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ANTI-POVERTY PROGRAMS AND PRESIDENTIAL ELECTION OUTCOMES: *FAMILIAS EN ACCIÓN* IN COLOMBIA

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Abstract

Using a comprehensive panel data-set for Colombian municipalities, this paper studies the political motives behind the allocation of the largest (cash conditional transfer) anti-poverty program across municipalities in the country, and examines whether the national incumbent governing coalition was rewarded politically for its expansion over the previous decade. Our findings show that, the incumbent governing coalition has used the program to target intensively loyal municipalities. Conversely, evidence supporting the argument that the governing coalition has used the program to target intensively swing regions is not found. We also find that, historically, the incumbent governing coalition has been politically rewarded by the electorate for providing subsidies through the program.

Key words: voting, presidential elections, anti-poverty programs, electoral rewards, Colombia.

JEL classification: D72, H53, O54.

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PROGRAMAS ANTI-POBREZA Y RESULTADOS EN ELECCIONES PRESIDENCIALES: FAMILIAS EN ACCIÓN EN COLOMBIA

Resumen

Usando información panel de municipios en Colombia, este artículo estudia los motivos políticos detrás de la asignación entre regiones del programa anti-pobreza (de transferencia en dinero condicionadas) más grande del país y examina si la coalición de gobierno nacional obtuvo beneficios políticos por la expansión de dicho programa durante la última década. Nuestros resultados muestran que la coalición de gobierno ha asignado intensivamente el programa en aquellos municipios históricamente leales a su coalición. Sin embargo, no se encuentra evidencia que indique que el programa se haya asignado intensivamente en municipios propensos a cambiar su voto a cambio de favores políticos. De otro lado, nuestros resultados muestran que la coalición de gobierno ha incrementado su apoyo político como resultado de la asignación de subsidios a través del programa.

Palabras clave: votación, elecciones presidenciales, programas anti-pobreza, recompensas políticas, Colombia.

Clasificación JEL: D72, H53, O54.

1. Introduction

During the last fourteen years, several developed and developing countries have implemented anti-poverty programs in the form of conditional cash transfer payments to lower income families. These transfers are usually conditioned on the children receiving regular health checks and attending school. Some of these experiences, especially in developing countries, have received scholarly attention, though mainly, studies have concentrated on evaluating these programs' impact on individual and household outcomes. The impact evaluation results for the first generation of these programs show their positive effects on school enrollment rates, health care and household consumption. (For a survey of anti-poverty programs and respective evaluations, see Rawlings and Rubio 2005, Fiszbein and Schady 2009).

Nevertheless, little attention has been paid to both the political motives behind the allocation of these projects across regions, and the potential effects these programs might have on voting behavior—and, consequently, on electoral outcomes—. Large anti-poverty programs offer a nice study case for testing these concerns. This should be especially true for developing countries, which are usually characterized by bad income distributions and high proportions of poor people; likewise, where cash subsidies represent an important proportion of household incomes. Using information both across municipalities and over time for the largest anti-poverty program in Colombia (called *Familias en Acción*, hereafter FA), this paper presents evidence regarding these concerns.

In order to typify the political motives behind allocation of the FA program across municipalities, we utilize models already existing in the political economic literature. In this regard, the analytical models can be divided into two groups—"loyal voter" models (Cox and McCubbins 1986), and "swing voter" models (Lindbeck and Weibull 1987; Dixit and Londregan 1995 and 1996). The main difference between these categories of models has to do with the incumbent's incentives to target specific segments of voters. On the one hand, "loyal voter" models suggest that incumbents have incentives to skew public projects towards their areas of core electoral support. On the other hand, "swing voter" models suggest that incumbents have incentives to skew public projects towards swing regions, in which there is a potential for voters to trade-off ideological attachments in exchange for public targeting policies. Following the literature in this field (Stromberg 2004; Larcinese,

et al. 2006; and Ansolabehere and Snyder 2006, among others), we build historical measures of the respective concentrations of swing voters and loyal voters in each municipality. We use these measures to study the political motives behind allocation of the FA program across municipalities.

We also estimate the effect of the allocation of the FA program on the incumbent's vote share across municipalities. Estimating the effect of the allocation of public projects across regions on voting behavior requires taking into account certain particular identification issues. Although most of these programs have established clear eligibility criteria for selecting potential beneficiaries (regions and/or individuals), most of the time, the allocation of subsidies among them does not follow a completely random design—this is, in fact, the case with the Colombian FA program. This opens the door for politicians to use the allocation of these subsidies for political purposes. Therefore, if this is the case, and if these political motives are not taken into the account when estimating the effect of the allocation of subsidies on voting behavior, then the estimated effect is likely to be biased.² By the same token, considering these political incentives as part of the identification strategy allows us to mitigate potential endogeneity problems for the allocation of the FA program. We take advantage of our measures of concentration of swing voters and loyal voters to properly identify this effect.

The unit of observation used in the analysis is the municipality. We concentrate on 2006 and 2010 presidential elections in Colombia. Our sample includes 1,028 municipalities (dictated by data availability); these represent 93% of the total municipalities in Colombia, and concentrate 98% of the total population in the country. The main variables of interest are the FA beneficiary rate—i.e., the number of beneficiary families (x 1,000 population), and the incumbent's (i.e., the governing coalition's) share of votes. Additionally, we concentrate on the role played by the concentration of swing versus loyal voters in determining both the allocation of the FA program across municipalities and voting behavior. In addition to our identification strategy, we also exploit in our estimates the panel structure of our data set so as to remove unobservable time-invariant municipal characteristics that might correlate with other possible strategies used by the incumbent in the allocation of the FA program.

² This potential bias was formally put forward some years ago by Levitt and Snyder (1997).

Regarding the political motives behind allocation of the FA program, we find evidence supporting our hypothesis that the incumbent governing coalition has used the FA program to target intensively loyal municipalities; conversely, we find no evidence supporting our hypothesis that the governing coalition has used the program to target intensively swing regions. Our findings also show that, historically, the incumbent governing coalition has been politically rewarded by the electorate for providing subsidies through the FA program. In particular, we find that an increment of 12.5 points in the FA beneficiary rate in a municipality (less than one standard deviation) increases the incumbent's vote share by one percentage point. Considering that the average municipality in the country has 40,000 inhabitants, this means that an expansion of the FA program to include 500 new beneficiary families in a given municipality generates an increment of one point in the incumbent's share of votes—this represents on average 110 new votes. An expansion of this magnitude implies additional spending of 383,000 U.S. dollars.

As far as we know, no studies have analyzed the political motives behind the allocation of large anti-poverty programs in the form of conditional cash transfers. Nevertheless, several studies—mainly concentrated in developed countries—have analyzed the allocation of public expenditures across districts/regions. The recent literature does not provide evidence supporting the “swing voter” hypothesis (Stromberg 2004; Larcinese, et al. 2006; and Ansolabehere and Snyder 2006); it does, however, provide evidence supporting the “loyal voter” hypothesis (Larcinese, et al. 2006; and Ansolabehere and Snyder 2006). Our study adds new evidence—for developing countries and for the particular case of large (cash conditional transfer) anti-poverty programs— on these patterns.

Regarding political rewards, some studies have analyzed the relationship between anti-poverty programs—in the form of conditional cash transfers— and voting behavior (Zucco 2008; Manacorda et al. 2009; De la O 2010, Baez et al. 2012).³ On the one hand, and taking into account identification considerations, De la O (2010) is the only study that has analyzed the effect of anti-poverty programs on real electoral outcomes. By taking advantage of a random experiment conducted in the early stage of PROGRESA in Mexico for a subsample of villages, she finds a positive effect of the program on the incumbent's

³ Studies concerning how government spending—in other contexts—yields electoral benefits have been conducted in several countries. Some examples are Levitt and Snyder (1997), Chen (2008, 2009), and Cerda and Vergara (2008).

vote share for the 2000 presidential elections. On the other hand, using individual information and implementing a regression discontinuity design, Manacorda et al. (2009), and Baez et al. (2012) have also properly identified a positive effect of the allocation of anti-poverty programs on some proxy variables for voting behavior. The main limitation of these studies is that these proxy variables would not necessarily reflect effective individuals' voting behavior.

The contribution of this paper is twofold. First, it provides evidence concerning the political motives behind the allocation of large anti-poverty programs (in the form of conditional cash transfers). As we have already mentioned, no previous study has analyzed this issue in this context. Second, it adds empirical evidence to the scarce number of studies dealing with the effect of large anti-poverty programs on “real” electoral outcomes, rather than on proxy variables for that. In doing this, we offer an alternative way to mitigate—in the absence of reliable instrumental variables and effective measures of voting behavior—potential endogeneity problems for the allocation of public programs.

The rest of the paper is organized as follows. Section 2 provides a description of the FA anti-poverty program and briefly describes the country's political background. Section 3 describes the data set. In sections 4 and 5, we present our results. The last section concludes.

2. Country background

Colombia is a particularly interesting case to study our hypotheses for at least three reasons. First, it has one of the largest poverty rates in Latin America with one of the worst income distributions. This implies both that anti-poverty programs are politically demanded by a large fraction of the population, and that direct income cash transfers represent a very important fraction of household incomes. Second, Colombia has one of the longest democratic traditions in Latin America, with quite well established electoral rules. More interestingly, a constitutional amendment in 2004 allowed for presidential reelection, following which, incumbency began to play a key role in presidential elections as never before. Finally, as we discuss below, since beginning in 2001, the FA anti-poverty program has exhibited a significant expansion.

2.1. The FA program

Colombia's population is around 51 million inhabitants, with 49.7% of the population living below the poverty line. In Colombia, poverty exhibits a high degree of regional variability. For instance, in Choco (the poorest state in the country, with a population of 454,030), 78.5% of the population lives below the poverty line, whereas in Bogota (the capital city, with a population of 6,840,116), only 8.9% of the population are in the same situation.⁴

The FA anti-poverty program was created by Colombia's central government in 2001, with the aim of alleviating and reducing poverty. Through an agency called Social Action Office (*Oficina de Acción Social*), the central government directly administrates the program. The first wave of the FA program (2001-2005) was designed to provide direct conditional cash assistance to the poorest families in the country living in municipalities with populations of less than 100,000 persons, with at least one banking agency (through which to make the cash transfer payments, via the formal financial system), and with the institutional capacity to provide sufficient health and education services (in order to absorb the additional demand generated by the program).⁵ Among the municipalities that satisfied these requirements (620 approximately), 270 municipalities were non-randomly chosen to implement the program in 2001. (Though it should be noted that no formal record exists as to how these initial municipalities were chosen.) By 2002, the rest of these 620 municipalities were covered by the program; and approximately 50 new municipalities were added to the program between 2003 and 2005 via presidential instruction.

During its second wave of implementation (2006-2009), the program was expanded to almost all of the municipalities in the country, encompassing not only direct conditional cash assistance to the poorest families in the country, but also to people displaced due to internal conflict, and native communities. In 2009, 87% of resources were allocated to poorest people, with the remainder being divided between displaced people and native communities. Our study concentrates on the first sub-program (cash assistance to the poorest families), because its eligibility criteria are based exclusively on households'

⁴ Source: Lopez and Nuñez (2007).

⁵ Notice that an alternative strategy for identifying the effect of the allocation of the FA program on voting behavior would be to use a regression discontinuity design for those municipalities consisting of around 100,000 persons. However, the number of municipalities in the country at this threshold is quite low.

economic status and not on other factors (such as whether displaced or not, or ethnicity). We will still refer to this as the FA program.

Only those families classified as SISBEN 1⁶ in a municipality are eligible for the program. Additionally, according to the current rules of the program, the identification and selection of municipalities still take into account not only family eligibility but also each municipality's institutional capacity vis-a-vis the implementation of the program. Thus, health and education supply services, as well as formal and informal financial mechanisms, should be taken into account when implementing the program in a municipality.

The FA program offers two types of subsidies. The first is a nutrition subsidy for families with children under seven years of age. This subsidy allocates between \$9 and \$22 US dollars per month to each family (according to regional location), regardless of the number of children in the family, though conditional on the family's participation in health programs. The second subsidy is an educational subsidy to children 7-18 years of age, which allocates to each child between \$7 and \$52 US dollars per month (according to regional location) conditional on school enrolment and certified attendance.

Figure 1 shows the evolution of the total number of FA beneficiary families, and the percentage of municipalities with FA coverage in the country. Both measures have exhibited a rapid increase during the decade. At the beginning of the program, less than 30% of municipalities were covered, with only 84,000 families receiving benefits from the program. In 2009, almost 100% of the municipalities were covered by the program, with approximately 2,300,000 families receiving benefits. Figure 2 shows the amount of resources allocated by the FA program in US dollars and as a percentage of central government spending. The series demonstrates a clear upward trend. In 2009, FA program spending represented 3.5% of total central government spending.

Table 1⁷ shows the percentage of municipalities with FA coverage by state, along with statistics of the FA beneficiary rate at the state level. The statistics are shown for those years before a presidential election. In order to better see the expansion of the program over time, statistics for the FA beneficiary rate are conditioned on the program's coverage. First

⁶ SISBEN is an index used to classify families according to their economic status. SISBEN 1 is the index assigned to those families suffering the worst conditions.

⁷ In Tables 1 and 2, we use a sample of 1,028 municipalities, which corresponds to 93% of the municipalities in Colombia. As discussed below, this is the sample we use in all of our econometric exercises.

of all, notice that the percentage of municipalities with FA coverage has exhibited a permanent increment over time for all the states. In 2009, all municipalities in our sample were covered by the FA program. The FA beneficiary rate has also exhibited a general increment over time. Notice that this rate also exhibits a high variability within and between states.

2.2. Political background

At the beginning of the nineties, Colombia's presidential elections were run every four years, without the possibility of reelection, and with a two-round electoral system (i.e., if no candidate obtains more than 50% of the votes in the first round, there is a second round featuring the two candidates obtaining the largest number of votes). In 2004, a constitutional amendment allowed for presidential reelection for an additional consecutive period of four years.

In 2002, with the support of a just created political party called *Primero Colombia*, the independent candidate Alvaro Uribe was elected in the first-round as Colombia's president (with 53% of the total votes) for the period 2002-2006. Notably, near to the time of the elections, one of the main traditional parties in the country (*Partido Conservador*) decides to withdraw its candidate and to extend support to Uribe's campaign. His political platform was mainly based on security issues and the fight against Colombian guerillas. Although his social policy proposals were concentrated on expanding coverage and quality improvements in education and social security services, he never included the FA program in his political program as an explicit tool for obtaining these objectives (See DNP, 2002).

The 2004 constitutional amendment allowed incumbent president Uribe to run in the 2006 presidential election. He was re-elected that year in the first-round (with 62% of total votes) for the period 2006-2010. Interestingly, as part of his political platform during this election campaign, Uribe introduced the FA program as the main mechanism for reducing poverty in the country, and proposed extending the program to include 1.5 million families (DNP, 2006). During his second presidency, Uribe governed with a political coalition made up of two relatively new parties, *Partido de la U* and *Cambio Radical*, together with the traditional party *Partido Conservador*. During his second term, the FA program was extended from 665 to 1,097 municipalities, and the number of beneficiary families grew by 278% (i.e., it went from 588,105 to 2,228,443 families).

Although a group of political parties and citizens tried to promote a Uribe's reelection a second time, it was declared unconstitutional, and the incumbent president was not allowed to run in the 2010 presidential elections. Each of the parties belonging to the governing coalition decided to run in the first-round presidential elections that year under a different candidate. No candidate was elected in the first round, but candidate Santos (of *Partido de la U*) was chosen to run in the second-round. This time, the three parties belonging to Uribe's governing coalition decided to support candidate Santos, and he was elected president with 69% of votes.

The above description allows us to identify what we call in our analysis the incumbent governing coalition, and, more specifically, the incumbent's (governing coalition's) vote share. This vote share accounts for Uribe's share of votes in 2006 presidential elections. With regards to 2010, we consider two possibilities. First, we consider the sum of the vote shares in the first-round of the 2010 presidential elections of the three parties (*Partido de la U*, *Cambio Radical* and *Partido Conservador*) belonging to the 2006-2010 governing coalition. Second, we consider Santos' vote share in the second-round of the 2010 presidential elections.

Table 2 shows the state-level statistics for the vote shares. The incumbent vote share exhibited a permanent and common increment over time, with Bogota being the only exception. However, incumbent's vote share also exhibits a high level of variability both within and between states.

3. Data and Measures

The unit of observation used in the analysis is the municipality. We concentrate on 2006 and 2010 presidential elections in Colombia. Our sample includes 1,028 municipalities (dictated by data availability); these represent 93% of the total municipalities in Colombia, and concentrate 98% of the total population in the country. The 7% of municipalities left out, correspond to the states with the smallest populations in the country.

To test for the political motives behind allocation of the FA program across municipalities, we use as endogenous variable the FA beneficiary rate—i.e. the number of FA beneficiary families (x1,000 population) in each municipality. The main variables of interest in this case are the respective concentrations of swing voters and loyal voters in each municipality. To test for the effect of the allocation of the FA program across municipalities on voting

behavior, we use as endogenous variable the incumbent's vote share in each municipality. The main variable of interest in this case is the FA beneficiary rate.

The number of FA beneficiary families in each municipality is directly taken from the Colombian government's Social Action Office's statistics. Using this information along with inter-census estimates of the population (computed by Colombia's Statistics Office, DANE), we compute the number of FA beneficiary families (x1,000 population)—i.e. the FA beneficiary rate. Since presidential elections are carried out during the first semester of the corresponding year, this variable correspond to the FA beneficiary rate one year before the election year (i.e. 2005 and 2009).

Information on the electoral results in each municipality is obtained from the Electoral National Office (*Registraduria Nacional*). As commented above, we consider two measures for the incumbent's vote share, both of which differ only for the 2010 vote share that we take into account. The incumbent's vote share (A) matches the 2006 Uribe's vote share with the first-round sum of the governing coalition parties' vote share for 2010. The incumbent's vote share (B) matches the 2006 in Uribe's vote share with the Santos' second-round vote share for 2010.

In the spirit of previous studies in this field (Stromberg 2004; Larcinese, et al. 2006; and Ansolabehere and Snyder 2006), we use the average of the governing coalition's share of votes in all races for mayor, governor, lower house (the Chamber of Representatives), and president held during the preceding nine/ten years relative to the years under consideration (i.e., 2006 and 2010) in order to measure the concentration of loyal voters in a municipality. We call this variable LOYAL. Overall, we take into account 14 races: 4 races for mayor and 4 for governor (held in 1997, 2000, 2003 and 2007), 3 races for the lower house, and 3 races for president (held in 1998, 2002 and 2006). As noted in section 2.2, Uribe's party (*Primero Colombia*) was created for the sole purpose of supporting his presidential campaign. Moreover, with the exception of the *Conservador* party, the rest of parties belonging to the incumbent's governing coalition were also created during the 2000s. Consequently, we do not have voting information for these parties prior to 2002. Therefore, for the years prior to 2002, we use only the share of votes obtained by the *Conservador* party in order to compute LOYAL. For the elections held between 2002 and 2010, we consider, not only the *Conservador* party's share votes, but also the share of votes of the

parties belonging to the governing coalition that supported Uribe in these races (*Partido de la U, Cambio Radical*).

The main reason for choosing a nine/ten years window for our measure of loyalty is because it allows us to consider the electoral results for the total period of time during which the governing coalition was in office, while at the same time reducing the effect of short-run shocks. Notice that LOYAL includes electoral information for six races prior to the Uribe era (for mayor and governor in 1997 and 2000, and for the lower house and president in 1998). In order to check the robustness of this measure, we also compute it by changing the length of years (i.e., elections) for the window. Specifically, we compute two variables: LOYAL₋₁ and LOYAL₋₂. The first one is computed similarly to LOYAL, only we drop the information for the last two elections during the window (i.e., we drop the races held in 1997 for the 2005 measure, and the races held in 2000 for the 2009 measure). Correspondingly, LOYAL₋₂ is computed by dropping the information for the last four elections during the window (i.e., by dropping the races held in 1997 and 1998 for the 2005 measure, and the races held in 2000 and 2002 for the 2009 measure). It is important to bear in mind that the cost of reducing the window in estimating this loyalty measure is that it becomes more responsive to short-run shocks.

To measure the concentration of swing voters in a municipality, we use the standard deviation of the governing coalition's share of votes over the preceding nine/ten years in all races for mayor, governor, lower house and president. We call this variable SWING. This measure was suggested by Wright (1974), and has been used by several studies in this field (Stromberg 2004; Larcinese, et al. 2006; and Ansolabehere and Snyder 2006). Thus, the concentration of swing voters in a municipality increases as the governing coalition's vote volatility increases.⁸ Following the reasoning discussed in the previous paragraph, we also compute SWING₋₁, and SWING₋₂ by changing the year-window. The electoral information used in building our loyal and swing measures is obtained from the Electoral National Office (*Registraduria Nacional*).

Beyond political considerations, those specific factors related to the eligibility of a municipality to partake of the FA program (see section 1.1) should also affect its allocation

⁸ This swing measure is consistent with the Colombian voting rule for all races, which is a majority one. Measures of pivotality, such as how near the vote share of a party is to a threshold, do not make sense under this electoral rule.

across municipalities. Three variables are used to control for each municipality's institutional capacity: the number of bank offices (x 1,000 population), the number of public schools (x 1,000 children in school-age), and the number of health care staff (x 1,000 population). Information regarding banks is taken from the Colombian Financial Superintendence; information about schools is taken from the Colombian Ministry of Education; and information regarding health staff is taken from the Colombian Ministry of Social Protection. Additionally, since the FA program specifically targets families with children between the ages of 0 and 18, we also introduce into our estimates the percentage of each municipality's population made up of children. Finally, we also include as controls economic variables reflecting the level of development in each municipality such as are expected to affect the program's allocation across municipalities. These variables are per capita GDP, the unemployment rate,⁹ and the percentage of the population with unsatisfied basic needs (UBN). With the exception of the per capita GDP, economic variables are taken from Colombia's Statistics Office (DANE). The per capita GDP is taken from the CEDE data-set (the Center for Development Economics Studies, Universidad de los Andes).

We also include economic, demographic, political and violence controls in the incumbent's vote share regression. The economic variables included are per capita GDP, unemployment rate, and the percentage of the population with UBN. We also add to our econometric specification the most important public expenditures in the country as executed by the central government across municipalities. Since the allocation of these resources might be correlated with allocation of the FA program, including these variables allows us to avoid potential omitted variable biases. We include the per capita amount of real transfers from the central government to each municipality. Although the distribution of these transfers across municipalities is done on the basis of an established rule—one that takes into account such dimensions as population and poverty—these transfers represent the most important source of revenues for the municipalities. We also include the per capita spending allocated by the Colombia's Family Welfare Institute (ICBF, its acronym in Spanish) to each municipality. The ICBF is a central government agency that aims to protect families, especially children, in the country. This program is one of the largest social programs in the country run by the central government. Finally, we also include the

⁹ Unemployment rate information is only available at the state level.

number of displaced families with FA coverage (x 1000 population). As explained in section 2.1, in addition to resources allocated through the FA program to the poorest families, the Social Action Office allocates resources to displaced people in the country. Actually, this program is the second largest program under the control of this central government agency.¹⁰

The demographic variables included are population, the percentage of female voters, and the average age of the population over 18 years of age. This last variable is a proxy for the average age of voters. Demographic variables are taken from Colombia's Statistics Office (DANE). We include two political variables, which we call community council and MAYOR. During his two terms in office, almost every weekend, president Uribe organized a community council in a different municipality in the country. In these councils, he and some of his ministers discussed local necessities and problems with regional leaders and politicians. Thus, community council is a dummy variable that takes a value of one if during the four years leading up to the election there was in the municipality at least one community council; otherwise it takes a value of zero. Although it is not clear how this variable might affect the incumbent's vote share, it is plausible to expect that community council positively affect this share. This variable is constructed using information from the Colombian Presidency webpage. MAYOR is a dummy variable that identifies whether or not the political party of the municipality's mayor belongs to the incumbent's governing coalition at the time of presidential election.¹¹ This variable allows us not only to see whether the political affiliation of a municipality's mayor affects the incumbent's performance in that municipality, but also to study whether the incumbent used the allocation of the FA program to support mayors affiliated with his political coalition. Notice that this might reflect a short-run political motivation for the incumbent to allocate public projects, something not properly captured by our loyal and swing measures.

Finally, since security has been a key political concern during the last decades in Colombia, in particular the internal civil conflict with guerillas, we include three control variables that

¹⁰ Transfers are taken from the CEDE data-set, ICBF spending was supplied by the ICBF, and the FA-displaced population-beneficiary rate is constructed using information from the Social Action Office.

¹¹ To build MAYOR, we consider not only the parties in the national governing coalition, but also those regional parties that supported this national coalition. In particular, we add to the former the following parties: *Convergencia Ciudadana*, *Equipo Colombia*, *Colombia Viva*, *Nuevo Partido*, *Colombia Democrática* and *Alas Equipo Colombia*. Details concerning the support of these parties for the national governing coalition can be found in Olivella and Vélez (2006).

take these issues into account. The first two variables represent the four years average of the number of guerilla attacks (x 1,000 population) and the four years average of the number of paramilitary attacks (x 1,000 population). We separate the attacks of these two groups because guerrillas have usually been associated with an extreme-left political ideology, whereas paramilitary groups have generally been associated with an extreme-right political ideology. We also control for the four year average of the number of homicides (x 1,000 population). These variables are taken from the CEDE data-set. Our expectation is that an increase in any of these rates will negatively affect the incumbent's vote share.

Descriptive statistics of these variables are reported in Table 3 for each presidential election. Two comments regarding these statistics: First, note that in 2006, there are some municipalities where the measures of swing and loyal both have a value of zero. Actually, this only happens in one municipality, where the incumbent governing coalition both failed to field a candidate for local elections and failed to receive a single vote in the presidential race. Second, note that there are two variables that reduce our municipality sample (dictated by the data availability)—central government transfers and MAYOR.

4. Testing for the incumbent's allocation strategy.

In this section, we present our estimates of the determinants of the allocation of the FA program across municipalities. The dependent variable under consideration here is the FA beneficiary rate. Our main interest is to study the strategy employed by the incumbent in allocating resources through the FA program. Therefore, our main variables of interest are the historical measures of the respective concentrations of swing voters and loyal voters introduced in section 3. As explained above, we also include as controls institutional and economic variables.

We base our analysis on recent developments in the political economics literature regarding the distribution of public projects across districts (or groups). Respective models can be divided in two groups—"loyal voter" models (Cox and McCubbins 1986) and "swing voter" models (Lindbeck and Weibull 1987; and Dixit and Londregan 1995 and 1996). The main difference between these two models reflects the incumbent's incentives to target different segments of voters. On the one hand, the incumbent's strategy may be to allocate more public resources to "loyal" regions—i.e., those regions where the incumbent is

electorally secure and expects positive electoral outcomes, but where an increase in the allocation of public resources is still necessary to mobilize core voters so as to positively affect the electoral results. On the other hand, the incumbent's strategy may be to allocate more public resources to swing municipalities—i.e., those municipalities where the incumbent is electorally vulnerable and expects negative electoral outcomes, but where an increase in the allocation of resources may favorably affect the electoral results. Clearly, these two models are not exclusive. In other words, an incumbent may decide to target both swing regions and loyal regions at the same time.

Table 4 reports our results. All our regressions include time effects in order to take into account the general upward trend of the FA beneficiary rate. We report estimates for the three sets of loyal and swing measures commented on in section 3.1, using two different econometric specifications. Columns 1 through 2 report the estimates combining SWING and LOYAL, columns 3 through 4, those combining SWING₋₁ and LOYAL₋₁, and columns 5 through 6, those combining SWING₋₂ and LOYAL₋₂. The first econometric specification includes both the set of institutional variables accounting for the allocation rules of the FA program across municipalities, and a set of socioeconomic variables. In the second specification, we include the variable MAYOR, in order to see whether one short-run strategy used by the incumbent in the allocation of resources through the FA program has been to support their mayor in the municipalities.

The results reported in Table 4 strongly support the “loyal voter” hypothesis. We find a positive, statistically significant, and statistically robust effect of the concentration of loyal voters on the allocation of the FA program for all econometric specifications. The results reported in Table 4 provide little evidence that the incumbent governing coalition has used the FA program to target municipalities with high concentrations of swing voters. Only when we use LOYAL₋₂ and SWING₋₂ in our estimates—i.e., when we take the smallest year-windows for each of the two measures—does the effect of concentrations of swing voters become statistically significant.

Regarding the effect of the institutional variables, we find that public schools and health care staff positively affect the allocation of resources through the FA program. However, bank offices and the percentage of children have no effect on this allocation. Our estimates show that MAYOR has had no impact on the allocation of resources through the FA

program. Most of the socioeconomic variables do not exhibit a statistically robust effect on FA program allocation. However, our estimates show that the FA program has been more intensively expanded in those municipalities that have exhibited a greater increase in the unemployment rate. Additionally, population size has a negative effect on this allocation. This last result is consistent with the institutional rules discussed in section 2.1.

Our main conclusion in this section is that the incumbent governing coalition has used the FA program in order to target intensively loyal municipalities; there is little evidence in support of the argument that the governing coalition has used the program to target intensively swing regions.

5. Testing for Political Rewards

In this section, we study whether or not the incumbent's governing coalition in Colombia for the period 2006-2010 was rewarded politically for the subsidies allocated through the FA program. As said in the introduction, estimating the effect of the allocation of public projects across regions on voting behavior requires taking into account certain particular identification issues. Since politicians can use the allocation of these programs for political purposes, if these political motives are not taken into the account when estimating the effect of the allocation of subsidies on voting behavior, then the estimated effect is likely to be biased. Before presenting our results, let us first discuss our identification strategy.¹²

5.1. Identification strategy

Based on previous studies in the field, and the analysis presented in section 4, we can hypothesize the following simple econometric model (wherein the means of all variables across both municipalities and time have been removed):

$$v_{it} = \beta_1 b_{it} + \beta_2 s_{it} + \beta_3 l_{it} + \epsilon_{it} \quad (1)$$

$$b_{it} = \theta_1 s_{it} + \theta_2 l_{it} + \mu_{it} \quad (2)$$

where i indexes municipalities, t indexes time; v_{it} is the incumbent vote share; b_{it} is the FA beneficiary rate; s_{it} measures the concentration of swing voters; l_{it} measures the concentration of a loyal voters; and ϵ_{it} , and μ_{it} are idiosyncratic error terms assumed to be uncorrelated with each other across municipalities. The incumbent's vote share in a

¹² Levitt and Snyder (1997) formally argued that if an incumbent allocates more resources in those regions where he or she feels politically vulnerable, and these efforts are not observed, then the estimate of this effect is likely to be biased. Unlike them, we introduce in our discussion below more detailed elements of the political strategies or motives behind the allocation of public resources across regions.

municipality is assumed to be affected by three elements: the allocation of the FA program; the concentration of swing voters; and the concentration of loyal voters in each municipality. We expect β_1 , and β_3 to be positive. However, depending on the voting behavior of swing voters, β_2 could be positive, negative or zero. On the other hand, the expected sign of the parameters in equation 2 depends on whether the incumbent targets swing municipalities, loyal municipalities, or both. As we show in section 4, we find evidence supporting the hypotheses that $\theta_1 = 0$, and $\theta_2 > 0$.

Let us assume that the incumbent’s allocation strategy is not taken into account when estimating equation 1. In this case, the “misspecified” econometric model being estimated is given by:

$$v_{it} = \gamma b_{it} + \varepsilon_{it} \quad (3)$$

Let us call $\hat{\gamma}$ to the OLS estimation of γ . Computing the expected value of $\hat{\gamma}$, we obtain:

$$E[\hat{\gamma}] = \beta_1 + \frac{\theta_1\beta_2\text{var}(s_{it})+\theta_2\beta_3\text{var}(l_{it})+(\theta_1\beta_3+\theta_2\beta_2)\text{cov}(s_{it},l_{it})}{\text{var}(b_{it})} \quad (4)$$

Equation 4 shows that the estimated effect of b_{it} on v_{it} may be biased when using the econometric specification in equation 3. The direction of bias critically depends on the signs of β_2 , β_3 , θ_1 , θ_2 and $\text{cov}(s_{it}, l_{it})$. We discuss in more detail this issue below. However, for the time being, notice that if s_{it} and l_{it} are observed, then we can use these variables to estimate equation 1 and, to a large extent, mitigate potential biases in the estimated effect of b_{it} on v_{it} . Actually, this is the strategy we use to estimate this effect. Moreover, we use fixed-effects estimates, which allow us to minimize the potential biases that can emerge from time-invariant municipal characteristic such as might be correlated with other potential unobserved motives of the incumbent vis-à-vis allocation of the FA program. All our regressions include time effects in order to take into account the general upward trend in the incumbent’s vote share.

5.2. Results

To explore the magnitude and the direction of the bias that can emerge when omitting the strategies used by the incumbent in allocating the FA program, we report estimates for both equations 3 and 1—adding the set of control variables discussed in section 3. Table 5 shows our estimates. In columns 1 through 3, the endogenous variable is the incumbent’s vote share (A), while in columns 4 through 6, the endogenous variable is the incumbent’s

vote share (B). Columns 1 and 4 report the effect of the FA program on the respective incumbent's vote share when the swing and the loyal measures are omitted from the econometric specification. Regardless of the dependent variable under consideration, we find a positive and statistically significant effect. However the estimated effect of the FA program on the incumbent's vote share (B) is larger than the estimated effect of the FA program on the incumbent's vote share (A). As discussed above, these effects are likely biased. To study the magnitude and the direction of the potential bias, in columns 2 and 5 we include in the regressions both SWING and LOYAL. The first observation is that the qualitative results are quite similar to those reported in columns 1 and 4. Nevertheless, the estimated parameters are now somewhat smaller than the parameters reported in those columns, which suggest that our initial estimates are up-biased. The magnitude of this effect is similar when we combine either SWING₋₁ with LOYAL₋₁, or SWING₋₂ with LOYAL₋₂, rather than using SWING and LOYAL. These results are not reported in Table 4, but are available upon request.

Finally, columns 3 and 6 add the variable MAYOR to our econometric specification. As noted above, regardless of the respective concentrations of loyal voters and swing voters in a given municipality, whether the MAYOR belongs to a party supporting the governing coalition might affect the short-run strategy employed by the incumbent in allocating resources through the FA program. Our results show that adding this variable to our estimates does not affect in an important way the estimated effect of the FA program on the incumbent's vote share. Moreover, this variable only have a statistically robust effect on the incumbent's vote share (A). It is important to note that the larger impact of the FA beneficiary rate on voting behavior reported in column 3 and 6 is due to changes in the municipality sample (dictated by data availability) rather than to the inclusion of MAYOR in the regression. Actually, when we use this constrained sample and do not include MAYOR in the regressions, the respective estimated parameters are larger than those reported in Table 5.¹³

Let us now analyze the effect of the respective concentrations of loyal and swing voters on the incumbent's vote share. First, we find that the incumbent has become more successful in capturing votes in those municipalities that have become more loyal. Interestingly, this

¹³ These results are not reported in Table 4, but are available upon request.

effect is statistically significant only when we consider the first-round results in the 2010 presidential elections (i.e. when incumbent's vote share (A) is the dependent variable), but not when we consider the second-round results in these elections (i.e. when incumbent's vote share (B) is the dependent variable). Second, we find that the concentration of swing voters has no effect on the incumbent's vote share. These results exhibit some small changes when combining either SWING₋₁ with LOYAL₋₁, or SWING₋₂ with LOYAL₋₂, in place of SWING and LOYAL.¹⁴ On the one hand, the concentration of loyal voters loses its statistical significance when we use LOYAL₋₂, although this still remains positive. On the other hand, the (positive) effect of the concentration of swing voters on the incumbent's vote share becomes statistically significant only for the case wherein incumbent's vote share (B) is the dependent variable.

The magnitude and the direction of the estimated bias can be explained in light of the different parameters involved in equation 4. Taking into account our more general findings (i.e., $\beta_2 = 0$, $\beta_3 > 0$, $\theta_1 = 0$, and $\theta_2 > 0$), equation 4 reduces to:

$$E[\hat{\gamma}] = \beta_1 + \frac{\theta_2 \beta_3 \text{var}(l_{it})}{\text{var}(b_{it})} \quad (5)$$

Since the second term in equation 5 is positive, then the initial estimated effect was up-biased. However, since b_{it} exhibits a very large variance in our sample— vis-à-vis the variance of l_{it} (see Table 3), the magnitude of this bias tends to be small.

Summarizing, our results support the hypothesis that the incumbent's coalition has been rewarded politically by subsidizing allocations through the FA program. The estimated parameter for this effect falls between 0.065 or 0.094, depending on the measure of the incumbent's vote share being used. If we consider a $\beta_1 = 0.08$, then an increment of 12.5 points in the FA beneficiary rate in a municipality (less than one standard deviation) increases the incumbent's vote share by one percentage point. Considering that the average municipality in the country has 40.000 inhabitants, this means that an expansion of 500 new FA beneficiary families in a given municipality should generate an increment of one point in the incumbent's vote share in that municipality. On average, the voting-age population makes up 61% of the total population, while the turnout rate is 45%. This implies that such an expansion generates an increment in the incumbent's vote of approximately 110 votes. The average yearly cost per family of the program in 2009 was

¹⁴ these results are not reported in Table 4, but are available upon request.

around \$766 US dollars. Thus, an expansion of this magnitude implies additional spending of 383 US thousand dollars.

Let us finally briefly describe the effects of the other control variables included in Table 5. In general, most of the economic variables have no statistically robust effect on the incumbent's vote share. However, ICBF spending has a positive and statistically significant impact on the incumbent's vote share. Remarkably, those municipalities that have suffered an increase in guerilla attacks have more intensively supported the incumbents' coalition. This result reflects the success of the main political platform of the governing coalition—i.e., the fight against guerrillas. Since guerrillas have been forced to redirect their attacks due to the government's military strategy, those municipalities that have seen an increase in guerrilla attacks have been more likely to support the incumbent's coalition based on its success in other municipalities. Finally, the size of the municipality in terms of population and the percentage of voting-age women both have a negative and statistically robust effect on the incumbent's vote share.

7. Conclusions

Our results show that the governing coalition has used the FA program to target intensively loyal regions rather than swing regions. We have also presented evidence supporting the hypothesis that incumbent politicians derive political reward through the allocation of subsidies via large anti-poverty programs. Our estimations suggest that an additional spending of 383 US thousand dollars on the FA program increases the incumbent's share of votes by one percentage point in a municipality. This represents approximately 110 new votes.

Our results suggest that anti-poverty programs in developing countries may be used by incumbents in order to increase their political support. This evidence is particularly important for at least two reasons. First, this suggests that the administering of these programs provides the incumbent political advantage during the electoral process and may potentially reduce political competition. Second, the possibility of obtaining political rewards through the FA program might affect the public policies implemented by an incumbent to the detriment of other potentially efficient public policies (like investment on infrastructure or another public goods) such as might have positive effects on poverty.

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Figure 1
FA anti-poverty program
Number of beneficiary families and percentage of municipalities with coverage
2001-2009

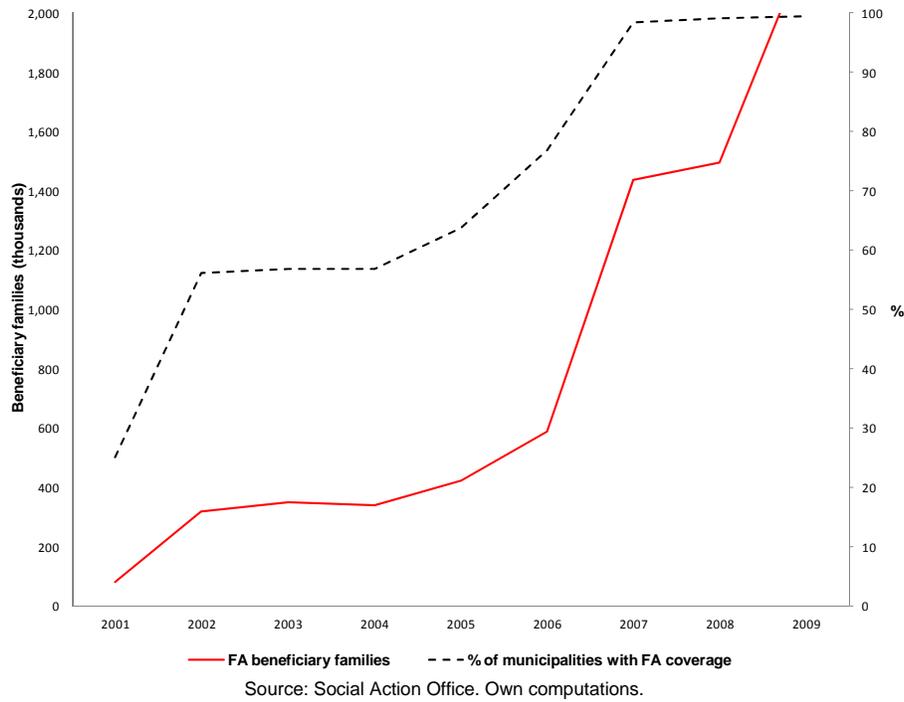


Figure 2
FA anti-poverty program
Total subsidies and as percentage of central government spending
2001-2009

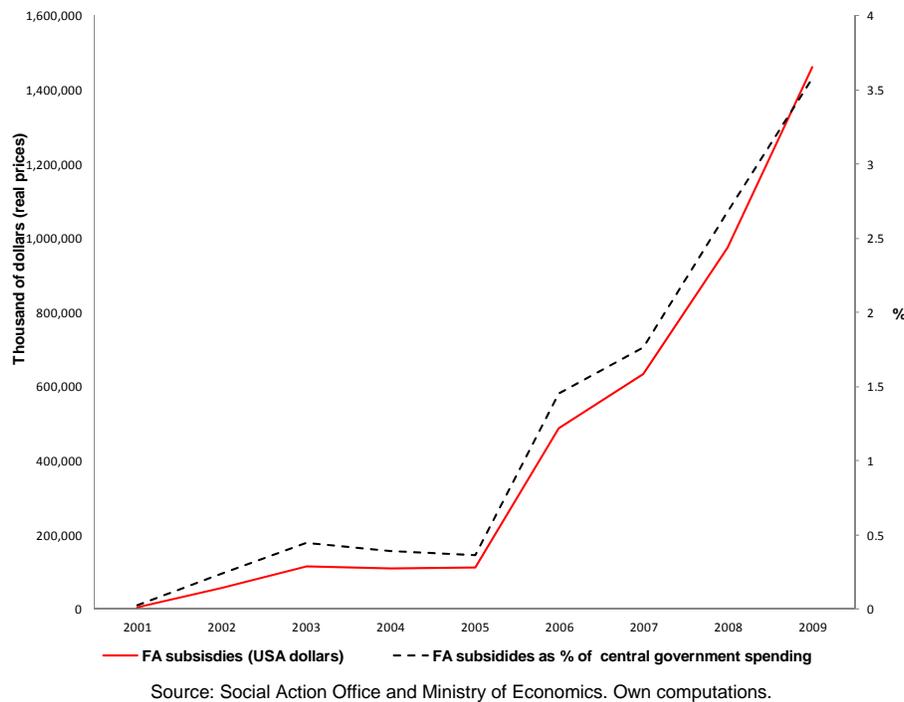


Table 1
FA anti-poverty program
Municipality coverage and FA beneficiary rate
Summary statistics for State-level

State	Number of municipalities in database	% Municipalities with coverage	2002		2005		2009			
			FA beneficiary rate		FA beneficiary rate		FA beneficiary rate			
			Mean	Std. dev	% Municipalities with coverage	Mean	Std. dev	% Municipalities with coverage	Mean	Std. dev
Antioquia	125	69.6	23.1	14.6	73.6	25.0	15.4	100	58.5	33.93
Atlántico	23	34.8	26.3	11.7	39.1	33.0	20.3	100	101.4	31.5
Bogotá D.C.	1	0.0	-	-	0.0	-	-	100	15.6	-
Bolívar	45	24.4	36.4	11.3	33.3	49.0	33.5	100	114.9	27.8
Boyacá	123	50.4	36.3	20.3	52.0	37.7	20.6	100	76.4	28.6
Caldas	26	92.3	10.1	6.3	92.3	9.8	5.8	100	43.4	18.7
Caquetá	16	43.8	23.2	16.8	68.8	42.9	27.1	100	83.9	24.4
Cauca	40	65.0	24.3	16.1	77.5	30.6	24.2	100	78.7	32.4
Cesar	25	48.0	21.1	11.1	76.0	44.0	25.3	100	96.2	25.8
Chocó	25	12.0	45.9	22.7	40.0	52.9	19.9	100	68.3	28.9
Córdoba	28	82.1	50.4	18.0	89.3	51.4	21.1	100	126.9	29.9
Cundinamarca	116	61.2	20.7	18.1	69.8	22.2	19.9	100	55.0	30.7
Huila	37	97.3	45.9	18.0	97.3	41.9	16.1	100	94.6	20.9
La Guajira	14	57.1	7.8	5.3	57.1	7.7	4.5	100	49.8	22.6
Magdalena	26	38.5	34.3	12.0	42.3	39.4	17.2	100	127.8	33.0
Meta	29	69.0	30.3	17.3	75.9	27.7	14.5	100	67.1	27.1
Nariño	63	41.3	20.3	14.5	54.0	34.3	28.1	100	81.5	26.2
N. de Santander	40	65.0	42.5	20.9	67.5	45.0	20.4	100	79.3	22.8
Quindío	12	0.0	-	-	0.0	-	-	100	65.5	23.8
Risaralda	14	71.4	8.8	3.8	71.4	8.5	3.6	100	38.6	13.3
Santander	87	50.6	31.9	18.7	56.3	33.6	20.4	100	79.2	30.4
Sucre	24	70.8	51.5	17.1	87.5	59.6	20.4	100	121.9	23.9
Tolima	47	87.2	32.0	19.3	93.6	33.8	21.5	100	86.5	25.3
Valle del Cauca	42	54.8	8.2	4.4	54.8	9.3	4.2	100	59.4	19.7

Source: Social Action Office. Own computations.

The state average of the FA beneficiary rate is conditioned on FA coverage.

Table 2
Incumbent vote share
Summary statistics for State-level

State	Number of municipalities	2002		2006		2010			
		First round		First round		First round		Second round	
		Mean	Std. dev	Mean	Std. dev	Mean	Std. dev	Mean	Std. dev
Antioquia	125	51.1	16.2	69.5	14.0	70.2	11.8	77.4	10.4
Atlántico	23	30.4	8.5	43.1	11.6	62.9	13.8	75.5	11.2
Bogotá D.C.	1	56.7	0	63.4	-	58.9	-	60.2	-
Bolívar	45	36.4	19.3	62.9	14.8	77.5	9.6	85.8	6.9
Boyacá	123	45.9	20.9	65.9	17.2	72.2	13.2	78.5	10.4
Caldas	26	61.3	11.5	69.6	16.4	74.6	9.4	79.1	7.3
Caquetá	16	32.4	13.0	55.4	11.4	61.9	11.8	71.9	9.0
Cauca	40	24.0	11.7	33.9	18.0	43.1	14.5	54.3	14.1
Cesar	25	30.5	12.2	64.3	15.3	66.5	8.2	80.3	4.4
Chocó	25	16.3	12.8	48.7	21.3	62.5	14.9	72.0	13.9
Córdoba	28	37.1	9.9	54.0	10.5	54.9	10.1	77.8	7.9
Cundinamarca	116	51.3	17.5	74.3	12.5	77.8	9.5	81.2	8.5
Huila	37	50.9	13.6	71.2	14.9	76.0	10.7	81.5	8.4
La Guajira	14	24.9	9.7	43.9	12.1	56.0	10.1	70.2	9.1
Magdalena	26	50.9	26.4	64.2	12.5	74.0	10.6	84.7	7.2
Meta	29	51.1	19.2	71.4	10.7	75.3	12.7	79.4	10.7
Nariño	63	35.0	16.2	33.6	21.3	49.1	16.1	56.7	15.7
N. de Santander	40	50.1	17.4	68.6	20.1	73.8	19.1	80.3	14.9
Quindío	12	60.7	12.4	68.2	8.6	68.5	5.4	72.8	4.2
Risaralda	14	61.9	15.9	68.3	12.3	70.6	8.6	75.5	6.6
Santander	87	36.8	17.7	59.8	16.8	69.2	12.9	78.2	9.6
Sucre	24	25.1	11.5	51.0	11.1	65.9	12.4	79.8	6.6
Tolima	47	43.2	17.5	64.5	15.1	73.5	9.7	80.2	7.5
Valle del Cauca	42	57.6	16.0	62.2	14.1	65.0	13.4	70.1	11.0

Source: Colombian Electoral National Office (*Registraduría Nacional*). Own computations.

In 2002 and 2006 incumbent's vote share corresponds to President Uribe. In 2010 first-round, incumbent's vote share corresponds to the sum of vote shares of the 2006-2010 governing coalition parties (*Partido de la U*, *Partido Conservador*, and *Cambio Radical*). In 2010 second-round, incumbent's vote share corresponds to Santos's vote share. The 2002 information is calculated over a sample of 1018 municipalities (dictated by data availability).

Table 3
Summary Statistics for Municipality-Level data

Variable	Obs	2006				2010			
		Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max
FA beneficiary rate	1028	20.94	24.05	0.00	116.05	77.20	35.29	1.88	235.93
Incumbent vote share 2006	1028	61.65	19.33	1.23	94.04				
Incumbent vote share 2010 (A)	1028					68.52	15.17	8.51	94.13
Incumbent vote share 2010 (B)	1028					76.29	12.72	17.36	95.17
SWING	1028	21.17	8.51	0.00	44.10	26.37	7.08	2.12	47.15
LOYAL	1028	24.91	17.30	0.00	80.54	32.04	14.00	1.62	74.10
SWING_-1	1028	21.31	8.43	0.00	42.51	26.39	7.06	2.19	49.42
LOYAL_-1	1028	25.48	16.33	0.00	77.68	34.63	13.40	2.02	76.51
SWING_-2	1028	21.75	9.40	0.00	46.14	27.94	7.66	2.14	52.26
LOYAL_-2	1028	22.87	15.72	0.00	72.73	35.32	14.00	1.20	84.52
Per capita GDP (in thousand pesos)	1028	7,183	6,350	200	103,788	8,460	8,224	203	145,421
State unemployment rate	1028	11.01	2.31	5.48	19.64	11.45	2.27	7.83	18.83
Percentage of people with UBN	1028	43.70	19.91	5.36	100.00	41.30	20.61	4.48	100.00
Last 4 years guerrilla attacks (per 1,000 people)	1028	0.40	0.90	0.00	12.04	0.26	0.86	0.00	11.00
Last 4 years paramilitary attacks (per 1,000 people)	1028	0.05	0.17	0.00	2.62	0.01	0.04	0.00	0.80
Homicide rate (per 1,000 people)	1028	0.41	0.50	0.00	5.33	0.29	0.32	0.00	2.41
Total population (in thousand)	1028	40.36	243.15	0.89	6,840	42.24	257.36	0.98	7,260
Average age of population above 18 years old	1028	42.84	2.43	34.36	51.46	43.11	2.42	35.08	52.55
Percentage of voting-age women	1028	49.04	2.56	24.62	57.62	49.08	2.50	27.14	56.94
Number of bak offices (per 1,000 people)	1028	0.07	0.08	0.00	0.58	0.08	0.08	0.00	0.50
Number of public schools (per 1,000 children)	1028	7.70	4.77	0.34	25.50	8.07	5.12	0.38	28.63
Number of health care staff (per 1,000 people)	1028	0.79	0.86	0.00	10.43	0.37	0.48	0.00	6.35
Percentage of children 0-17 years old	1028	39.99	4.66	22.99	56.91	37.91	4.81	22.45	56.05
FA-displaced population-beneficiary rate	1028	0.00	0.00	0.00	0.00	8.03	11.59	0.00	118.15
Per capita central government transfers (in thousand pesos)	1027	184.70	91.31	46.71	911.18	198.25	201.00	45.51	5977.68
ICBF per capita spending (in thousand pesos)	1028	28.57	12.60	0.00	91.05	57.13	23.71	8.04	189.10
		Freq 0	Freq 1			Freq 0	Freq 1		
Community council	1028	94.36	5.64			90.95	9.05		
MAYOR	857	61.61	38.39			36.17	63.83		

Incumbent vote share 2010 (A) corresponds to the first round governing coalition's vote share. Incumbent's vote share 2010 (B) corresponds to the 2010-second round Santos' vote share.

Table 4
Allocation of the FA program and Incumbent's allocation strategy
Fixed-effects estimates

Dependent variable: FA beneficiary rate

	Using SWING and LOYAL		Using SWING_-1 and LOYAL_-1		Using SWING_-2 and LOYAL_-2	
	1	2	3	4	5	6
Concentration of swing voters	0.233 (0.213)	0.114 (0.233)	0.067 (0.188)	-0.104 (0.204)	0.245* (0.145)	0.131 (0.157)
Concentration of loyal voters	0.534*** (0.160)	0.446** (0.174)	0.438*** (0.130)	0.384*** (0.141)	0.320*** (0.104)	0.245** (0.110)
MAYOR		2.226 (1.653)		2.591 (1.651)		2.149 (1.639)
Number of bank offices (per 1,000 people)	-38.142 (39.536)	-59.005 (47.167)	-36.552 (39.438)	-56.264 (46.991)	-32.559 (38.731)	-55.141 (46.323)
Number of public schools (per 1,000 children)	3.033** (1.263)	3.711*** (1.370)	2.917** (1.254)	3.632*** (1.355)	2.823** (1.235)	3.521*** (1.339)
Number of health care staff (per 1,000 people)	6.008*** (1.521)	6.094*** (1.516)	5.856*** (1.523)	5.913*** (1.509)	5.703*** (1.531)	5.851*** (1.519)
Percentage of children 0-17 years old	-2.514* (1.400)	-1.935 (1.577)	-2.414* (1.407)	-1.789 (1.586)	-2.431* (1.407)	-1.833 (1.585)
Per capita GDP (in thousand pesos)	0.000 (0.000)	0.001 (0.001)	0.000 (0.000)	0.000 (0.001)	0.000 (0.000)	0.000 (0.001)
State unemployment rate	1.196*** (0.461)	1.197** (0.509)	1.074** (0.461)	1.086** (0.508)	1.049** (0.467)	1.067** (0.514)
Percentage of people with UBN	0.182 (0.469)	0.387 (0.511)	0.170 (0.473)	0.362 (0.513)	0.221 (0.473)	0.404 (0.515)
Total population (in thousand)	-0.218** (0.104)	-0.196** (0.091)	-0.220** (0.107)	-0.196** (0.093)	-0.208** (0.102)	-0.190** (0.090)
Observations	2,056	1,714	2,056	1,714	2,056	1,714
R-squared	0.754	0.754	0.752	0.753	0.754	0.753
Number of municipalities	1,028	857	1,028	857	1,028	857

Robust standard errors in parentheses. ***1% significance, ** 5% significance, * 10% significance.
All regressions include time-fixed effects.

Table 5
Effect of FA program on incumbent vote share
Fixed-effects estimates

	Dependent variable					
	Incumbent vote share (A)			Incumbent vote share (B)		
	1	2	3	4	5	6
FA beneficiary rate	0.068*** (0.012)	0.065*** (0.012)	0.070*** (0.013)	0.097*** (0.014)	0.094*** (0.014)	0.103*** (0.015)
SWING		-0.057 (0.063)	-0.123* (0.065)		0.114 (0.070)	0.061 (0.073)
LOYAL		0.131*** (0.045)	0.150*** (0.046)		0.028 (0.056)	0.062 (0.058)
Per capita GDP (thousand pesos)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	-0.001** (0.000)
State unemployment rate	-0.171 (0.153)	-0.115 (0.152)	-0.257 (0.166)	0.098 (0.192)	0.153 (0.193)	0.010 (0.216)
Percentage of people with UBN	-0.173 (0.167)	-0.173 (0.167)	-0.058 (0.182)	-0.402** (0.188)	-0.397** (0.188)	-0.294 (0.215)
Per capita Central Government transfers (in thousand pesos)	0.000 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.000 (0.001)
Per capita ICBF spending (in thousand pesos)	0.108*** (0.026)	0.104*** (0.026)	0.109*** (0.028)	0.183*** (0.031)	0.174*** (0.031)	0.176*** (0.034)
FA-displaced population-beneficiary rate	0.033 (0.029)	0.033 (0.029)	0.050* (0.030)	0.065* (0.034)	0.062* (0.034)	0.081** (0.038)
Community councils	-0.342 (0.857)	-0.520 (0.865)	-0.616 (0.882)	0.032 (1.097)	-0.157 (1.101)	-0.341 (1.177)
MAYOR			1.433*** (0.507)			0.739 (0.603)
Last 4 years guerrilla attacks (per 1,000 people)	1.113*** (0.388)	1.067*** (0.385)	1.294*** (0.398)	2.037*** (0.515)	2.047*** (0.503)	2.209*** (0.578)
Last 4 years paramilitary attacks (per 1,000 people)	-0.350 (1.753)	-0.654 (1.759)	-1.676 (1.716)	0.945 (2.567)	0.833 (2.574)	-0.604 (2.615)
Homicide rate (per 1000 people)	-0.748 (0.892)	-0.796 (0.884)	-1.194 (0.989)	0.924 (0.970)	0.771 (0.966)	0.607 (1.112)
Total population (in thousand)	-0.021** (0.010)	-0.022** (0.011)	-0.026** (0.012)	-0.019 (0.012)	-0.023* (0.012)	-0.028** (0.012)
Average age of population above 18 years old	-1.202 (0.769)	-1.004 (0.773)	-0.345 (0.805)	-1.074 (0.936)	-0.805 (0.936)	0.160 (0.976)
Percentage of voting-age women	-1.718** (0.726)	-1.969*** (0.728)	-1.408* (0.768)	-1.558* (0.863)	-1.735** (0.857)	-1.210 (0.916)
Observations	2,056	2,056	1,714	2,056	2,056	1,714
R-squared	0.369	0.373	0.398	0.629	0.631	0.639
Number of municipalities	1,028	1,028	857	1,028	1,028	857

Robust standard errors in parentheses. ***1% significance, ** 5% significance, * 10% significance.
All regressions include time-fixed effects.