM

We are going to assume a direct utility, which depends on the consumption the individual have in a

certain private good (C_{ij}) and a concave utility function dependent solely on the targeted expenditures:

$$u_{ij}(TE^A) = C_{ij} + H(TE^A) \quad [H'_i > 0; H''_i < 0]$$

Consumers also face an income restriction that impedes their consumption to be higher than their total revenue (y_j) after paying taxes:

$$C_{ij} = (1 - t)y_j$$

This restriction comes together with the government restriction on targeted expenditures:

$$t\bar{y} - NTE^A = TE^A$$

These two restrictions, provides a utility function that can be specified as follows:

$$u_{ij}(TE^A) = (\bar{y} - [TE^A + NTE^A])\frac{y_j}{\bar{y}} + H(TE^A)$$

We can calculate the derivative as:

$$\begin{aligned} \frac{\partial Prob\left(\pi_A > \frac{1}{2}\right)}{\partial TE^A} &= \frac{\omega}{\varphi} \sum_j \alpha^j \left[-\frac{y_j}{\bar{y}} + H'(TE^A) \right] = 0 \\ \sum_j \alpha^j H'(TE^A) &= \sum_j \alpha^j \frac{y_j}{\bar{y}} \end{aligned}$$

Thus:

$$H'(TE^A) = \frac{1}{\bar{y}} \sum_j \alpha^j y_j \quad (9)$$

■

APENDIX 2

- I. **Proposition 1:** If $\delta < \frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\varphi}$, Party A will not be able to use PBCs as a way to guarantee his reelection.

Proof:

Note that condition (5) sustains only if $\pi_A \geq \frac{1}{2}$. That is, only if, $\frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] \geq \frac{1}{2}$. Therefore, if $\delta < \frac{\sum_j \alpha^j [u_i(TE^B) - u_i(TE^A)]}{\varphi}$, which is the inverse statement of condition (5), there must be true that $\frac{1}{2} + \sum_j \alpha^j \varphi [u_i(TE^A) - u_i(TE^B) + \delta] < \frac{1}{2}$, or, in other words, that $\pi_A < \frac{1}{2}$. In this latter situation it is, hence, straightforward that incumbent from party A will lose the election since the percentage of votes he will obtain in a municipality will be less than the required for winning the elections. ■

- II. **Proposition 2:** As φ_j increases, the number of swing voters is going to be higher, increasing the amount of votes a candidate from party A will obtain in a municipality (π_A).

Proof:

From condition (4) we have that the total votes obtained by a candidate from party A in a municipality will be:

$$\pi_A = \sum_j \alpha^j \text{Prob}(\tilde{\theta} \leq u_i(TE^A) - u_i(TE^B) + \delta) = \frac{1}{2} + \sum_j \alpha^j \varphi_j [u_i(TE^A) - u_i(TE^B) + \delta]$$

Note that π_A , at the end, is the sum of probabilities. Thus, π_A is always going to be positive.

Differentiating this latter condition with respect to φ_j we obtain,

$$\frac{d\pi_A}{d\varphi_j} = \sum_j \alpha^j [u_i(TE^A) - u_i(TE^B) + \delta] = [u_i(TE^A) - u_i(TE^B) + \delta] \sum_j \alpha^j = u_i(TE^A) - u_i(TE^B) + \delta$$

So $\frac{d\pi_A}{d\varphi_j} > 0$, only if $u_i(TE^A) + \delta > u_i(TE^B)$, which is always true since we are modeling the amount of individuals that will vote for A. ■

- III. **Proposition 3:** Given the same amount of targeted expenditures, as K increases, the probability of victory of a party, let's say 1, $\text{Prob}\left(\pi_1 > \frac{1}{2}\right)$ reduces

Proof:

Still to be developed.

Bibliography

- Akhmedov, Akhmed and Zhuravskaya, Ekaterina. 2004. Opportunistic Political Cycles: Test in a Young Democracy Setting. *Quarterly Journal of Economics*. 1301-1338.
- Alesina, Alberto. 1988. Macroeconomics and Politics. In *NBER Macroeconomic Annual*. Cambridge: MIT Press.
- Alesina, Alberto, Nouriel Roubini, and Gerald D. Cohen. 1997. *Political Cycles and the Macroeconomy*. Cambridge: MIT Press.
- Ames, Barry. 1987. *Political Survival: Politicians and Public Policy in Latin America*. Berkeley: University of California Press.
- Bickers, Kenneth N., and Robert M Stein. 1996. The Electoral Dynamics of the Federal Pork Barrel. *American Journal of Political Science* 40 (4):1300-1326.
- Brambor, Thomas, William Roberts Clark, and Matt Golder. 2006. Understanding Interaction Models: Improving Empirical Analyses. *Political Analysis* 14 (1):63-82.
- Brender, Adi, and Allan Drazen. 2003. Where Does the Political Budget Cycle Really Come From? CERP Discussion Paper N0. 4049.
- Bueno de Mesquita, Bruce, James D. Morrow, Randolph M. Siverson, and Alastair Smith. 2002. Political Institutions Policy Choice and the Survival of Leaders. *British Journal Of Political Science* 32:559-590.
- Bueno de Mesquita, Bruce, Alastair Smith, Randolph M. Siverson, and James D. Morrow. 2003. *The Logic of Political Survival*. Cambridge: The MIT Press.
- Chang, Eric. 2008. Electoral incentives and Budgetary Spending: Rethinking the Role of political Institutions. *The Journal Of Politics* 70 (4): 1086-1097
- Coughlin, P. 1992. Probabilistic Voting Theory. Cambridge University Press.
- Diaz-Cayeros, Alberto, and Beatriz Magaloni. 2003. The Politics of Public Spending. Part I. The Logic of Vote Buying.
- Drazen, Alan. 2000. The Political Business Cycles after 25 years. In *NBER Macroeconomics Annual*. Cambridge: MIT Press.
- Drazen, Alan, and Marcela Eslava. 2005. Electoral Manipulation Via Expenditure Composition: Theory and Evidence: NBER Working Paper 11085.
- Drazen, Alan, and Marcela Eslava. 2010. Electoral Manipulation Via voter-friendly spending: Theory and Evidence. *Journal of Development Economics* 92:

- Eslava, Marcela. 2005. Political Budget Cycles or Votes as Fiscal Conservatives? Evidence from Colombia. In *Documento CEDE 2005-12*. Bogotá.
- Eslava, Marcela. 2006. The Political Economy of Fiscal Policy: Survey. IDB Working paper No. 487.
- Feres, Juan Carlos, and Xavier Mancero. 2001. *El método de las necesidades básicas insatisfechas (NBI) y sus aplicaciones en América Latina*. Santiago: CEPAL.
- Franzese Jr., Robert. 2002. Electoral and Partisan Cycles in Economic Policies and Outcomes. *Political Science Annual Review* 5: 369-421.
- González, María de los Angeles. 2002. Do Changes in Democracy Affect the Political Budget Cycle? Evidence from Mexico. *Review of Development Economics* 6 (2):204-224.
- Johnson, David R. 1995. Alternative Methods for the Quantitative Analysis of Panel Data in Family Research: Pooled Time-Series Models. *Journal of Marriage and the Family* 57:1065-1077.
- Kennedy, Peter. 2003. *A Guide to Econometrics*. Cambridge: The MIT Press.
- Klomp, Jeroen and De Haan, Jakob. 2012: Do political budget cycles really exist? *Applied Economics* 45:3329-3341
- Kneebone, Ronald D., and Kenneth J. McKenzie. 2001. Electoral and Partisan Cycles in Fiscal Policy: And Examination of Canadian Provinces. *International and Public Finance* 8:753-774.
- Kraemer, Moritz. 1997. Electoral Budget Cycles in Latin America and the Caribbean: Incidence, Causes, and Political Futility: Inter-American Development Bank Working Paper, Washington D.C.
- Krause, George. 2004. Electoral Incentives, Political Business Cycles, and Macroeconomic Performance: Empirical Evidence from Postwar U.S. Personal Income Growth. *British Journal of Political Science* 35:77-101.
- Kwon, Hyeok Yong. 2005. Targeting Public Spending in a New Democracy: Evidence from South Korea. *British Journal of Political Science* 35 (2): 321-341
- Lindbeck, Assar, and Jorgen Weibull. 1987. Balanced Budget Redistribution as the Outcome of Political Competition. *Public Choice* 52 (3):273-297.

- Magaloni, Beatriz, Alberto Diaz-Cayeros, and Federico Estévez. 2002. Clientelism, Development and Party Hegemony: The Programa Nacional de Solidaridad (Pronasol) in Mexico. Paper read at American Political Science Association, at Boston.
- Mayer, Kenneth R. 1995. Electoral Cycles in Federal Government Prime Contract Awards: State Level Evidence From the 1988 and 1992 Presidential Elections. *American Journal of Political Science* 39 (1):162-185.
- Milesi-Ferretti, Gian Maria et al. 2002. Electoral Systems and Public Spendings. *The Quarterly Journal of Economics* 117 (2): 609-657
- Molinar, Juan, and Jeffrey Weldon. 1994. Electoral Determinants and Consequences of National Solidarity. In *Transforming State Society Relation in Mexico: The National Solidarity Strategy*, edited by W. Cornelious, A. Craig and J. Fox. La Jolla: Center fro U.S.-Mexican Studies, UCSD.
- Persson, Torsten 2002. Do Political Institutions shape Economic Policy? *Econometrica* 70 (3): 883-905
- Persson, Torsten, and Guido Tabellini. 2000. *Political Economics. Explaining Economic Policy*. Cambridge: The MIT Press.
- Remmer, Karen L. 1993. The Political Economy of Elections in Latin America, 1980-1991. *American Political Science Review* 87 (2):393-407.
- Rodríguez-Raga, Juan Carlos & Botero, Felipe. 2006. Ordenando el caos: elecciones legislativas y reforma electoral en Colombia. *Revista de Ciencia Política de Santiago de Chile* 26, No.1: 138-151.
- Rogoff, Kenneth. 1990. Equilibrium Political Budget Cycles. *American Economic Review* 80:24-36.
- Schady, Norbert R. 2000. The Political Economy of Expenditures by the Peruvian Social Fund (FUNCODES), 1991-95. *American Political Science Review* 94 (2):289-304.
- Schuknecht, L. 1994. Political Business Cycles and Expenditure Policies in Developing Countries: IMF Working paper 121.
- Shi, Min, and Jakob Svensson. 2002a. Conditional Political Budget Cycles. In *CEPR Discussion Paper NO. 3352*. London.
- Shi, Min, and Jakob Svensson. 2002b. Political Business Cycles in Developed and

- Developing Countries. Paper read at the Society for Economics Dynamics annual meeting, at Stockholm.
- Shi, Min, and Jakob Svensson. 2003. Political Budget Cycles: A Review of Recent Developments. *Nordic Journal of Political Economy* 29 (1):67-76.
- Shi, Min, and Jakob Svensson. 2006. Political Budget Cycles: Do they differ across countries and why?. *Journal of Public Economics* 90 (8-9):1367-1389.
- Streb, Jorg, and Lema, Daniel. 2009. Does divided government moderate electoral cycles in fiscal and monetary policy?: Annual and quarterly evidence from Latin America and the OECD.
- Stein, Robert M., and Kenneth N. Bickers. 1994. Congressional Elections and the Pork Barrel. *The Journal of Politics* 56 (2):377-399.
- Tabellini, Guido, and Torsten Persson. 2003. Do Electoral Cycles Differ Across Political Systems? IGIER Working Paper No. 232.
- Tufte, Edward R. 1978. *Political Control of the Economy*. Princeton: Princeton University Press.