

**Seeking Votes: The Political Economy of Expenditures
by the Peruvian Social Fund (FONCODES), 1991-95**

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1. Introduction

Do incumbents use social programs to get themselves re-elected? Much theoretical and empirical work on public expenditure patterns in democratic regimes argues that politicians manipulate the timing, composition, and geographic distribution of expenditures to maximize the likelihood of remaining in office. Increases in public expenditures are timed to coincide with upcoming elections; budgetary trade-offs are made to satisfy important constituencies; and expenditures are directed towards areas of the country that are considered critical for an incumbent's re-election bid.

This paper discusses the relationship between elections and the expenditures made by the Peruvian Social Fund (FONCODES) during President Alberto Fujimori's first term in office (1990-1995). FONCODES was created in 1991, during a severe recession which followed the adoption of stringent stabilization and structural adjustment measures by the Fujimori government. Its stated objectives were to generate employment, help alleviate poverty, and improve access to social services (World Bank 1998). By 1993, the Peruvian economy had begun a remarkable recovery, and FONCODES was being hailed by government officials and foreign donors alike as an important component of a medium-term strategy to reduce poverty.

Scholars in Peru and abroad have generally been more guarded in their praise. Critics argue that social funds like FONCODES undermine line ministries and local governments. And questions about the "politicization" of FONCODES have bedeviled the program from its creation (Graham 1994, Kay 1995, Ballón and Beaumont 1996). Yet there are no satisfactory studies of the impact of elections on FONCODES expenditures.¹

This paper attempts to fill this gap using highly disaggregated data on expenditures, socio-economic indicators, and electoral outcomes. I use econometric techniques to analyze the timing and geographic distribution of FONCODES expenditures, and reach two main conclusions. First, FONCODES expenditures increased significantly prior to national elections. Second, FONCODES projects were directed to provinces in which the marginal political impact of expenditures was likely to be largest. The results are robust to a large number of specifications and controls. The Peruvian data thus support predictions made in the literature on "political business cycles" (Nordhaus 1975, Rogoff 1990) as well as the literature on political influences on the allocation of discretionary funds (Wright 1974, Cox and McCubbins 1986, Lindbeck and Weibull 1987, Dixit and Londregan 1996, Case 1997).

The rest of the paper proceeds as follows. Section 2 provides a brief description of Peruvian politics between 1990 and 1995, and FONCODES. Section 3 describes data requirements and sources for the paper. Section 4 estimates the effect of the electoral calendar on the *timing* of FONCODES

¹ Moncada (1996) and Graham and Kane (1998) discuss the timing and distribution of FONCODES expenditures, respectively. As I discuss below, however, both papers have serious limitations.

expenditures. Section 5 estimates the effect of the 1990 presidential election on the *distribution* of expenditures. Section 6 concludes with some general thoughts on the use of social expenditures for electoral purposes.

2. The Fujimori years and FONCODES

The election of the dark horse candidate Alberto Fujimori to the Peruvian presidency in 1990 marked the beginning of a fundamental transformation of Peruvian politics. Fujimori, an independent with no political party to speak of, defeated the coalition of center-right parties headed by the well-known novelist Mario Vargas Llosa. Fujimori's party did not, however, win a majority in either house of the Peruvian congress. Blaming Peru's "corrupt" institutions for his inability to introduce a coherent economic program or combat the terrorist insurgencies of Shining Path and the Túpac Amaru, Fujimori used the military to shut down congress and the judiciary in April 1992. Under international pressure to restore democracy, he drafted a new constitution which was approved by a small margin in a referendum held in October 1993, and won a landslide re-election to the presidency and a majority for his party in the new uni-cameral congress in April 1995.

The academic literature on Peru argues that traditional sources of authority and intermediation between citizens and the state have been weakened during President Fujimori's period in office (McClintock 1993, Cameron 1994, Mauceri 1995, Conaghan 1996, Seddon 1997). The "historical" political parties have all but disappeared.² The legislative and judiciary branches of government have not acted as an effective check on the executive.³ There have also been important changes in the relationship between various levels of government, and in the conduct of social policy. Decree 776, passed in December 1993, abolished most sources of tax revenue traditionally used by municipal governments. Meanwhile, responsibility for the administration of numerous social and basic infrastructure programs has been transferred from local governments and line ministries in education, health, and transportation to the Ministry of the Presidency. By 1995, this Ministry controlled more than 20% of the central government

² The four major parties which dominated civilian politics in Peru for decades have become irrelevant. These four parties--the conservative Popular Christian Party, the center-right Popular Action, the center-left APRA, and the left-wing United Left--jointly garnered 82.2% and 97% of the vote in the presidential elections of 1980 and 1985, respectively. In the 1995 presidential election they won a mere 6.3% of the vote (Tuesta, 1994; Jurado Nacional de Elecciones, 1995). Cambio 90-Nueva Mayoria, president Fujimori's party, has no outstanding leaders other than the president himself. Independent candidates with no affiliation to any party have dominated local politics. In the 1993 municipal elections, for example, independent candidates received almost two-thirds (64.7%) of the votes cast (Tuesta, 1995, p. 106).

³ The legislative, where Fujimori's party has had an absolute majority since 1992, rubber-stamps the President's initiatives; on the only important occasion on which the Supreme Court contravened Fujimori's wishes, ruling that a draft law which would allow Fujimori to run for a second re-election in the year 2000 was unconstitutional, the three members who had voted with the majority opinion were dismissed from the bench.

budget, and oversaw thirteen programs involved in, amongst other things, nutrition, education, health, water, sanitation, and housing (World Bank 1996, p.2).

FONCODES is one of the new programs created by President Fujimori. Its charter establishes it as an “autonomous body” outside the traditional line ministries. By law, the FONCODES executive director reports directly to a five-member Board of Directors appointed by the President. This institutional set-up raised concerns that FONCODES could easily become a means for dispensing pork, and these misgivings were reinforced when Luz Salgado, a former head of President Fujimori’s party, was appointed as FONCODES’ first executive director (Graham 1994, p. 108). Subsequent directors have been recruited from the private sector (Arturo Woodman, Alejandro Afuso) and from other branches of government (Manuel Estela, Manuel Vara Ochoa), and this has helped dispel some of the initial concerns. Over time, FONCODES has also improved coordination in the planning, execution, operation and maintenance of projects with the line ministries and, to a lesser extent, with local governments and NGOs.

Between December 1991 and May 1995, FONCODES funded almost 16,000 community-based projects, for a total budget of about 465 million soles.⁴ At the 1992 exchange rate, this was equivalent to roughly US \$ 285 million. The average project size was therefore quite small--about US \$ 18,000. These community-based projects include nutrition and family planning projects, rotating credit schemes, and projects for the construction or rehabilitation of schools, health posts, water and sanitation systems, rural roads, electrification schemes, and small-scale irrigation works. In addition, FONCODES has executed a series of centrally-designed “special” projects which have included, *inter alia*, a school breakfast program, the distribution of uniforms for schoolchildren, shovels for farmers, and motorized canoes for isolated jungle communities. Between December 1991 and May 1995, FONCODES spent about 135 million soles (about US \$ 83 million) on these special projects. In 1993, FONCODES expenditures accounted for roughly 0.55% of GNP--more or less in the same order of magnitude as the Mexican Solidarity program, which accounted for about 0.71% of GNP in 1992.

FONCODES has much in common with other social funds in the region (Glaessner et. al. 1994). The bulk of FONCODES projects are demand-driven and targeted. FONCODES’ community-based projects (but not the special projects) are demand-driven in that communities themselves choose a project from a menu and prepare a proposal for funding. FONCODES then functions as a financial intermediary: rather than execute projects itself, it approves proposals and releases funds to the *nucleo ejecutor*--a group of community members elected specifically for this purpose. FONCODES also targets its investments—

⁴ All expenditures are in constant 1992 soles, unless otherwise indicated.

first, by using a “poverty map” to assign resources to small geographic areas, and then conducting an informal on-site assessment of the “poverty” of the community requesting a project.⁵

3. The data set

In 1997, Peru was divided into 13 administrative regions, 24 departments, 194 provinces, and 1812 districts (Webb and Fernández Baca 1997, p. 112). Regions and departments are administrative arms of the central government, which appoints a governor for every region. Provincial and district-level mayors are chosen at municipal elections every three years. Data on FONCODES expenditures, socio-economic characteristics, and voting patterns is available at different levels of geographic aggregation.

FONCODES itself keeps monthly records on the number of projects and aggregate amounts spent in each district. Three points are worth noting about these data. First, because expenditures are recorded in the month in which a project is *approved*, there is a lag of about two weeks before *disbursement* of the first installment of funds, and of several months before the second (and final) disbursement. Second, only expenditures on projects are included, and not administrative costs or expenses for general overhead. Third, district-level information on the distribution of expenditures is only available for the community-based projects. There is no information on the allocation formulas or the actual distribution of the special projects.

The Peruvian National Statistical Institute (INEI) has estimated population size, the proportion rural, and a host of socio-economic indicators at the district level. Most of these indicators are based on a population and housing census conducted in 1993. The one important exception is the rate of chronic malnutrition, which is based on a census of height and weight amongst schoolchildren also conducted in 1993.

The Jurado Nacional de Elecciones, the body which supervises elections in Peru, keeps records on electoral outcomes for elections held since 1990. Some of these data have also been compiled and published (Tuesta 1994, Jurado Nacional de Elecciones). Results are generally available for all provinces in the country, and for all districts in Metropolitan Lima.

The level of aggregation used for the analysis in this paper was dictated by theoretical considerations and the availability of data. Section 4 uses national aggregates of FONCODES expenditures to analyze the relationship between the timing of expenditures and the electoral calendar. Sources of funding and the administration of the community-based and special projects are different, so the analysis is broken down by project type. FONCODES has assigned resources to individual provinces since 1993, and to individual districts since 1996. Section 5 uses a province-level data set to analyze the

⁵ Note, however, that even without political interference actual expenditures in a given province would rarely be equal to allocations because of the demand-driven nature of the program.

influence of electoral outcomes on the geographic distribution of FONCODES expenditures for community-based projects. To avoid having one data point account for 5.78 million inhabitants--more than a quarter of the population of the entire country--the province of Metropolitan Lima has been further divided into its districts. The term "province" is used throughout the paper to refer to districts in Metropolitan Lima and provinces elsewhere.

4. The timing of FONCODES expenditures

This section discusses the possible effect of the electoral calendar on the timing of FONCODES expenditures. I briefly review the literature, discuss econometric specifications, and present results.

There is a long-standing debate about the extent to which politicians can successfully manipulate the economy to coincide with elections. The traditional political business cycle literature predicts increases in expenditures before an election (Nordhaus, Tufte 1978). Although the assumptions underlying these models were brought into question with the advent of rational expectations theory, Rogoff shows that political business cycles could be expected to occur even if voters are fully rational but there are information asymmetries between voters and incumbents.

The empirical evidence from Less Developed Countries (LDCs) tends to support the predictions made in the political business cycle literature. In a study covering seventeen Latin American countries over 35 years, Ames (1987) shows significant increases in total public sector expenditures in electoral years. More recently, Schuknecht (1996) finds further evidence for political business cycles in a study which covers 35 countries in the 1970 to 1992 period. Rodrik (1991, cited in Waterbury 1993, p. 201) and Buffie and Sangines Krause (1989, pp. 144-45) also observe pre-electoral expansions in Turkey and Mexico, respectively. One partial exception to this body of evidence is Remmer (1993), who uses recent data from six Latin American countries to argue that economic conditions generally *deteriorated* in the period leading up to an election and improved thereafter. This suggests that politicians may try, but are often unable to manipulate macro-economic variables successfully, an argument which has also been made for Western Europe (Lewis-Beck 1988). A different issue, which has not been resolved in the empirical literature, is whether voters in LDCs actually reward politicians for their pre-electoral spending sprees (Dornbusch and Edwards 1991, Stokes 1996a).

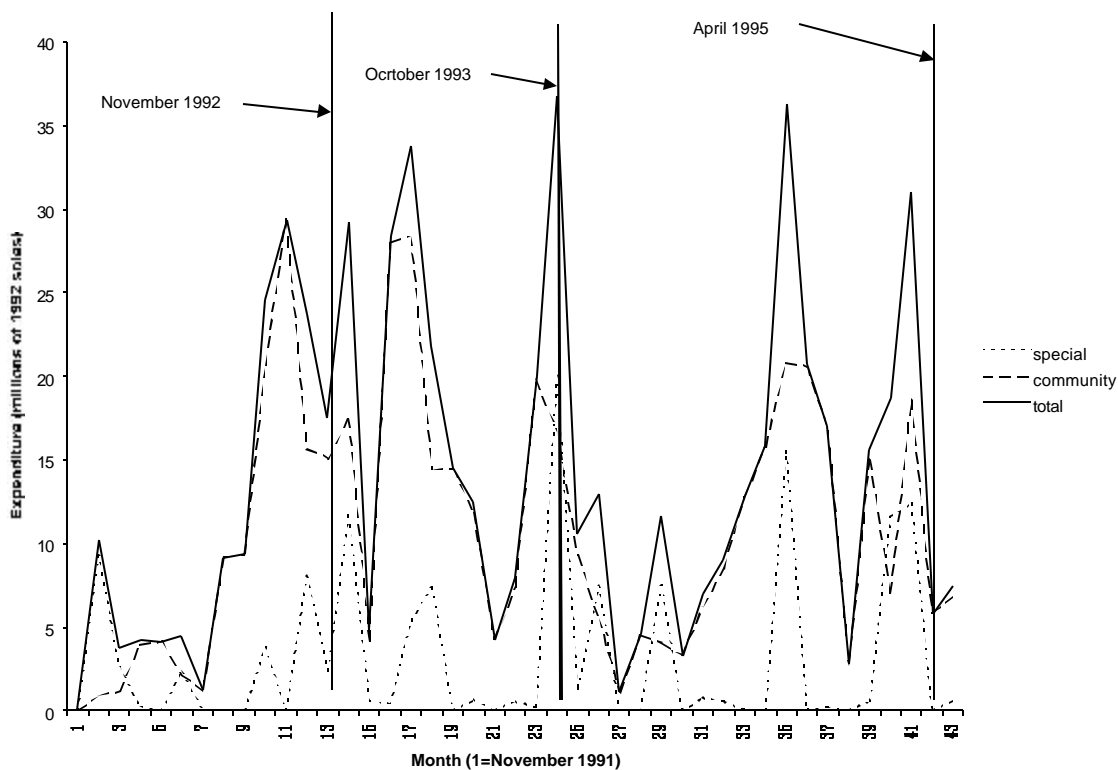
Political manipulation of expenditures is likely to have different implications when it is concerned with a specific program like FONCODES rather than the aggregate macroeconomy. The stakes are obviously lower: it may be easier and less risky to try to accurately time the disbursement of funds from a specific program like FONCODES, but the electoral returns from such spending sprees are also likely to be smaller. Still, political manipulation of specific social programs like FONCODES may be one of the

few remaining ways a government committed to an agenda of low inflation, fiscal responsibility, and a stable exchange rate can attempt to influence the vote in the months leading up to an election.

Moncada presents a simple time line of quarterly FONCODES expenditures and elections between 1991 and 1995. Interpretation of Moncada's graph is not easy, however, because elections do not always fall conveniently at the end of a quarter. Nor does Moncada formally test the relationship between elections and expenditures--perhaps because of the small number of quarters (16 quarters) and the large number of national elections (3 elections) during the period.

Figure 1 graphs monthly data for the amounts approved for community-based and special projects between November 1991 and May 1995. The chart shows that expenditures are highly irregular, especially (but not only) for the special projects. There are at least four distinct spikes in total expenditures. Three of these spikes coincide with the three national elections held during the period—the November 22, 1992 election to the constituent assembly (month=13), the October 31, 1993 referendum (month=24), and the April 9, 1995 presidential election (month=42). Figure 1 thus provides some *prima facie* evidence that FONCODES expenditures were affected by elections.

Figure 1: FONCODES expenditures, by month



Estimates of election effects

If there is a political expenditure cycle, FONCODES expenditures at a particular point should be a function of the electoral calendar:

$$(1) \quad Exp_t = f(Elec_t, z_t)$$

where Exp_t stands for FONCODES expenditures in time t , $Elec_t$ is the presence (or absence) of an election at the end of time period t , and z_t is a vector of exogenous variables which affect expenditures. The timing of elections is taken to be determined outside the model. Insofar as it is easier to manipulate the timing of FONCODES expenditures than the timing of elections, this is a reasonable assumption.

Table 1 reports results of OLS regressions of total expenditures and expenditures for community-based and special projects on electoral dummies, a linear time trend, and quarterly seasonal dummies. Columns (i), (iii) and (v) report results from the regressions of expenditures on a single electoral dummy variable which takes on the value one for the three months immediately prior to an election, and zero otherwise.⁶ Columns (ii), (iv) and (vi) include three separate electoral dummies to allow the effect of elections on expenditures to vary by election.

Table 1: The impact of elections on the timing of FONCODES expenditures

	Community-based projects		Special projects		Total expenditures	
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
ELECTION	7.05** (2.03)	--	5.07** (2.39)	--	12.72*** (2.78)	--
Election 1	--	6.08 (1.14)	--	0.82 (0.36)	--	3.73 (0.57)
Election 2	--	4.51 (0.69)	--	14.74*** (3.53)	--	21.84** (2.58)
Election 3	--	10.49 (1.61)	--	11.72*** (2.73)	--	17.93** (2.11)
Monthly linear trend	0.04 (0.30)	0.03 (0.15)	0.04 (0.85)	-0.00 (0.09)	0.09 (0.60)	0.01 (0.08)
Seasonal dummies	Yes	Yes	Yes	Yes	Yes	Yes
Durbin-Watson statistic (original)	1.20	1.22	2.45	2.43	1.49	1.42
Durbin-Watson statistic (transformed)	2.13	2.10	2.00	2.05	2.03	2.06
R-squared	0.167	0.173	0.278	0.370	0.274	0.328
Number of observations	42	42	42	42	42	42

* indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Note: Absolute t-statistics are reported in brackets, and are corrected for serial correlation using the Cochrane-Orcutt procedure. A constant was calculated but is not reported.

⁶ Because of the two-week time lag between approval of a project and disbursement of funds, the relevant month for the parameter $Elec_t$ in equation (1) is taken to be that in which the project was approved if the election took place in the second half of the month, but the month preceding it if the election took place in the first half of the month.

The results in Table 1 confirm the general picture in Figure 1. The electoral parameter in columns (i), (iii) and (v) is positive and significant at the 5% level or better in all three specifications. This suggests that expenditures on both community-based projects and special projects were significantly higher than expected in the three months leading up to elections. When the three elections enter into the regression separately, the influence of elections on the timing of expenditures is most apparent for the special projects, especially for the October 1993 referendum and the April 1995 presidential election.⁷

The empirical analysis above suggests that Fujimori boosted FONCODES expenditures when it mattered most. But there are obviously other factors at work. Consider, for example, the expenditure spike in September 1994 (month=35), the second-largest in the data set. In August 1994, Manuel Vara Ochoa replaced Manuel Estela as the executive director of FONCODES. Estela was a technocrat who was highly regarded at the World Bank and the Inter-American Development Bank. Prior to being appointed executive director of FONCODES, he had been the head of SUNAT, the government agency charged with the collection of taxes in Peru. Estela brought to FONCODES his advisors from SUNAT, and a working method which emphasized a rigorous screening of project proposals. This was not, however, to Fujimori's liking, and the president quickly became dissatisfied with Estela's unwillingness to meet "disbursement targets".⁸ Estela's replacement, Manuel Vara Ochoa, was a friend of President Fujimori's from their days together as professors at the Agrarian University in Lima, and was understood to be more sensitive to the political importance of a speedy approval process. The massive spike in expenditures in September 1994 may be a result of the wholesale approval of projects which had not been funded during the Estela period.

In conclusion, there is some evidence of a political expenditure cycle in FONCODES projects, but the electoral calendar is by no means the only determinant of changes in FONCODES expenditures between 1991 and 1995.

⁷ The changing political context in Peru may explain differences in the effect of elections on FONCODES expenditures. The Fujimori government had much at stake in the October 1993 referendum and the April 1995 presidential election. The referendum on the new constitution was widely seen as a referendum on three years of Fujimori government (Roberts and Arce 1998, p. 229). Moreover, the new constitution included a clause which would allow Fujimori to run for re-election--something which he could not do under the 1980 constitution. The April 1995 election, meanwhile, would assure Fujimori five more years as president. By contrast, the November 1992 election to the constituent assembly took place at a time when the government was virtually unchallenged: the opposition was in disarray after Fujimori's "self-coup" of April 1992, and Fujimori's popularity was very high. Indeed, three of the four "historical" parties--Popular Action, APRA, and the United Left--did not even participate in the 1992 election, alleging that this would "legitimize" Fujimori's coup. The Popular Christian Party participated, but won only 9.8% of the vote. Fujimori's Cambio 90-Nueva Mayoría party won 49.2% of the vote, and 44 of the 80 seats in the constituent assembly. The remaining 41% of the vote went to smaller parties, many of which had been formed shortly before the election.

⁸ Author's conversations with staff at FONCODES and at the Ministry of the Presidency. One knowledgeable staff member described the relationship between Estela and Fujimori as "strained" and related a telephone conversation in which Fujimori gave Estela a serious warning ("un toque de atención de palacio").

5. The geographic distribution of FONCODES expenditures

This section discusses the influence of elections on the geographic distribution of FONCODES expenditures on community-based projects. Specifically, it tests a model in which *past* electoral outcomes are used to predict *future* expenditures. First, I briefly review the literature on the topic, and describe some features peculiar to the Peruvian setting. I next discuss the econometric specification, and present results.

A basic theory of the determinants of voting behavior might consider the affinity of voters for different candidates (an “ideological” component) and the changes in welfare that voters can expect to see after an election (an “economic” component) (Lindbeck and Weibull, Markus 1988, Peltzman 1990, Dixit and Londregan, Landon and Ryan 1997). If voters face a choice between an incumbent and his challenger(s), they might use the performance of the incumbent while in office as a reasonable guide to the policies they could expect to see enacted if the incumbent were re-elected.⁹ The probability that voter i will vote for the incumbent at time t , P_{it} , might then be described in the following terms:

$$(2) \quad P_{it} = g(v_i, Y_{it} - Y_{it-1}, W_{it} - W_{it-1})$$

where v_i is a time-invariant, non-economic parameter which affects the vote. This parameter could include voter i 's perception of the incumbent's character, or the ideological affinity between voter i and the incumbent. I assume that the parameter v_i ranges from $-\infty$ to ∞ , representing strong dislike and like for the incumbent, respectively; $Y_{it} - Y_{it-1}$ is a parameter that reflects aggregate changes in the economy that can plausibly be attributed to the incumbent; and $W_{it} - W_{it-1}$ is a parameter that measures the change in net transfers (transfers-taxes) for voter i during the incumbent's previous period in office.¹⁰ By assumption, the function g is bounded between 0 and 1 over its support. If there is no abstention, the expected number of votes for the incumbent at time t is then given by the sum of all the P_{it} 's.

How should a rational incumbent distribute taxes and transfers across the electorate to maximize the expected number of votes in the next election? The answer to this question clearly depends on whether a unit change in $W_{it} - W_{it-1}$ has the same effect on P_{it} across all i . To simplify the notation, I define R_i to be the change in the probability P_{it} that results from a unit change in net transfers $W_{it} - W_{it-1}$. R_i can

⁹ Arguably, voters base their decisions on the promises made by an incumbent and his challenger(s) before an election, and this is the starting point for much theoretical work on the subject (Cox and McCubbins, Lindbeck and Weibull, Dixit and Londregan). Alas, promises can be just that, and voters may not take them to be a reliable indication of intended behavior in office. The issue of the (lack of) credibility of promises is particularly relevant in Peru: Fujimori was elected in 1990 on a platform which opposed economic “shock therapy”, yet he implemented one of the most radical orthodox programs to stabilize and re-structure the economy within weeks of taking office (Stokes, Roberts and Arce). For this reason, I take Fujimori's record in office to be a more credible indication of his intended policies than any campaign promises.

¹⁰ “Sociotropic” theories of voting generally emphasize aggregate economic trends, whereas “pocketbook” theories of voting emphasize changes in individual welfare (see, for example, Markus).

therefore be thought of as index of the “political productivity” of net transfers to different voters. R_i is itself a function of the initial, pre-transfer income of voters and the parameter v_i :

$$(3) \quad R_i = g(y_i, v_i)$$

There are numerous competing theories about the relationship between v_i and R_i . Cox and McCubbins argue that R_i is largest when transfers are made to voters with a value of v_i which is large and positive. There are two key insights here. First, incumbents may be risk-averse. Transfers by incumbents to “core supporters” whose needs and preferences they understand better are likely to be a safer investment than transfers to other (unknown) voters. Second, there are administrative costs and inefficiencies which limit the fraction of transfers which actually materializes as a benefit to voters. This fraction may be higher when incumbents make transfers to core supporters.

Lindbeck and Weibull argue that R_i is largest when transfers are made to “swing” or “marginal” voters with a value of v_i close to zero. The intuition behind this result is that transfers to voters who strongly favor (oppose) the incumbent are unlikely to make a difference as these voters will probably vote for (against) the incumbent regardless of the transfer. Lindbeck and Weibull extend their model to consider cases in which politicians seek to maximize the probability of being re-elected rather than the expected number of votes. Under these circumstances, if candidates are not equally popular, Lindbeck and Weibull show that supporters of the more popular candidate are more likely to be “pivotal” voters who could decide the outcome of the election. For any two values of v_i which are identical in magnitude but opposite in sign ($\alpha v_i, -\alpha v_i$), incumbents should therefore favor supporters of the candidate who is more popular.

Dixit and Londregan suggest that the choice between a strategy which favors swing voters and one which favors core supporters depends on whether incumbents can collect taxes and distribute benefits more effectively among their supporters. In general, rational incumbents should favor swing voters when there are no such differences, but core supporters when there are.¹¹

Finally, one might consider dynamic models in which politicians take into account changes, rather than (or in addition to) levels of electoral support. Take the example of an incumbent who has already survived (at least) one re-election. Can (s)he derive information by comparing the results from the most recent election with those from prior elections? One strategy this incumbent might try to follow would be

¹¹ Dixit and Londregan also propose two additional parameters which should affect the decision to favor some groups over others. First, for any given value of v_i , some groups are more willing than others to compromise on their ideological preferences in exchange for material rewards. Those groups which are less attached to their ideology should expect to receive higher transfers. Second, for two groups with a value of v_i equal to zero, Dixit and Londregan argue that rational incumbents will favor that group with the lower variability. This is because more members of that group switch their votes for any given transfer. In practice, these parameters cannot easily be identified with data on electoral outcomes and expenditures, and I do not consider them further.

to “buy back” traditional supporters who have recently backed opposition candidates—either because it is cheaper or less risky to bring these voters back into the fold than to attract new supporters, or because there are long-term benefits to having a stable base of support which are not captured by the formulation in (2) and (3) above.¹²

There is also controversy about the relationship between income and the political productivity of transfers. If there is diminishing marginal utility of income, voters with low initial levels of income should benefit more from a given transfer than their wealthier counterparts. The political productivity of transfers to the poor should therefore be higher (Lindbeck and Weibull, Dixit and Londregan). However, if the poor are less likely to vote than the non-poor, the negative correlation between R_i and y_i may be dampened, or become positive (Cox and McCubbins, also Fleck 1994).¹³ Note, finally, that a negative correlation between y_i and transfers could also be explained by an altruistic parameter in the incumbent’s utility function, a possibility which is discounted in all of these models.

The discussion above implies that incumbents can observe the individual v_i directly. This is obviously unrealistic, but incumbents may be able to estimate voter preferences by looking at geographic patterns in prior electoral outcomes. For example, incumbents could assume that all voters in a province are identical or, more plausibly, that the distribution of preferences differs *systematically* across provinces (Dixit and Londregan). It can be shown that the probability that a randomly selected voter in province d will have voted for a party j is equivalent to the share of the vote for party j in province d (Deacon and Shapiro 1975). Voters in provinces in which 50% of the population voted for the incumbent in the last election are therefore most likely to be marginal: the probability that they supported the incumbent is exactly the same as the probability that they supported other candidates. The same logic obviously applies to core supporters, who are most likely to be found in districts which voted heavily for the incumbent. Finally, comparing the results from two or more past elections enables incumbents to identify districts in which voters are most likely to have switched support from the incumbent to the opposition.

¹² I thank one anonymous referee for this suggestion. Note that this is a different use of the term “buy-back” from that found in numerous other papers (for example, Gershberg 1994, Bruhn 1996), where “buy-back” refers simply to the negative coefficient on a regression of expenditures on the *level* of the pro-government vote in the most recent election, rather than the negative coefficient on the *change* in the pro-government vote. Insofar as the vote on this most recent election is not compared to the vote in a prior election, however, there is no way of telling whether these voters are being bought *back* or wooed for the first time.

¹³ This may be less of an issue in Peru, since voting at presidential elections is compulsory, and electoral participation tends to be high.

Two-tier elections, taxes and transfers in Peru

To test the predictive power of the formal models discussed above, we must make some additional assumptions about two features of elections and expenditures peculiar to the Peruvian setting: the two-tiered structure of presidential elections, and the geographic incidence of the taxes, if any, which must be raised to finance expenditures.

Presidential elections in Peru are often decided in two stages: if no candidate receives a simple majority in the first round of the election, a run-off election is held between the two candidates with the largest number of votes. In the 1990 election, Vargas Llosa was ahead by a small margin after the first round of voting on April 8 (32.6% to Fujimori's 29.1%), but lost by a large margin in the second round held on June 10 (37.6% to Fujimori's 62.4%). Candidate Fujimori was a virtual unknown in many areas of the country until shortly before the first round of the election (Stokes 1996b, Carrión 1996, Schmidt 1996), but he had become a household name two months later. Because voters in Peru were arguably constrained by lack of information in the first round of the election, I use the results of the run-off election for all estimations below.

Transfer programs like FONCODES are generally paid for out of tax revenues. Since taxes have a geographic incidence pattern which could also affect electoral outcomes, one might be concerned with the distribution of "net transfers", the per capita difference between transfers and taxes needed to finance a program.

FONCODES was initially funded with the proceeds of privatizations done early on in Fujimori's first term, rather than from tax revenues. When these resources became scarce, the Peruvian government appealed to the World Bank and the Inter-American Development Bank for funding, and two loans for US \$ 100 million and US \$ 94 million, respectively, were made available to FONCODES in early 1994.¹⁴ These loans included provisions for a five-year grace period and full amortization over seventeen years--presumably, well after President Fujimori would have left office. Theory suggests that fully rational voters should take into account the net present value of the expected taxes that would have to be raised in the future to repay the loans. In practice, however, short time horizons, lack of information, and the

¹⁴ Determining the exact moment at which foreign funding became available is not straightforward. The World Bank loan, for example, was approved in December 1993, became effective in March 1994, and disbursement against it began in May 1994. But the loan included a proviso that up to US \$ 10 million could be used to fund eligible community-based projects approved since August 1, 1993. There is also controversy about the extent to which multilateral organizations like the World Bank, the Inter-American Development Bank, and the International Monetary Fund attempted to convince Fujimori of the importance of targeted pro-poor programs, or went along with Fujimori's own initiatives only reluctantly. Although the IMF and the Banks had some initial concerns about FONCODES (Kay, Graham 1994), the fact that FONCODES was very similar to other programmes funded by the World Bank and the Inter-American Development Bank throughout Latin America meant that loans for FONCODES could be justified because of their likely impact on the poor.

possibility, real or imagined, of debt re-negotiation or default could limit the extent to which voters in Peru consider these future costs. This paper only considers FONCODES transfers.

Table 2 provides descriptive statistics of socio-economic characteristics, voting patterns and per capita expenditures made by FONCODES. It shows that provinces in Peru vary a great deal on all of these counts. The variation in per capita FONCODES expenditures is particularly noteworthy: some provinces received no transfers whatsoever, while others received more than six times the mean per capita transfer.

Table 2: Socio-economic characteristics, voting patterns, and FONCODES expenditures on community-based projects

	Mean	St. Dev.	Median	25th %	75th %	Min	Max
Population	97,165	118,630	58,168	28,814	116,486	185	692,265
FONCODES index*	15.31	6.03	16.14	11.49	19.57	1.00	28.24
Proportion rural	44.92	30.49	49.88	14.40	72.29	0	91.00
Pro-Fujimori vote: 1990**	65.37	13.70	65.07	56.32	75.01	17.76	93.35
Pro-Fujimori vote: 1993**	50.60	12.05	51.52	45.78	58.77	12.17	80.05
Per capita expenditures***	31.18	28.97	24.25	13.59	41.71	0	191.83

* This is the “poverty” index used by FONCODES in 1996. It is a weighted mean of 8 variables--the rate of chronic malnutrition amongst schoolchildren, the rate of illiteracy, the proportion of children not in school, and the proportion of households who live in overcrowded housing, who have inadequate roofing, no access to running water, no sewerage, and no electricity, respectively. Higher values of the index are an indication of higher poverty. All values are normalized so that the province with the lowest amount of poverty has a value of the FONCODES index equal to 1.

** Summary statistics for the pro-Fujimori vote in 1990 and 1993 are population-weighted. They do not correspond exactly to the actual fractions voting for Fujimori because of differences between total population and the population of eligible voters. Moreover, electoral data for the second round of the 1990 presidential election is only available for 205 out of 224 provinces which existed at the time.

*** This refers to per capita expenditures made by FONCODES on community-based projects between December 1991 and March 1995, in 1992 soles.

Figures 2 and 3 show scatter diagrams and non-parametric (kernel) regressions of the logarithm of per capita FONCODES expenditures as a function of the proportions voting for Fujimori in the 1990 presidential election and the 1993 referendum, respectively.¹⁵ Figure 2 shows a positive correlation between the 1990 Fujimori vote and expenditures in the December 1991--October 1993 period, while Figure 3 shows a negative correlation between the 1993 Fujimori vote and expenditures in the November

¹⁵ Non-parametric regression analysis can be thought of as a moving average. The expectation of Y (in this case, the log of per capita FONCODES expenditures) is estimated conditional on X (the pro-government vote in the 1990 election or the 1993 referendum) without imposing any assumptions about functional form. It is therefore a much more flexible and accurate way to represent bivariate associations than, say, Ordinary Least Squares (OLS). For an excellent introduction to non-parametric regressions see Deaton (pp. 190-203), as well as Silverman (1986) and Hardle (1991). To avoid dropping provinces which received zero transfers, I add 1 to per capita expenditures in every province before taking logs (see Maddala 1983, p. 181, for a similar ad hoc correction).

1993-March 1995 period. In both instances, there appears to be some curvature in the relationship between the vote and expenditures.

Figure 2: Log FONCODES per capita expenditures and pro-Fujimori vote in 1990

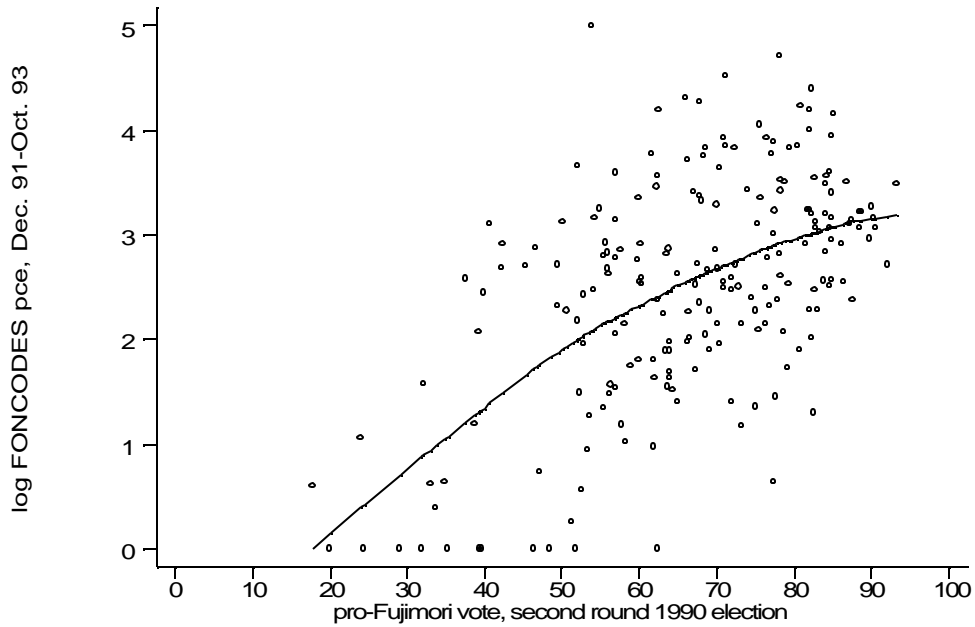
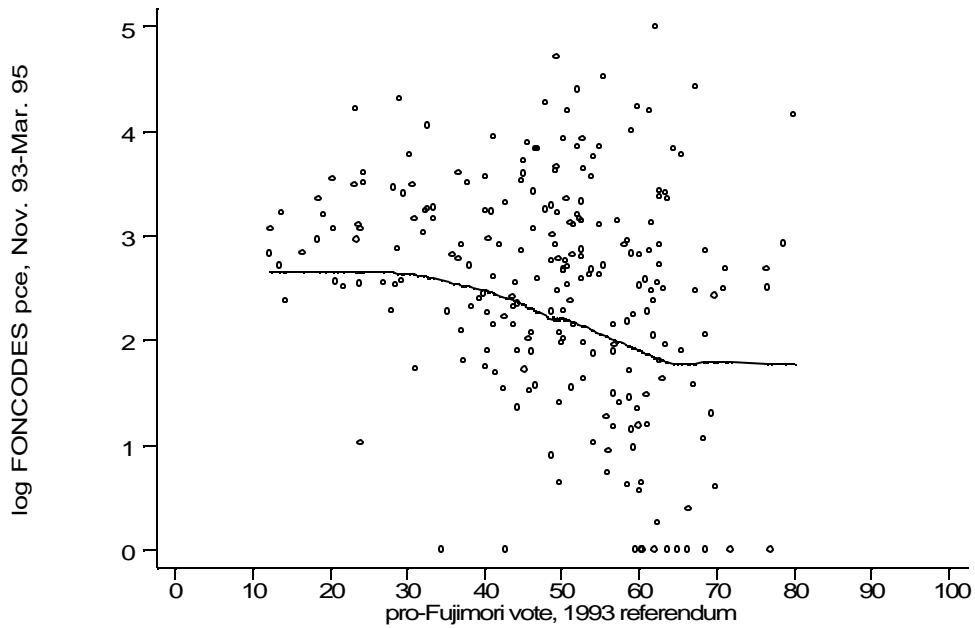


Figure 3: Log FONCODES per capita expenditures and pro-Fujimori vote in 1993



Figures 2 and 3 provide some *prima facie* evidence that the distribution of FONCODES expenditures between 1991 and 1995 may have been responsive to electoral influences, something which has been argued elsewhere (Graham and Kane, Kay, Roberts and Arce). However, much of this previous work on the political use of discretionary social expenditures in Peru has some important limitations. First, it frequently does not use a multivariate regression framework to separate political from other effects. To see why this is likely to seriously bias the results, consider FONCODES expenditure patterns after 1993. FONCODES spent more on poor provinces before and after the 1993 referendum, and these poor provinces largely voted against the government in 1993. Were expenditures made by FONCODES after October 1993, then, motivated by electoral considerations, redistributive considerations, or both? Multivariate regression analysis allows for a parsing out of the “political” and “technical” influences on the distribution of FONCODES expenditures. Second, previous studies generally test for a linear effect of elections on the distribution of expenditures (Graham and Kane). This approach does not allow for non-linearities which are at the heart of the marginal voter models, or the dynamic changes in the buy-back model.¹⁶ Third, earlier work uses department-level (rather than province- or district-level) information on the distribution of FONCODES expenditures and the vote in various elections. This seriously diminishes the sample size and makes it difficult to run meaningful regressions. Even more important, however, in Peru there are often very large differences in the vote *within* departments. In the department of Amazonas, for example, only 23.2% of the population of the province of Condorcanqui, but 60.0% of the population of neighboring Bongara voted for the government in 1993. More formally, the total variance in the distribution of the pro-government vote can be decomposed into inter-department and intra-department components (for example, Cowell 1995). Such a decomposition shows that less than half of the total variation in the vote in the 1990 election and the 1993 referendum (43.0% and 46.8%, respectively) is accounted for by differences across departments. Since all of this information was published, it is hard to believe that the government would deliberately have chosen not to make use of it. Finally, the results presented by Graham and Kane and others do not acknowledge that estimates of the influence of elections on FONCODES expenditures after 1993 may be contaminated by simultaneity bias. I now turn to this question.

¹⁶ This is a shortcoming of much of the empirical literature on political influences on expenditure patterns (i.e. Gershberg 1994). Wright’s analysis of geographic patterns in the distribution of discretionary funds during the New Deal is one early and important exception. More recently, Case finds evidence that expenditure patterns in Albania conform to the predictions made in the Lindbeck-Weibull model.

Econometric specification

Formally estimating the (possible) impact of elections on expenditures presents a number of econometric complications. Simultaneity bias is perhaps the most obvious. Consider the following equation:

$$(4) \quad \text{Exp}_{pt} = \mathbf{a} + \mathbf{bElec}_{pt-1} + \mathbf{dz}1_{pt} + \mathbf{e}_{pt}$$

where Exp_{pt} is per capita expenditures in province p at time t , Elec_{pt-1} is the outcome of an election in province p in the previous time period $t-1$, $z1_{pt}$ is a vector of other variables which affect the distribution of expenditures, and \mathbf{e}_{pt} is the error term. If the error term is auto-correlated over time, it could be re-written as:

$$(5) \quad \mathbf{e}_{pt} = \rho \mathbf{e}_{pt-1} + v_{pt}$$

where ρ is the auto-correlation coefficient. Equation (4) then becomes:

$$(6) \quad \text{Exp}_{pt} = \mathbf{a} + \mathbf{bElec}_{pt-1} + \mathbf{dz}1_{pt} + \rho \mathbf{e}_{pt-1} + v_{pt}$$

Politicians attempt to manipulate expenditures because they believe that another equation also applies:

$$(7) \quad \text{Elec}_{pt} = \mathbf{c} + \mathbf{gExp}_{pt} + \mathbf{hz}2_{pt} + w_{pt}$$

where $z2_{pt}$ is a vector of other variables which affect election outcomes, and w_{pt} is the error term. If both (6) and (7) hold, it can easily be shown that estimating the parameter β by OLS will produce results which are biased and inconsistent (Deaton 1997, pp. 97-98). The intuition is that electoral outcomes are themselves “contaminated” by expenditures in the previous time period(s).

Bias is induced when both conditions—serial correlation in the error term, and an effect of expenditures on elections—are met. In practice, there is often good reason to suspect that the error term \mathbf{e}_{pt} is positively auto-correlated over time. Demand-driven programs like FONCODES probably involve a cumulative acquisition of skills and knowledge by potential beneficiaries: it takes time to understand what kinds of projects are eligible for funding, practice to prepare a good proposal, and time to develop contacts with the social fund staff who are ultimately responsible for review of the application. If there is such a learning curve, communities which prepare a successful proposal once should find it easier to do so again, while others which are turned down might decide that applying for funding is not worth the effort after all. In terms of (6) above, positive and negative shocks to the error term in one period are likely to be carried forward into the next period. Meanwhile, the presumption that social expenditures

may affect electoral outcomes seems reasonable. Since there may well be serial correlation and an effect of expenditures on elections, studies which disregard the possibility of simultaneity must be treated with caution (see, for example, Bruhn, Graham and Kane).

The standard solution to this simultaneity problem is instrumental variables. But the search for appropriate instruments is not simple: variables which affect elections tend to affect expenditures as well. The Peruvian case offers a partial solution to this problem, however, because we may legitimately be able to treat the 1990 election as exogenous to the model. FONCODES did not fund any projects until more than a year after the 1990 election. The election cannot therefore have been affected by FONCODES expenditures, equation (7) does not apply, and simultaneity should not be a source of bias in the parameters estimated in (4) for the December 1991-October 1993 period. The break in FONCODES expenditures before December 1991 may therefore work as a “natural experiment” which allows us to accurately identify the effect of an election on expenditures (Deaton, pp. 112-115). More generally, this result highlights the value of research which focuses on *new* social programs to estimate the impact of elections on public expenditure patterns.¹⁷ Estimates of the effect of elections on expenditures after October 1993 are more open to question because the 1993 referendum may itself have been determined in part by FONCODES expenditures in the preceding period.

Lack of comprehensive data and censoring are both potential sources of bias. Information on the results of the run-off 1990 presidential election is not available for 19 provinces. Also, seven new provinces were created between 1990 and 1995. As a result, there is data on FONCODES expenditures for 231 provinces, but data on elections for only 205 provinces.

There is nothing distinctive about the provinces for which electoral data is missing--they are not, for example, particularly poor or rich, or concentrated in one part of the country. As a safeguard, however, I run additional regressions in which the missing values are replaced with the relevant departmental averages.¹⁸ The results (not reported) are very similar to those which do not include these provinces, suggesting that this is not a source of bias.

¹⁷ Unless, of course, the new program was promised before an election, the promise was regarded as credible, and it influenced the outcome of the election (Avinash Dixit, personal communication with the author, April 1998). Fujimori committed himself to not implementing the kind of “shock” adjustment program advocated by his opponent Mario Vargas Llosa, a commitment he quickly broke after the election. His platform also made references to continued subsidies for basic consumer goods, and to the promotion of small domestic industries (I thank an anonymous referee for this information). The results for the 1991-1993 period will only be contaminated by endogeneity bias, however, if Fujimori’s campaign promises were credible and specific enough to enable voters in different provinces to predict differences in the transfers they could expect to receive from a program “like” FONCODES (since FONCODES itself was never mentioned in the campaign).

¹⁸ For example, there are no electoral results for the seven provinces in the department of Apurimac, but we know that 81.54% of the population of the department voted for Fujimori. These regressions would therefore assume that the pro-Fujimori vote in each of the seven provinces was 81.54%.

FONCODES financed no community-based projects in 12 provinces between December 1991 and October 1993, and in another 12 provinces between November 1993 and March 1995 (six of the provinces overlap). Censoring of this sort can make OLS estimates biased and inconsistent. Tobit regressions are routinely used as a solution to this problem, but Tobit estimates will also be biased and inconsistent if, as is often the case, the distribution of the error term is heteroskedastic. An alternative estimator, Powell's censored Least Absolute Deviations (LAD) estimator, is unbiased and consistent but requires large amounts of data (see Deaton, pp. 85-90, for an excellent introduction to these issues). In practice, the bias induced by censoring in the regressions in this paper is likely to be small because censoring affects less than 6% of the sample. I therefore present OLS estimates, and make a note when the Tobit or Powell estimators produce noticeably different results.

Estimates of political effects: the 1991-93 period

Table 3 presents estimates of the impact of various parameters on the logarithm of per capita FONCODES expenditures between December 1991 and October 1993. Column (i) reports the result of an OLS regression on three parameters of interest only: the measures of marginality, core support, and initial consumption (Cox and McCubbins, Lindbeck and Weibull, Dixit and Londregan). "Non-marginality" is proxied by the absolute deviation of the vote from 50% (as in Case), and core support by the vote for Fujimori;¹⁹ consumption, finally, is proxied by the composite poverty index developed by FONCODES in 1996.²⁰ Note that one cannot test a genuine "buy-back" model for the 1991-1993 period because Fujimori was elected for the first time in 1990.²¹

If variables are omitted from the model, and these variables are correlated with the measures of marginality, core support, or the FONCODES index, the coefficients on these parameters will be biased and inconsistent in the usual way. I address this problem by including a large number of controls. The OLS regression for column (ii) includes parameters for the (log of the) population of a province, and the

¹⁹ Alternatively, "core supporters" could have been approximated by the vote for Fujimori in the first round of the election, and "swing voters" by the *additional* vote for Fujimori in the second round of the election (Chang Tai-Hsieh, personal communication with the author, September 1998). One disadvantage of this procedure in the Peruvian context is that it would further have limited the sample size, as the results of the first round of the 1990 presidential election are available only for 180 of the 224 provinces which existed at the time.

²⁰ FONCODES has made adjustments to the index it uses every year--taking out some individual indicators, including new ones, and changing the weights given to each one. The indices used before 1996 were disaggregated at the province level only. Since I disaggregated the province of Metropolitan Lima into its individual districts, only the 1996 index could be used for the analysis. Because most of the individual indicators tend to be highly correlated with one another, however, the choice of index is unlikely to have an important effect on the results. The results in Tables 3 and 5 are robust to alternative measures of "consumption", such as the province-level estimates of imputed income and imputed proportion below the poverty line developed by INEI (Schady 1999).

²¹ Moreover, given the dramatic changes in the Peruvian political landscape in the early 1990's and the fact that Fujimori was not the candidate of one of the established parties, he could not reasonably hope to extract information from presidential elections held before 1990.

proportion rural. The large t-statistic on the FONCODES index in columns (i) and (ii) suggests that it is important that the relationship between expenditures and the index be specified correctly. To account for possible non-linearities in this relationship, I include a Fourier series expansion of the FONCODES index in column (iii).²² In addition, this regression includes numerous socio-economic controls listed at the foot of the table, and a dummy variable for border provinces. This border dummy is included as a control because FONCODES may have spent differently in areas near the volatile Ecuadorian border. Finally, the specification in column (iii) includes 25 department-level dummies. FONCODES' regional offices generally correspond to departments, and these dummies are meant to capture differences in institutional capacity across offices, as well as any other possible department-level differences.

Table 3: The impact of the second-round 1990 presidential election on the distribution of per capita FONCODES expenditures on community-based projects, December 1991-October 1993

	(i)	(ii)	(iii)
Percent vote for Fujimori	0.023*** (2.59)	0.028*** (3.02)	0.023** (2.07)
Abs. value (% for Fujimori-50)	-0.002 (0.24)	-0.010 (0.94)	-0.030** (2.11)
ln (FONCODES index)	0.696*** (6.07)	0.456*** (2.61)	--
ln (population)	--	-0.046 (0.58)	0.179*** (2.63)
Percent rural	--	0.006 (1.64)	-0.002 (0.28)
Additional controls	No	No	Yes
F-test	9.61***	11.85***	2.34*
R-squared	0.434	0.445	0.761
Number of observations	205	205	205

*indicates significance at the 10% level; **indicates significance at the 5% level; ***indicates significance at the 1% level.

Note: Absolute t-statistics are reported in brackets, and are based on heteroskedasticity-consistent standard errors. An F-test on both political variables is also reported. A constant was calculated but not reported.

Additional controls: A Fourier series expansion of the FONCODES index, province-level averages for the age of the household head, the average number of years of schooling of household members, the occupation of all adults in the household, separate variables for the proportion of households who own a car, a refrigerator, color TV, and black and white TV, the proportion of the population that is indigenous (defined as those whose mother tongue is a language other than Spanish), the infant mortality rate, a dummy variable for border provinces, and twenty-five departmental dummies.

²² A Fourier series expansion of the FONCODES index includes terms for the log of the FONCODES index, its square, the sine of the log of the index and the sine of twice the log of the index, the cosine of the log of the index and the cosine of twice the log of the index. As usual, the logarithm of the FONCODES index had to be re-scaled to prevent values smaller than $-\pi$ or larger than π . The coefficient on the FONCODES index is not reported in column (iii) in Table 3, or in columns (iii) and (vi) in Table 5 because it is meaningless on its own when the square, sine and cosine parameters are included in the regression.

The results in Table 3 show that marginal voters, core supporters, and the poor all received a disproportionate share of FONCODES expenditures. The coefficient on the measure of non-marginality is always negative, and is significant at the 5% level when all of the controls are added; the coefficient on the measure of core support is positive and significant at the 5% level in every specification.²³ Note that this is a very strong result indeed: the political variables are significant even after dozens of controls, including sophisticated non-linear measures of the poverty of a province, are incorporated into the model. Finally, the coefficient on the FONCODES index is positive and significant at the 1% level, showing that FONCODES spent significantly more on the poor. The sign on the coefficients when the parameters are estimated with Tobit or Powell's censored LAD is the same, and the magnitude of the effects of the political variables and the FONCODES index tends to be larger than the corresponding OLS estimates. The only important difference is that the censored LAD estimates produce larger standard errors, so that the political coefficients are no longer significant when all of the controls are included.

How large are these estimated effects? Table 4 reports the predicted effect of one-standard deviation changes in core support, marginality, and the (log of the) FONCODES index on per capita FONCODES expenditures. Column (ii), which corresponds to column (ii) in Table 3, shows that, *ceteris paribus*, a one standard deviation increase in the vote for Fujimori resulted in a 55% increase in per capita expenditures, while a one standard deviation increase in marginality resulted in a 13% increase in per capita expenditures. Increases in poverty also have a large impact on expenditures: a one standard deviation increase in the (log of the) FONCODES index resulted in a 34% increase in per capita expenditures.

Table 4: The magnitude of political and poverty effects on the distribution of per capita FONCODES expenditures on community-based projects, December 1991-October 1993

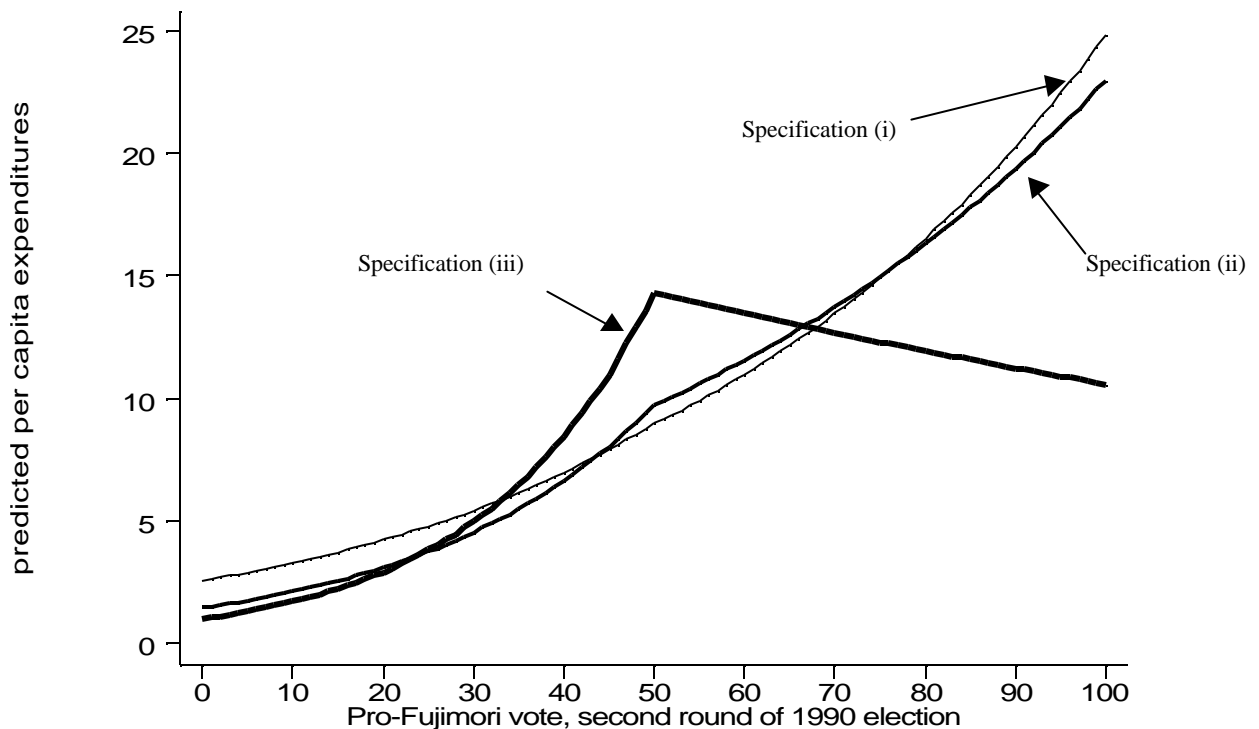
	(i)	(ii)	(iii)
Percent vote for Fujimori	43.29	54.83	44.88
Abs. value (% for Fujimori-50)	-2.65	-12.54	-39.67
ln (FONCODES index)	56.08	33.86	--

Table 4 suggests that the effect of the two political variables is large indeed, especially as the number of controls increases. But interpretation of the magnitude of the political effects is not

²³ If politicians maximize the probability of being re-elected, rather than the expected number of votes, the positive coefficient on the pro-Fujimori vote could also be a measure of the "partisan reward" for the supporters of the stronger party predicted in the modified Lindbeck-Weibull model (Lindbeck and Weibull, Case). More generally, there is no obvious way to disentangle the effect of "core support" from that of "partisan reward" when the incumbent is also the stronger of the two parties (Mark Thomas, personal communication with the author, March 1998).

straightforward because marginality and core support work against each other at levels of support for Fujimori above 50%: for instance, a province in which 75% of the population voted for Fujimori could expect to receive large or small per capita transfers, depending on whether the effect of core-support or marginality is more important. To clarify this matter, Figure 4 graphs predicted expenditures at various levels of support for Fujimori for each of the specifications in Table 3. Other variables in the regressions are kept constant at their means.²⁴ Figure 4 shows that the estimated effect of core support is much larger than that of marginality when only the two political variables and the FONCODES index are included in the regression (specification (i)), but the effect of marginality increases noticeably with the number of controls (specification (iii)).

Figure 4: Pro-Fujimori vote and predicted per capita expenditures



Estimates of political effects: the 1993-95 period

The Peruvian political landscape changed dramatically between 1990 and 1993. In the 1993 referendum, Fujimori generally did well in wealthier urban areas, especially Lima, but he lost the support of large segments of lower-class and rural voters who had brought him into office in 1990 (Stokes 1996b,

²⁴ Mechanically, this can be done by multiplying the coefficient on non-political parameters in the regression by the mean value for the parameter in question, and then adding them to the constant in the regression. The coefficients on the measures of core support and non-marginality are then used to predict expenditures at every level of the vote between 0 and 100%.

Roberts and Arce). What effect did these massive shifts in Fujimori’s constituency have on the distribution of FONCODES expenditures?

Table 5 below reports results from a set of regressions of per capita FONCODES expenditures between November 1993 and March 1995 on the results of the 1993 referendum. Columns (i) through (iii) are based on regressions of expenditures on measures of core support and non-marginality from the 1993 referendum. These specifications therefore test a model similar to that which was found to have had an important effect on the 1991-1993 distribution of FONCODES expenditures, updated with the results of the 1993 referendum. Columns (iv) through (vi) are based on regressions of expenditures on the change in the pro-Fujimori vote.²⁵ These specifications therefore test a genuine buy-back model. One shortcoming of this approach is the fact that the 1990 presidential election and the 1993 referendum were different in character: in the 1993 referendum voters could “safely” express opposition to part of Fujimori’s programme without having to choose an alternative (Graham and Kane, p. 82, Roberts and Arce, p. 229).

Table 5: The impact of the 1993 referendum on the distribution of per capita FONCODES expenditures on community-based projects, November 1993-March 1995

	Level of pro-Fujimori vote			Change in pro-Fujimori vote		
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
1993 referendum: % vote for Fujimori	-0.005 (1.16)	-0.005 (1.30)	-0.010* (1.91)	--	--	--
1993 referendum: abs. val. (% for Fujimori-50)	-0.006 (1.15)	-0.011** (2.22)	0.000 (0.01)	--	--	--
Change in pro-Fujimori vote (vote 90-vote 93)/vote 90	--	--	--	-0.283* (1.76)	-0.391*** (2.58)	-0.560*** (2.93)
ln (FONCODES index)	1.01*** (17.47)	0.746*** (9.11)	--	0.879*** (9.57)	0.554*** (4.59)	--
ln (population)	--	-0.087 (1.33)	0.037 (0.48)	--	-0.101* (1.82)	0.010 (0.17)
Proportion rural	--	0.007*** (2.89)	-0.005 (0.97)	--	0.007*** (2.95)	-0.007 (1.27)
Additional controls	No	No	Yes	No	No	Yes
F-test (1)	0.86	2.57*	1.95	--	--	--
R-squared	0.514	0.548	0.769	0.529	0.567	0.803
Number of observations	230	230	230	205	205	205

* indicates significance at the 10% level; ** indicates significance at the 5% level; *** indicates significance at the 1% level.

Note: Absolute t-statistics are reported in brackets, and are based on heteroskedasticity-consistent standard errors. A constant was calculated but not reported.

F-test (1): F-test on the measures of non-marginality and core support from the 1993 referendum. For a list of controls, see note at the foot of Table 3.

²⁵ “Change” is defined as the 1993 pro-Fujimori vote minus the 1990 pro-Fujimori vote, divided by the pro-Fujimori vote in 1990. Dividing through by the results of the 1990 presidential election recognizes that, say, a 5% reduction in the pro-Fujimori vote is unlikely to mean the same thing in a province in which 70% of the population had voted for Fujimori in 1990 as in one in which the original level of support in 1990 was only 20%.

The results in Tables 5 should be interpreted with caution. As I argue above, if FONCODES expenditures between December 1991 and October 1993 had an effect on the outcome of the 1993 referendum, any regression of expenditures after October 1993 which includes the results of the referendum as an explanatory variable is likely to be contaminated by simultaneity bias. Bearing this caveat in mind, however, the results in Table 5 suggest that *changes* in the vote between 1993 and 1990, rather than simply the level of government support in the 1993 referendum, influenced the distribution of FONCODES expenditures after 1993. The coefficients on the measures of marginal vote and core support are jointly insignificant at the 5% level in all of the specifications. By contrast, the coefficient on the change in the pro-Fujimori vote is significant at the 1% level or better in two of the three specifications in Table 5. Roberts and Arce argue that Fujimori attempted to “recapture the loyalty of the popular sectors” by picking up the pace of poverty-alleviation programmes after 1993. The results in Table 5 suggest that social expenditures channeled through FONCODES were used for such a buy-back strategy in a very focussed way: FONCODES projects were specifically directed at provinces which had supported Fujimori in 1990, but had abandoned him in 1993.

Tables 5 shows that poverty continued to be an important determinant of per capita expenditures: the coefficient on the (log of the) FONCODES index is positive, large, and highly significant in all specifications. Rurality is also associated with significantly higher per capita expenditures (columns (ii), (v)).²⁶ This finding does not conform with an extensive literature in the political economy of development which argues that vocal and organized urban constituencies in LDCs siphon off the bulk of public funds (Bates 1981, Nelson 1992, Graham 1997). FONCODES expenditures in the November 1993-March 1995 period favored rural areas, perhaps because there were other social programs in Peru at the time which were directed at urban populations.²⁷

What, finally, can we say about the magnitude of these effects? Table 6 summarizes the effect of one-standard deviation changes in the log of the FONCODES index and the measure of the change in pro-Fujimori support on the distribution of per capita FONCODES expenditures. The results suggest that the political influence on the distribution of FONCODES expenditures continued to be large: a one standard deviation decrease in the pro-Fujimori vote resulted in anything between a 16% and a 34% increase in per capita expenditures. Meanwhile, the effect of poverty on the distribution of FONCODES expenditures appears to have increased after the referendum. This result is consistent with those reported elsewhere

²⁶ Interpretation of the coefficients on the proportion rural and population size in columns (iii), (vi) and (ix) is not straightforward because of the high degree of collinearity between these variables and all of the additional controls. The same caveat obviously applies to column (iii) in Table 3 as well.

²⁷ These included two housing programs (ENACE, Banco de Materiales); a program for the construction of electricity, water and sanitation systems (UTE-FONAVI); a small welfare program for destitute families (INABIF); and a school construction program which spent mainly on urban schools (INFES) (see World Bank 1996).

(Paxson and Schady), which show that the targeting of FONCODES investments to the poor improved over time.²⁸

Table 6: The magnitude of political and poverty effects on the distribution of per capita FONCODES expenditures on community-based projects, November 1993-March 1995

	(i)	(ii)	(iii)
Decrease in the pro-Fujimori vote	15.80	22.43	33.62
ln (FONCODES index)	75.44	42.53	--

6. Conclusion

This paper uses formal econometric modeling and a rich, highly disaggregated data set to analyze the effect of elections on the timing and distribution of expenditures made by the Peruvian Social Fund between 1991 and 1995. One important advantage of this approach is that it allows for a parsing out of the political and technical influences on FONCODES expenditures. I argue that there is a large, significant effect of elections on the timing and distribution of FONCODES expenditures. Expenditures were boosted before national elections; community-based projects were channeled to provinces where the political returns were expected to be large.

The results in this paper show that FONCODES has clearly been responsive to political imperatives. Indeed, FONCODES was arguably very well suited for President Fujimori's electoral ambitions. Unlike most programs conducted by the line ministries in Peru, FONCODES expenditures are truly discretionary: since 1993, FONCODES has had a backlog of thousands of project proposals which could be funded at opportune times, in provinces deemed to be electorally important. Polls suggest that FONCODES projects are closely identified with the presidency and with President Fujimori himself (Moncada, p. 62).

But FONCODES also appears to have had an important redistributive function. My results show that FONCODES funds flowed disproportionately towards poor provinces. Household survey data indicate that the infrastructure constructed by FONCODES reaches a larger fraction of households, especially poor households, than other programs in the Ministry of the Presidency (Paxson and Schady, World Bank 1999). Such success reaching the poor can in part be explained by the fact that FONCODES has been free of many of the restrictions, paperwork and inefficiencies that have given the public sector in Latin America a bad name.

Was FONCODES, then, an effective poverty alleviation program or a brazen attempt to buy votes?

²⁸ Paxson and Schady present nonparametric regressions and "concentration curves" for FONCODES expenditures on education projects, by year. The curves show that the cumulative fraction of resources flowing to poor districts was unambiguously higher in 1994 and 1995 than in 1992 and 1993.

There is no simple answer to this question because it appears that decisions about FONCODES funding were made on the basis of *both* political and technical criteria. Ironically, it is precisely those features which enabled FONCODES to reach the poor, such as a high degree of flexibility in the allocation, timing, and composition of expenditures, which made it particularly vulnerable to political interference. This tension between effective redistribution and “pork barrel” policies need be no coincidence: Nelson argues that pro-poor programs are much more likely to be implemented when the executive keeps “control over patronage”.

The government of President Alberto Fujimori has privatized state-owned enterprises, liberalized markets, and slashed subsidies and tariffs in Peru. Fujimori has thus eliminated many of the tools which incumbents have traditionally used to enlist the support of important constituencies before an election (Herbst 1990, Grindle 1996). Of course, low inflation and high rates of economic growth also bring important returns at the polls—returns that may far exceed those from the more interventionist policies of yore (Nelson, Przeworski 1993, Stokes 1996a). This paper shows, however, that old populist habits die hard.

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