

The politics of public spending – Part II. The Programa Nacional de Solidaridad (PRONASOL) in Mexico.

Alberto Diaz-Cayeros and Beatriz Magaloni¹

April 25, 2003

¹ Prepared as a Background Paper for the World Bank World Development Report 2004. Both authors are Assistant Professors at Stanford University and Adjunct Professors at the Instituto Tecnológico Autónomo de México. Contact e-mail: albertod@stanford.edu. The paper draws extensively upon research coauthored with Federico Estévez. We thank Joel Hellman, Phil Keefer and Shekhar Shah for insightful comments and suggestions. Of course all errors and interpretations are our own.

1. Introduction.

The Programa Nacional de Solidaridad (Pronasol) is arguably the most widely known poverty relief program implemented in Mexico. The short lived program (it lasted only one presidential term, from 1989 to 1994) was aimed at improving public service provision and development indicators. Pronasol involved active citizen participation, in a similar fashion to poverty funds elsewhere in Latin America, such as the Social Emergency Fund in Bolivia, FIDES in Venezuela, or FONCODES in Peru. Its alleged goal was to mitigate the effects of structural adjustment among the poor. However, most accounts stress that the program also had political goals. In particular, it has become commonly accepted that the program sought to recover the lost legitimacy of the Partido Revolucionario Institucional (PRI) and its president, Carlos Salinas de Gortari, after the tainted 1988 election, in which the system of vote tallying crashed and the opposition claimed a massive electoral fraud was carried out.

Pronasol was the cornerstone of the government's poverty relief strategy. Its resources represented, on average, 1.18 percent of GDP each year. To gain some idea of how significant such amount could be for the poor, it can be compared to the poverty gap during those years. According to the World Bank, 14.9 percent of the households in Mexico were poor in 1992, as measured with a poverty line of \$1 purchasing power parity dollars a day. In monetary terms the estimated poverty gap of those poor was 3.8.² The poverty gap measures the financial resources, as a percentage of GDP, necessary to bring the poor above a given poverty line. Hence, if it had been possible for Pronasol

² See World Bank (1999) *World Development Report 1999/2000* and <http://www.worldbank.org/research/povmonitor/countrydetails/Mexico.htm>

funds to be perfectly targeted as monetary transfers to the most desperately poor, around a third of Mexico's poverty could have been alleviated with those funds.

Pronasol's official goal was to fight poverty using an organizing strategy that incorporated citizen participation as a central element in project selection, funding and implementation. The day after taking office, President Carlos Salinas (1988-1994) announced the establishment of the Committee for the National Program of Social Solidarity, saying "the program that we start today has as its fundamental purpose *concertación*, that is, participation and co-responsibility in the essential task [of improving popular welfare]" (quoted in Rojas, 1994). The program more than quadrupled its share of the federal budget over the course of Salinas's six-year term. PRONASOL undermined traditional corporatist organizations and the central bureaucracy by directly allocating resources on a territorial, rather than a functional basis.

Kaufman and Trejo (1996) have convincingly shown that in spite of its decentralized structure, and the incorporation of state and municipal authorities in the selection of projects to be funded by PRONASOL, the program's allocation of funds was not a local choice: it was determined by bureaucrats in Mexico City and delegates of the Social Development Ministry (SEDESOL) in each state, all responsive to the Minister and the President. The program's objectives and allocation of funds were determined at the center, not in the regions. Two fundamental criticisms dogged the program, beginning to end: first, that it was not an effective mechanism in the war on poverty, sacrificing social criteria in favor of political imperatives; and, second, that the logic of the program was clientelistic and authoritarian.

The program was controlled by a federal bureaucracy, the Secretaría de Desarrollo Social (SEDESOL), which PRI candidate Luis Donaldo Colosio headed before starting his campaign. Before holding that cabinet position, Colosio headed the PRI, working on the so called “territorial” reorganization of the party. Hence, the candidate was in a particularly favorable position to use the program for electoral purposes, since his team of close advisors understood both allocations in the program and the geographic characteristics of PRI support.³

This paper analyzes the social impact and political underpinnings of Pronasol. A companion paper discusses the theoretical literature on the politics of public spending, which make poverty alleviation programs and, in particular, public service delivery to the poor, affected by political considerations. The next section measures the social impact of Pronasol in the provision of local public services -the most important component of the program. That analysis reveals that the social impact of Pronasol was fairly limited. The section after that addresses some political explanations that account for such limited impact, including a discussion of clientelism and pork barrel politics in Mexico. We then report on our ongoing research on the political determinants of the allocation of Pronasol funding. The timing of expenditure responded to the federal electoral cycle; and the allocation of funds was determined by the competitiveness of electoral contests and the partisan identity of local executives. Specific funds were devoted to clientelism, targeted according to the partisan loyalty of municipalities and a logic of risk hedging to

³ Although Colosio was murdered months before the election, the main strategies of the campaign were already in place by the time his substitute, Ernesto Zedillo, took over the candidacy. Moreover, Zedillo was Colosio’s campaign manager, so there is no reason to believe that he would have modified decisions concerning the allocation of PRONASOL funds that Colosio made with the minister in charge of SEDESOL, Carlos Rojas. Colosio and Rojas were in fact close collaborators. President Carlos Salinas has acknowledged that Colosio’s first choice as a campaign manager was, quite fittingly, Rojas; however Salinas himself advised Colosio to keep Rojas in the cabinet heading PRONASOL (see Castañeda, 2001).

compensate electoral uncertainty. The fourth section briefly discusses some of the implications of our findings for poverty relief strategies in Mexico and elsewhere.

2. Social Impact: The provision of local public goods.

An analysis of the poverty impact of Promasol depends upon measuring changes in the welfare of poor individuals or households as a consequence of the services provided and money spent in the program. Some of those changes are more readily observable than others. Ideally, the Program should be assessed in terms of its reduction in the incidence of extreme poverty, and some of the ills that accompany it: gastrointestinal diseases, infant mortality, nutrition and caloric intake, particularly for girls, women and the old. Information for such analysis is not readily available. However, an assessment of the program can be made at an aggregate municipal level of analysis, exploring whether the provision of local public goods and services effectively improved as a consequence of the program's spending.

The municipal level of aggregation implies limitations. Mexican poverty is concentrated in localities smaller than the municipality (See World Bank, 2001). Surely distributional issues regarding the relative incidence of poverty within municipalities are important. However, poverty in Mexico is explained, to a considerable extent, by geographical differences across regions not attributable to individual level characteristics (Wodon, 1999). Thus, understanding the municipal impact of the program most likely yields a good inference of the underlying individual level effects. Moreover, given the recent trend towards decentralization, and the public nature of the goods provided by

Pronasol, the effect of the poverty relief program on aggregate indicators has crucial policy implications.

Pronasol was distributed to municipalities at all levels of development in Mexico. Figure 1 shows that the per capita allocation of Pronasol funds for the 2417 municipalities in Mexico during the six years of the program.⁴ The horizontal axis is an indicator of the level of development, proxied by the percentage of illiterate women according to the 1990 census. (calculated from data from INEGI's Sistema Municipal de Bases de Datos, SIMBAD). The graph mitigates the degree of dispersion in the distribution of funds because the horizontal axis is shown in a logarithmic scale.⁵ The coverage of these programs was so broad that all municipalities in Mexico received some investment every year, although program composition varied widely from year to year and across municipalities. The total figures hide the fact that Pronasol was, in fact, made up of 20 odd programs.⁶

[Figure 1 around here]

Consonant with the discussion in our companion paper, one can classify spending in each of the Pronasol programs according to whether the money was devoted to the provision of private goods, local public goods or public goods extending beyond the municipal jurisdiction (which we call extensive). The classification of private, local and

⁴ The database on Pronasol spending was compiled by Marcela Gómez and Sandra Pineda. Details on data sources are provided in Magaloni, Estevez and Diaz-Cayeros, 2000.

⁵ This is done because most of the municipalities with very high per capita allocations are extremely small, suggesting that this is an effect of some minimum fixed costs that are necessary to get any project going.

⁶ Analysis of individual programs can be found in Gershberg (1994) for the *Escuela Digna* program; Fox (1994) for Indian community development programs; Hiskey (2000) for electricity and potable water; and Magaloni *et al.* (2000) for potable water and sewage, highway and rural road construction and the *Fondos Municipales* program.

extensive public goods depends on whether the goods provided were targeted to individuals who could enjoy their consumption while excluding others or not, and whether a project had interjurisdictional externalities.⁷

Figure 2 plots the composition of Pronasol funding for all the municipalities during the six years of the program. We considered as private some “club goods” such as granaries, mills, warehouses and other supports for producers, since not all the inhabitants in a municipality share in the same productive activity. Regional development programs, despite their name, were programs targeted to Indian communities, so we classified them as private goods. Programs for women (mostly microcredit) and children scholarship funds were not universalistic entitlement based, but rather allocated in a highly discretionary manner, so we classified them as private. The food and distribution program mostly financed infrastructure, so we classified it as local public goods. Funds given out to municipal governments were primarily used for urban improvement, so we classified them as local public goods.⁸

[Figure 2 around here]

The ternary graph reveals that the most important component of Pronasol was, in fact, local public goods (what we refer to in the literature as “pork”). On average, in a given municipality, 62.3 percent of the funds were devoted to local public goods, 28.6

⁷ This cannot be inferred from the name of the program, but must be classified by examining the specific goods provided in each program.

⁸ The classification of each program is as follows: 1) private goods: Support to social service, housing, children in solidarity, women in solidarity, infrastructure for productive support, solidarity for production, productive ecology and regional development programs; 2) local public goods: drinking water and sewage, food and distribution, electricity, sports infrastructure, dignified school, urbanization, educational infrastructure, IMSS solidaridad (health clinics in remote areas), health support and municipal funds; 3) extensive public goods: regional hospitals and highway infrastructure.

percent to private goods, and 9.1 percent to extensive public goods. In order to assess the effects of Pronasol we measured changes in the provision of water, electricity, sewage and illiteracy in aggregate municipal populations. These public services make up the bulk of local public good spending, the most salient component of the program.⁹

Since Pronasol was considered in its heyday a highly successful program, and even after its demise various development agencies (including the OECD and the World Bank) have called for a revision of the merits of the program -including the effectiveness of citizen involvement in the improved provision of public services-, it is crucial to ascertain to what extent the program had a measurable impact on development indicators, even aggregate ones.

Figure 3 shows the per capita allocation of Pronasol funds accumulated in real terms from 1989 to 1994 to improve sewage, drinking water, electricity and education infrastructure within Pronasol. The education figures include only the funds geared toward repairing and constructing schools, not scholarships going to individuals (i.e. they include only the local public good component of this expenditures). Around 40 percent of the funds in the program were devoted to these programs. While the specific allocations differed, according to the specific characteristics of the municipalities, around 17 percent of the program went for drinking water and sewage, 13 percent to electricity, and 10 percent to education infrastructure.¹⁰

⁹ Although one cannot infer from such analysis the direct impact of spending and changes in welfare or poverty levels at the individual or household level, we can learn much about the relative conditions of municipalities, and the effectiveness of various policy interventions. There are not many individual level analyses that have been able to effectively assess government spending and poverty profiles in Mexico. See Wodon (2001), and Progres Evaluation (International Food Research Policy Institute).

¹⁰ Unfortunately, a breakup of sewage and drinking water expenditure separately was not available due to the way Pronasol reported its data.

[Figure 3 around here]

We estimated the effects of cumulative Pronasol expenditure on the change in access to drinking water, electricity, sewage and women illiteracy.¹¹ The dependent variables of the analysis are the changes in the percentage of households at the municipal level *without* access to drinking water and electricity between the 1990 and 1995 censuses.¹² We also estimated, but do not report due to the inconclusive findings, changes in the percentage of illiterate women and changes in access to sewage.¹³ The coding of the dependent variable implies that values are mostly negative, meaning that the percentage of households lacking basic services has been reduced. While other development indicators could conceivably be used as dependent variables, these indicators are available for comparison across both censuses at the municipal level. Given their widespread availability, these are also the indicators used in Mexico to allocate funds for the Social Infrastructure Development Fund, the most important federal transfer to municipalities, meant to impact development at the local level.¹⁴

¹¹ To our knowledge, the only other study approaching Pronasol from this perspective, analyzing electricity provision in two states, is Hiskey (2000). Our results differ from Hiskey's on several grounds. First, we have the full universe of municipalities, so our analysis is not subject to the problems of selection bias inherent in his choice of municipalities in two quite idiosyncratic states, Michoacan and Jalisco. Second, he overestimates the effect of Pronasol on public good provision by failing to account for the convergence in municipal public good provision that has been occurring in Mexico due to economic processes independent from Pronasol spending. Third, he places particular emphasis on the role of electoral competition in improving policy outcomes, while our analysis suggests that such variable explains the levels of spending, rather than mediating its effectiveness.

¹² The 1995 census (*Conteo*) was a reduced questionnaire, which limits the indicators available for comparison between both years.

¹³ The data for 1995 was obtained from inegi.gob.mx and the CD-ROM *Los Municipios en Mexico*, also published by INEGI, for 1990.

¹⁴ While a more comprehensive analysis would ideally compare poverty rates, changes in nutrition, infant mortality or morbidity, or the income effects generated by the provision of public goods on households, there is wide consensus among policymakers that better access to public goods can be welfare enhancing.

Figures 4 and 5 map the improvement in water and electricity provision by municipality during the five intercensal years (1990 and 1995). The maps categorize improvements according to whether they were close to the national average, and above or below it. On average, water provision improved by 9.4 percent and electricity by 10.0 percent during those five years. Municipalities that exhibit little or no improvement are usually places where migration flows outpaced the supply of public service delivery. Those that show large improvements are not just limited to the poor areas of the country, but comprise also dynamically growing regions in the West and North of the country. The maps suggest that improvements in electricity and drinking water provision are quite dispersed throughout the country, with no specific area accounting for them in particular.

[Figures 4 and 5 around here]

The provision of drinking water and electricity could be determined by factors beyond the specific funds that Pronasol devoted to those public services. It is important to note, for example, that although electrification requires public initiative, the percentage of homes with access to electricity often depends on the private provision of connections through “theft” of electricity from the distribution grids. This is particularly noticeable in poor semi-urban areas. Moreover, water delivery has been successfully privatized in many municipalities, so that access to drinking water can be determined by a combination of private and public investment. In order to control for private factors that account for public service provision, beyond specific public spending by the Pronasol, we have estimated changes in access to drinking water and electricity as convergence equations:

the level of public service provision in 1990 should determine the pace at which those services are improved. If convergence exists, the sign of the initial challenges, as measured by the percentage of households without drinking water (*Agua*) and electricity (*Electric*), should be negative, suggesting that well endowed areas can increase access more slowly than less privileged ones. We believe that an estimation that does not control for the convergence process, which is correlated with complex processes of economic modernizations, is misspecified, and would overrate the effect of Pronasol spending.

As previously mentioned, births and migration might exert pressure on the physical infrastructure, so that it might be more difficult for places where population growth is high to keep up with the provision of public services. We hence include a control for demographic growth (*demstd*) which is standardized so that 0 corresponds with the average demographic growth during those five years. We expect this variable to have a positive sign, suggesting that it is more difficult to reduce the percentage of households without public services where demographic pressure is high.

Public expenditure in water and electricity could be complemented with other forms of public expenditure in order to improve coverage. Hence, besides including accumulated real per capita Pronasol expenditure in water (*aprpc*) and electricity (*elrpc*), we control for the total funds allocated by Pronasol in projects other than water (*etmap*) and electricity (*etmel*), as well as funds spent directly by the municipality for public works purposes. Municipalities had two additional sources of funds for public works besides the Pronasol programs we have singled out: they could devote some of their own budget into those projects, and they could use a federal transfer they received under the rubric of *Fondos Municipales*.

Fondos municipales was a relatively small figure at the beginning of the program, but as pressures for decentralization and a desire for municipal government to have a greater say in the selection of projects mounted, these resources became more important. On average, *fondos municipales* were slightly less than 20 percent of the total Pronasol expenditure. Public works spending by municipalities constitutes the part of their budget they invested, as distinct from expenditure in debt service and general administration (mostly comprised by payrolls). On average, municipalities during this period spent about half of their budgets on public works; and their budgets were smaller than Pronasol funds. Hence, public works expenditure by municipalities constituted around 27 percent of Pronasol funds, on average.

The importance of municipal spending in public works differed, however, according to the level of development. Figure 6 shows the relative importance of public works spending by municipalities from their own budget (public works), compared with overall Pronasol spending, classifying municipalities according to their level of development. Both public works and Pronasol spending is measured as the accumulated funds in real terms during the 1989-1994 period. The development classification is Conapo's poverty level, which categorizes through a factor analysis of census data, five ranges that go from very low poverty (i.e. the richest municipalities) to very high poverty. It is clear from the graph that richer municipalities had far more resources available from their own budgets than poorer ones, and Pronasol spending seems to have been allocated taking these differences into account.

[Insert Figure 6 around here]

In the estimates for the effect of Pronasol spending on social service delivery we hence control for the municipally allocated public works spending (*wkspc*), as well as the municipal funds transferred from the federal level (*fmrpc*). Finally, since Pronasol often involved matching funds from the municipality for the federally financed projects, we have included an interaction term of Pronasol funds for water multiplied by public works spending (*aprpc*wkspc*) and a corresponding term for electricity (*elrpc*wkspc*). We expect all of these variables to exhibit a negative sign, suggesting that when more money is spent, the reduction in the percentage of households without basic public services should be greater. We have no *a priori* expectations about whether Pronasol funds, federal transfers, or municipal spending should have a larger effect.

Tables 1 and 2 report several specifications of our estimates, including control variables for some of the outlier municipalities that seemed to exercise a higher leverage in the regression (municipalities categorized by Conapo with high and very high poverty levels (Aalta), and the states of Oaxaca (Oax), Puebla (Pue) and Sonora (Son)). All the estimates are OLS with robust standard errors ran in STATA.

[Insert tables 1 and 2 around here]

The regressions suggest that Pronasol had positive welfare effects, albeit relatively small ones. Only in the case of electricity does the program seem to have made an impact of some magnitude, speeding up the process of convergence in electric provision across the country in an important way. The program had some limited impact

on the provision of drinking water. We find no evidence of (and do not report) an aggregate impact of Pronasol on female illiteracy or sewage indicators. Our findings suggest that despite the undeniable importance of government expenditure in the provision of public services, most of the improvement in public good provision and development indicators in Mexican municipalities is attributable to the overall process of modernization, in which changes in social and economic characteristics of localities lead to a slow but steady convergence of development across municipalities. The specific efforts of Pronasol spending had, at best, a marginal contribution that speeded up such process. The speed of convergence for public service delivery in Mexico is relatively fast: we have estimated that the half-life of convergence (i.e. the time it takes for half of the initial gap to be eliminated) is of around 11 years for water and 9 years for electricity.

Notwithstanding the massive funds channeled, our analysis suggests that if no Pronasol spending had been carried out, the effect on public good provision would have been rather small. According to INEGI census data, the percentage of households without access to drinking water in Mexico changed from 21.11 percent in 1990 to 15.39 percent in 1995. Had Pronasol not spent any money in water projects, according to our estimates, we get a counterfactual scenario where access to drinking water in 1995 would still have been around 14.74 percent. That is, Pronasol expenditure made it possible only for 0.65 percent of Mexican households (or around 120,000 homes) to have access to drinking water, which would otherwise not have had it. With electricity the impact of the program was somewhat greater. If there had been no Pronasol expenditure, our estimates suggest that the percentage of households without electricity would have dropped from 13.28 in 1990 to 8.46 in 1995, instead of the 7.19 percent actually observed (which represents

around 230,000 homes). Our (unreported) estimates did not provide any evidence that can confidently attribute improvements in sewage or illiteracy levels to Pronasol spending.

The main explanation for the improvements in public goods and social conditions, according to our analysis, is attributable to economic and social convergence processes that, while may be connected with government action, are not directly attributable to the specific distribution of Pronasol money spent across municipalities. The notion of convergence implies that the municipalities with the worst provision of public goods are the ones that can improve it more quickly. This “natural” process of convergence in development indicators is fastest in Mexico for the provision of electricity and drinking water, slower for literacy levels, and practically non-existent for sewage. Patterns of investment, which are spread across the country, might contribute to such convergence. If a poor municipality is able to catch up with the rest of the country, this means it will improve in the provision of public services more quickly than a richer municipality. A relatively small level of public investment might have a greater impact in poorer municipalities than in richer ones.¹⁵ Hence, an equal distribution of funds to all municipalities might generate convergence, even though it will not explain, in a statistical sense, the improvement in social indicators. Hence, a fixed level of investment assured to each municipality would contribute to the convergence process, which in our estimates is captured by the effect of previous provision on the improvement in each development indicator, and does not show up as specific effects from the amounts of money spent.

Pronasol was a new program in 1989 when it started its operation. Presumably the allocation of funds could respond more readily to the objectives (social, economic and

¹⁵ The opposite effect is also theoretically possible: where there is a relatively good provision of public goods it might not be so expensive to extend the coverage; while in places with almost no public services the fixed costs might be very high.

political) of the leaders who envisioned and implemented it. However, the program allocations were subject to bureaucratic inertias from the past, concerning the way in which public resources had historically been distributed to different regions. Hence, one would expect that the baseline of allocations to each region in the country might not have been too different from the historical patterns, and hence the speed of convergence might not differ during the Pronasol era from previous periods in Mexican history. A question for future research would address whether convergence was faster in the 1990s, with the presence of Pronasol, than it was in the 1970s or 1980s.¹⁶

Pronasol spending was spread all over the country. We argue that the reason for such dispersion in spending, instead of a more precise targeting of specific needy communities or municipalities, was political. Targeting expenditures would have made a dramatic difference in the poorest municipalities. Even though the measured effects of Pronasol are small, targeted policies with a similar design, keeping citizen participation and other attractive aspects of the program in place, could have had a powerful effect on poverty alleviation. In order to improve electricity provision by one percentage point in an average municipality, Pronasol needed to allocate around \$50 pesos per capita during the six years of its operation. To improve sewage by one percentage point, \$150 pesos per capita needed to be allocated to the municipality. An improvement of 1 percent in access to drinking water would have required around \$375 pesos per capita.

As previously mentioned, Pronasol did devote more aggregate resources to the poorer municipalities. As figure 7 shows, the simulated effect of Pronasol spending was much larger in poor municipalities than in rich ones for the case of electricity, but its effect was larger in rich municipalities for the case of water. That is, the actual

¹⁶ There is some evidence of divergence during the 1940-1960 period at the state level (see Wilkie, 1978).

allocations made by Pronasol did have more sizeable effects in some types of municipalities, to the extent that more funds were allocated to them.

[Insert figure 7 around here]

If Pronasol funds used for electricity in the 1988-94 period had been solely devoted to the most marginalized municipalities (CONAPO's poverty level 1), access of households to electricity in those 341 municipalities, comprising around 3.5 million Mexicans, would have improved by 18.9 percent. If all funds allocated to drinking water had been targeted to those same poorest municipalities, the provision would have improved by 20.5 percent. If all Pronasol funds had been spent in the most marginalized municipalities only for programs of electricity, sewage and drinking water (equally shared to each of them), electricity supply would have improved by 32.3 percent; sewage by 11.4 and drinking water by 4.5 percent in these poorest Mexican municipalities. These findings are consistent with Szekeli's (1998) claim that Pronasol spending reduced poverty by 3%, but that had it been targeted, its effect on poverty reduction could have been in the order of 64%.

These estimates reveal perhaps the most serious drawback of the program: funds were not targeted due to political imperatives. Nonetheless, our analysis suggests that among the alternative forms of government spending used to finance public good provision in Mexico at the time, Pronasol turned out to be the most effective. Pronasol expenditure was more effective in improving the four indicators of changes in development than federal discretionary transfers to municipalities, or municipal public

works expenditures financed with municipal own sources of revenue. Hence, while decentralization can offer many advantages in bringing government closer to its citizens, we find no evidence that local spending in Mexico during the early 1990s were more effective than centrally controlled federal spending through Pronasol.

3. Hegemonic decline and the logic of political manipulation of funds.

Why was Pronasol so inefficient in its developmental goals? By most accounts, the hegemonic Partido Revolucionario Institucional (PRI) successfully stayed in office for seven decades through the selective provision of rewards to core supporters, in the form of clientelism, corporatist privileges, monopolies and government largesse. In spite of frequent charges of election rigging throughout those years, the PRI never suspended electoral processes as the mechanism to achieve office. The PRI received the overwhelming majority of votes in most elections. Even during the 1990s, with independent electoral authorities, and vigorous competition, the PRI kept on winning, until 1995, most electoral contests.

The distribution of private, divisible material outlays appears to be essential for the long-term maintenance of such electoral hegemony. By delivering private as opposed to public goods, politicians screen between supporters and opponents, excluding from the stream of benefits those who throw their support to a rival. But there public goods are also essential to win elections. By delivering public goods to swing voters, politicians can maximize the chances of electoral victory in hotly contested places with low margins of victory. Let us examine each of these strategies.

Incumbents can use public spending in order to *deter* voters from exiting to the opposition. Díaz-Cayeros, Magaloni and Weingast (2000) have developed a deterrence game to explain how Mexico's PRI sustained its hegemony. They demonstrate that the PRI tended to reward its core constituencies with more federal funds and to punish opposition voters by withdrawing funds from those localities in which either the right-wing *Partido Acción Nacional* (PAN) or the left-wing *Partido de la Revolución Democrática* (PRD) won. This deterrence game, they argue, underlies the perversity of dominant party rule in Mexico, inducing voters to accept high levels of corruption and poor governance while playing an active role in sustaining the PRI's hegemony.

The erosion of that equilibrium came through socioeconomic change. Díaz-Cayeros *et al.* (2000) claim that three factors account for the gradual erosion of PRI hegemony. First, the economic crises of the 1980s and the market-oriented reforms that followed lowered the amount of public resources available for patronage and clientelism. Second, repeated economic crises since 1976, with runaway inflation, unemployment and severe contractions in real wages, eroded the party's electoral support in cumulative fashion. Third, economic liberalization worked as a major democratization engine, permitting more "modern" local economies to thrive under the umbrella of international markets, without recourse to rent-seeking activities directed at the state. International opportunities and modernization gave these localities viable exit options: that allowed them to survive exclusion from the PRI's centrally controlled spoils system.¹⁷

¹⁷ Political liberalization also played a vital role in the decay of the dominant party system. In the wake of unrelenting economic troubles, a deep and permanent split in the ruling party in 1987 produced a sharp rise in electoral competitiveness and almost turned the PRI out of power in the presidential elections of 1988. Lujambio (2000) documents the exponential growth in state-level divided governments and in municipal triumphs for the opposition after that watershed election. Given the new balance of electoral power, tradeoffs between the ruling party and the opposition led to a series of election reforms after 1988,

Such deterrence account does not capture, however, a different strategy that a threatened dominant party can follow to defend its eroding hegemony. When the incumbent faces a high probability of losing, deterrence might be less crucial than capturing new voters or recapturing old ones who bolted to the opposition in the previous electoral round. If the erosion in electoral support is sufficiently deep, but the situation is not yet hopeless, the incumbent party can buy back disloyal voters catering to swing voters. To get reelected under these circumstances, political support must be sought through a strategy of public good and service delivery.

The electoral payoff of public goods and services as electoral investments is much less certain than for distributive policies designed to generate private goods. This is especially true for low-income voter groups, for whom particularistic transfers (jobs, income supplements, cheap credit, property titles, etc.) represent greater current consumption gains than those that stem from the creation of public goods. In his doctoral dissertation, Carlos Salinas (1982) -precisely the technocrat-politician who later as President created Pronasol-, argued that traditional public investment in rural infrastructure projects and public works often failed to sustain political support for the ruling party.¹⁸ By the late 1980s, however, Salinas had no feasible alternative but to devote substantial government funds to local public good provision in order to sustain PRI hegemony. The upshot for threatened incumbents, understanding the uncertain payoffs of public goods directed at the poor, is that they are forced to undertake riskier investments hoping to cater to a greater number of voters and voter types. The next

including 3 rounds during the Carlos Salinas administration (1988-94), which improved the terms of competition and progressively leveled the playing field in the electoral system.

¹⁸ This was based on the analysis of four rural communities in the state of Puebla.

section reports some of our findings concerning the political manipulation of Pronasol funds.

4. Evidence of political manipulation.

There are four pieces of evidence suggesting a manipulation of Pronasol spending for political purposes. First, the *timing* for the disbursement of funds was adjusted according to the electoral calendar of Mexican federal elections. Second, the PRI rewarded *loyalty* in municipalities governed by its fellow partisans, or with historically high support for the party, while withdrawing funds from riskier places where its vote share was most volatile. Third, consonant with an effort to cater to the swing voters, the program seemed to go disproportionately to places where the PRI obtained tighter *margins of victory*. Fourth, the PRI used the private transfers within Pronasol as a *clientelistic* strategy that excluded opponents from those benefits. We examine each of these in turn.

a) Timing of funds

Magaloni, Estevez and Diaz-Cayeros (2000) have shown, in a pooled time series analysis of total PRONASOL allocations by municipality, that federal elections increased expenditure. The increase in expenditure is small in the aggregate allocation of funds (around \$1 peso per capita, while in a given year Pronasol would allocate \$246 pesos to an average municipality). However, this timing effect becomes very strong in specific programs. For example, transfers to municipalities (*Fondos municipales*) were increased by \$16 pesos during federal elections, and highway construction funds increased by a

staggering \$46 pesos. Their yearly analyses also reveal that the distribution of funds during federal election years was more dispersed across all municipalities, with almost every municipality getting projects in most programs, compared to mid-election years. Hence, Pronasol seemed to be responsive to the timing of federal elections in two ways: first, specific programs, where public works were more visible and could be finished before the election, received more funding; and funds were more widely dispersed in electoral years, so that all municipalities could benefit from the program.

Evidence for political manipulation in the timing of gubernatorial and municipal elections is mixed. There are positive and significant effects of the timing of municipal races only in 1990 and 1994. Gubernatorial election effects generally do not reach statistical significance, suggesting that governors could not really control the flow of these resources into their states. Further research on the timing of the staggered subnational electoral calendar and Pronasol spending is still needed, but these findings suggest, consonant with the critical literature on Pronasol which argues that the program was an instrument of the President and the national party, that the overriding consideration was the federal electoral calendar, as reflected in specific, visible programs such as municipal public works and highway construction.

b) Loyal voters and electoral volatility

The strategic use of funds by the PRI to prevent municipalities from exiting to opposition parties is reflected in a withdrawal of funds to municipalities that are not governed by the hegemonic party. This is consonant with a punishment regime discussed in Diaz-Cayeros, Magaloni and Weingast (2001). Figure 8 shows the evolution of

average per capita allocations of Pronasol spending by year, according to the partisan identity of the municipal government.

[Figure 8 around here]

The graph shows that, on average, allocations to PRI municipalities were above those disbursed to opposition parties. Such pattern is most obvious for the PAN, and for the PRD in the early years of the program. Minor parties were allocated significantly less funds, except for the year of 1991, when the *Partido del Trabajo* (PT) made important inroads in the state of Durango. This exception is notable because the PT was a party with informal connections to the political group associated with Carlos Salinas. The main opposition parties (PAN and PRD) often claimed that the PT was financed by the government in order to fragment opposition vote, hence strengthening the PRI.

PRD governed municipalities received fewer funds in the early years, but by the end of the program (1993 and 1994) they were receiving funding similar to that of PRI governed localities. This is probably a reflection of a strategy to buy back support from defecting localities that has been documented by some authors, particularly in the state of Michoacán (Bruhn, 1996). Thus, it is safe to say that municipalities governed by opposition parties always received fewer funds than PRI ones, with the exception of the PT in 1991 and PRD municipalities as the federal election of 1994 approached.

Since opposition parties tended to be stronger in more urban, richer, modern regions, one question this pattern raises is whether the differential funding is the consequence of the PRI being stronger in poorer municipalities, which received more

funds, rather than of an overt political bias. Given the large number of observations involved in the analysis, it is possible, however to separate poverty determinants from partisan effects. Magaloni, Estévez and Diaz-Cayeros (2000) show that, controlling for level of development, poor municipalities do receive more funds on the grounds of their poverty. But the partisan bias remains, *ceteris paribus*. Controlling for development, the punishment effect is of around \$48 pesos, which constitutes around 20 percent of the average per capita funds allocated any given year (\$246 pesos). Such effect is statistically significant and of around the same size for PAN (withdrawal of funds) and for the PRI. For PRD the effect is smaller (around \$35 pesos), although it fails to reach statistical significance (something which is also apparent from the way in which PRD funds are similar to PRI at the end of the program).

In a more complete specification, controlling for swing voters effects and party system configurations, Magaloni, Estévez and Diaz-Cayeros (2000) find that opposition PRD municipal presidents in fact receive slightly more resources than average, in an effort to win back lost jurisdictions, while PAN municipal presidents always receive significantly less funds. If a municipality governed by the PRD was lost by the PRI with wide margins, however, funds were withdrawn. This effect of margin of PRD victory is consonant with the idea of not wasting resources in places that would be very difficult to win back.

Long term considerations of party loyalty also played a key role in the allocation of funds. Vote support changes from election to election. However, the expected value of PRI vote, calculated as the mean support obtained by the party in municipal elections,¹⁹

¹⁹ Depending on the staggered calendar of municipal elections this includes three or four elections, starting from the era of competitive contests taking place since 1980.

provides an indicator of a long term expectation by the hegemonic party of where core supporters might be concentrated. That mean value is tempered by electoral risk. The variance of PRI support in local elections should reflect core support effects: places with larger core groups and more loyalty should exhibit lower variances.²⁰ Thus, if Pronasol funding were targeted to core voters, one should expect more funds directed to places with high expected PRI vote, and fewer funds to places characterized by high variability. Estimating Pronasol allocations for the last year of the Program (1994) Diaz-Cayeros (2002) finds that the effects of variance and expected vote value are strong: a standard deviation increase in variance decreases funds by around \$30 pesos (the average PRONASOL assignment for that year was \$369 pesos); a 10 percent decrease in expected vote value decreases funds by around \$20 pesos.

c) Swing voters and margin of victory

In order to identify political manipulation to tilt the decision of swing municipalities or voters studies use the margin of electoral victory as a measure of closeness of a race. Many studies do not control for a simultaneity bias: although estimates assume that the margin of victory in an election determines the allocation of funds, the relationship can be the other way around, with funds allocated to a municipality increasing electoral support to the incumbent party and widen its margin of

²⁰ Ideally, one would want to measure the expectation and variance of vote support per peso spent. However, those variables are not directly observable. One can assume, however, that a positive relationship exists between expected vote support per peso spent and the expected vote support (that is, the prize obtained). Therefore, measuring the mean PRI vote received in the previous elections can be a good proxy of the unobserved expected yield. The same argument can be used for the variance of unobserved yields, which should be in direct proportion to the variance of PRI support. Finally, to the extent that marginal races are more “productive”, since a peso spent in them is more likely to tilt the balance in favor of the ruling party, one can expect a negative association between unobserved yields and margin of victory.

victory. When not controlling for simultaneity, Magaloni, Estevez and Diaz-Cayeros (2000) find that a wider margin of victory has a positive effect on spending. However, when the margin is instrumented, using the margin from the last election, the sign becomes reversed, implying a withdrawal of resources, consonant with a swing voter model. However, this swing voter effect is quite small, as compared with the other variables previously discussed. A municipality with the closest electoral race (0 points of margin of victory) obtains \$2 extra pesos per capita than one where the PRI wins with a huge margin of 50 percent. Hence, although there is evidence suggesting that resources were allocated aiming to tilt the outcome of the election, other considerations seem to have played a larger role.

This pattern of resource allocation to swing municipalities is confirmed by the allocation of transfers across municipalities characterized by different patterns of electoral competition. The PRI seemed to spend the most resources in those places where it obtained intermediate levels of electoral support. Diaz-Cayeros (2001) shows that as the party enjoyed higher electoral support, Pronasol funding increased; but that funding decreased past a certain threshold. The threshold depended on whether local electoral contests were multiparty or bipartisan. In bipartisan races the peak was reached at 50 percent. In multiparty races the peak corresponded to 38 percent. At the peak, bipartisan races were allocated around \$30 pesos more than multiparty ones. However, at low levels of PRI electoral support multiparty jurisdictions tended to receive more funds than places with two party races. The reason behind such strategy was that in multiparty races, even if the party had low support, its chances of tilting the result in its favor were relatively high; while in two party races there was little hope to change the direction of

the vote. With high levels of electoral support uncoordinated opposition parties pose little challenge, so resources can be saved for other, more urgent, uses.

d) Clientelism

The literature on clientelism (see companion paper) has stressed an association between poverty and the prevalence of this form of political exchange. Estévez, Magaloni and Diaz-Cayeros (2002) measure the prevalence of clientelism in Pronasol as the fraction of Pronasol spending delivered to individuals or groups as private excludable transfers. They find that clientelism was positively associated with the deprivation prevailing in a political jurisdiction. However, deprivation shows an inverted U-shape, meaning that it is more prevalent in municipalities at middle-levels of development. This inverted U shape is mediated by partisan and political considerations.

Figure 9 reports the clientelistic component of Pronasol spending, according to the level of development, and the political configuration of a given municipality (taken from Magaloni, Diaz-Cayeros and Estévez, 2003). The graph traces inverted U shapes for municipalities in which there is no political competition (the PRI received 100 percent of the votes); in which hegemony was strong giving an effective number of parties competing of less than 1.7; and in competitive races where the PRI could conceivably lose the election. The horizontal axis groups municipalities by their level of development. Clearly, the lowest degree of clientelism is observed at the rightmost extreme of the scale, in rich municipalities. The poorest municipalities (scale 5) are not, quite surprisingly, the ones with the highest levels of clientelism. Instead, the peak is reached at intermediate levels. In competitive races the peak is reached very quickly, and clientelism recedes as

development is higher; in hegemonic and non-competitive municipalities the peak is reached in the middle, although clientelism is higher in places with no competition.

According to Estévez, Magaloni and Diaz-Cayeros (2002), there are two logics at work in Pronasol's clientelism, one related to party loyalty, the other related to risk hedging. The PRI devoted more resources to clientelism in municipalities loyal to it. Estévez, Magaloni and Diaz-Cayeros (2002) estimate that a loyal PRI municipality which had never defected to the opposition and where PRI support was above 65 percent received \$25 pesos more in private goods than a municipality where the PRI's vote is lower than 65 percent and where the opposition has been elected at least once between 1970 and 1994. This is a substantial amount, if one considers that the average allocation of private goods is \$66 pesos per capita. Again, the implication of this result is that incumbents need to spend substantial amounts of money to maintain an electoral monopoly.

The second logic involves PRI politicians employing clientelism as a form of risk hedging. Electoral risk can be estimated as the idiosyncratic risk of a municipality, in comparison with national electoral trends. Estévez, Magaloni and Diaz-Cayeros (2002) calculate that a municipality with average idiosyncratic risk (a β coefficient of 2.4) would receive \$10 additional pesos in comparison with a municipality exhibiting the same electoral trend as the country as a whole. This can be interpreted in the following way: the federal government was willing to devote around 5 percent of total Pronasol funds (and around a fifth of the private goods in the program) in order to hedge the greater risk

represented by municipal races, as compared to the national electoral performance of the PRI.²¹

The account that emerges from these results concerning the use of clientelism as an electoral strategy is the following. When first threatened, the PRI increased its investment in clientelism in an attempt to both prevent its core from switching to the opposition and even recover disloyal voters. In highly competitive municipalities, however, clientelism tended to be used less. Clientelism in Pronasol was also used as a form of risk hedging. It was part of the optimal mix of electoral investments, particularly in places where votes exhibited a high variance. These political effects were independent from modernization processes that made clientelism initially more, and then gradually less attractive as a strategy to generate electoral support.

5. Lessons from Mexico

Failed targeting in Pronasol can be explained by three not necessarily mutually exclusive reasons. First, the selection of projects through citizen participation might have been biased in favor of groups with greater potential for collective action. The poorest among the poor are often not capable of organizing to press and demand for public projects, precisely because their deprivation gives them few political, social and civic resources they can bring to bear in order to set up Solidaridad Committees. That was the reasoning behind a more direct organization of committees by the federal government in

²¹ This number is calculated in the following manner: the greater idiosyncratic risk of the average municipality, compared to the overall national performance of the PRI at the aggregate level, according to the estimation, generates an effect of 10 pesos. That allocation is per capita, so it can be multiplied by 80 million inhabitants to obtain its total value at 800 million pesos. This is divided by the 14,600 million pesos PRONASOL spent in a given year, say 1994.

programs such as regional development, which in spite of its name, was primarily geared towards indigenous communities, with entrepreneurship for collective action being carried out by personnel from the National Indigenous Institute (INI) (See Fox, 1994).

There might be an additional advantage in some of the poorest regions where indigenous forms of social governance are prevalent, for collective action to be generated through the representative organizations already in place. For instance, we find that communities in Oaxaca where authorities are selected by customary law (*usos y costumbres*), were more likely to attract resources from Pronasol. However, one should not idealize direct democracy among indigenous communities: hierarchical systems of representation are often forms of tight political control that might be cemented by clientelistic ties with local bosses. Moreover, the subordinate role of women in traditional forms of organization might involve less potential for improving welfare within households in those municipalities.

A second potential reason behind the failure to target effectively would be that political imperatives were the driving force of the program. While we firmly believe that political manipulation is a crucial feature of Pronasol, we do not believe that it can account for the full story of failed targeting.²²

An additional aspect about political manipulation is that we should not believe that all manipulation yields the same results. Weldon and Molinar (1994), conclude their analysis of Pronasol claiming that clientelism is not such a bad thing, because pork is a

²² Our municipal level results suggest that state level analyses (such as those carried out by Bruhn, 1996 and Molinar and Weldon, 1994), where poverty does not seem to have a significant effect in the allocation of funds, commit a fallacy of composition. An assessment of the effect of public goods provision at the individual level is very difficult to make. It has been carried out for the case of PROGRESA, but it is important to note that such program does not provide public goods. Therefore some level of data aggregation is probably necessary. Our results suggest, however, that in order to get meaningful results in the assessment of the effect of local public goods provision, aggregation should be at the lowest level possible, given the data available.

sign of electoral responsiveness –a typical feature of democratic politics. Fox (1996), on the other hand, finds that the ties of clientelistic dependence limit the autonomy of the committees that sought and received Pronasol funds. Our results provide a very specific meaning to these seemingly contradictory positions: while clientelism is characteristic of electoral politics where hegemony prevails, contestability and electoral competition has the virtue of increasing the provision of local public goods. Those local public goods might still be politically motivated, but at least their social impact is higher than that of selective private transfers.

A third possibility, that should not be discarded, is that poverty mapping information was very defective as Pronasol was being implemented. In contrast to the Fondo de Infraestructura Social which is allocated according to complex formulas in the spirit of the Foster-Greer-Thorbecke poverty index, calculating gaps in income, education and public service provision at the household level in order to allocate funds to municipalities, or PROGRESA, which has performed extensive poverty microcensuses, in Pronasol there was only a vague idea of where poverty was concentrated. In the case of Zacatecas, for example, a municipal level analysis (Guevara 1997) has shown that funds disproportionately went to more arid regions in the state, even though they were not the poorest. This might be attributed to the fact that those arid regions *looked* poorer, even though they were not.

Pronasol was substituted during the Zedillo administration (1994-2000) by two programs: the Programa de Alimentación, Educación y Salud (ProgresA) and the Fondo de Infraestructura Social (FIS). Both reforms were direct responses to the claim that Pronasol had been politically motivated, or at least, politically manipulated. ProgresA was

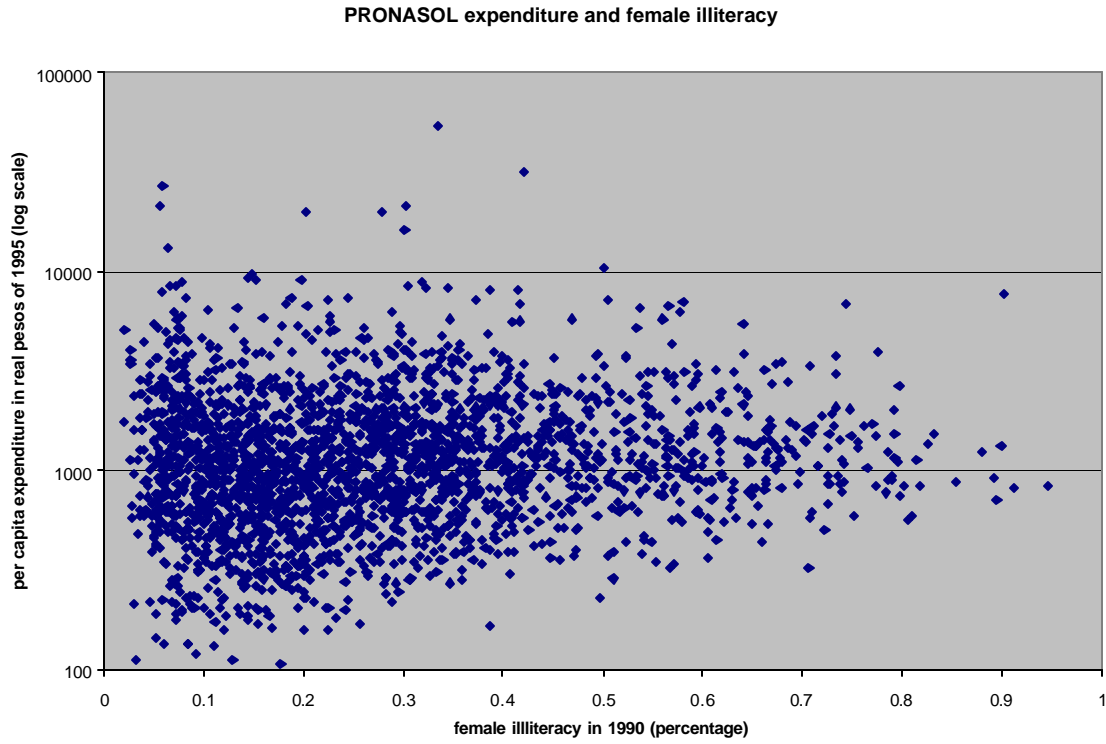
established as a strictly targeted program of monetary transfers intended to keep children in school and attending health clinics. The selection of recipients was based on sophisticated poverty mappings and careful field work.

FIS involved the transfer of funds for social infrastructure (i.e. public works) from the federal to the state and municipal governments. It constituted, in a way, an expansion of the *fondos municipales* component, which constituted one fifth of Pronasol. The most important difference between FIS and Pronasol was, however, the elimination of discretion in the allocation of funds across states and municipalities. Most of FIS would be allocated to municipalities, based on a poverty formula using indicators of the various dimensions of deprivation. States were forced to use a poverty formula to allocate resources for social infrastructure among their municipalities. Except for the condition of spending funds in public works, municipalities were free to use FIS funds in whatever way they desired.

Although an evaluation of FIS has not been carried out to date, the results of Progresa effects on poverty alleviation are very encouraging. The political use of these funds has been limited by the strict design guidelines and the insulation of these funds from partisan pressures. The PRI lost the 2000 presidential elections. Although one cannot claim that the redesign of poverty alleviation strategies caused the PRI defeat, all of our findings concerning the political manipulation of Pronasol suggest that the creation of Progresa and FIS eliminated an important political instrument the party had enjoyed until quite recently.

TABLES AND FIGURES

Figure 1



Source: Magaloni, Estevez and Diaz-Cayeros (2000)

Figure 2

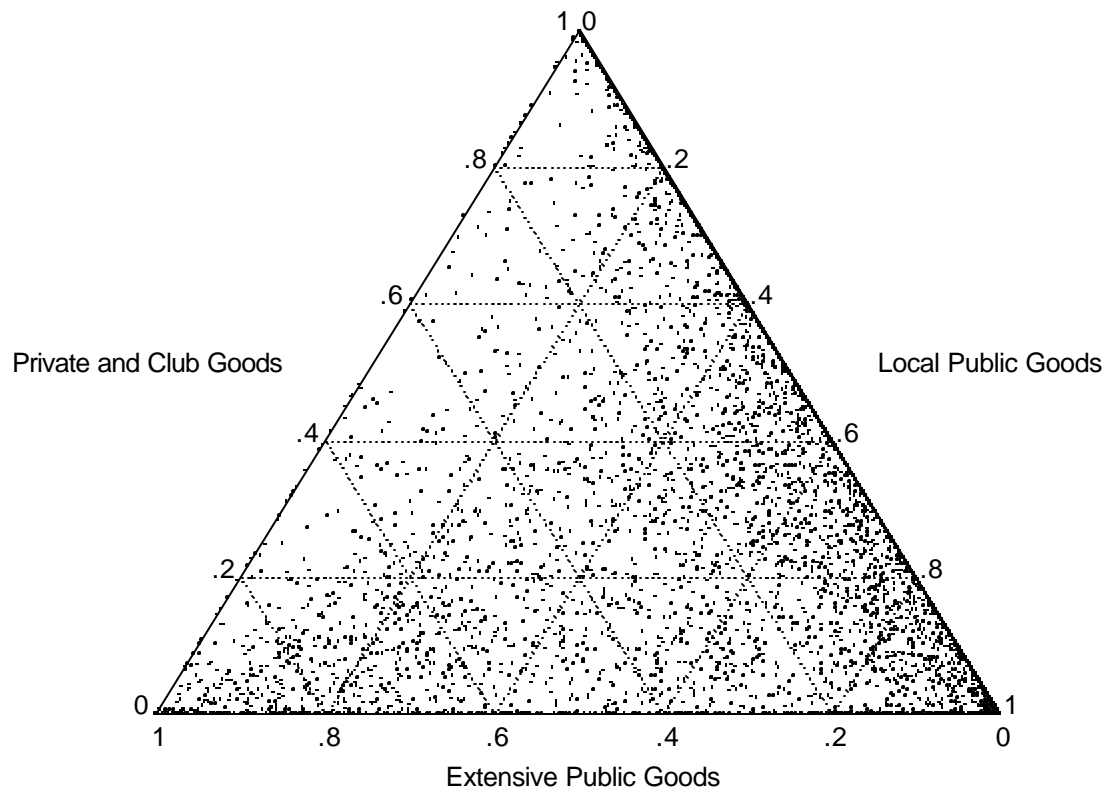


Figure 3

Average Allocations by Programs (According to Poverty Level)

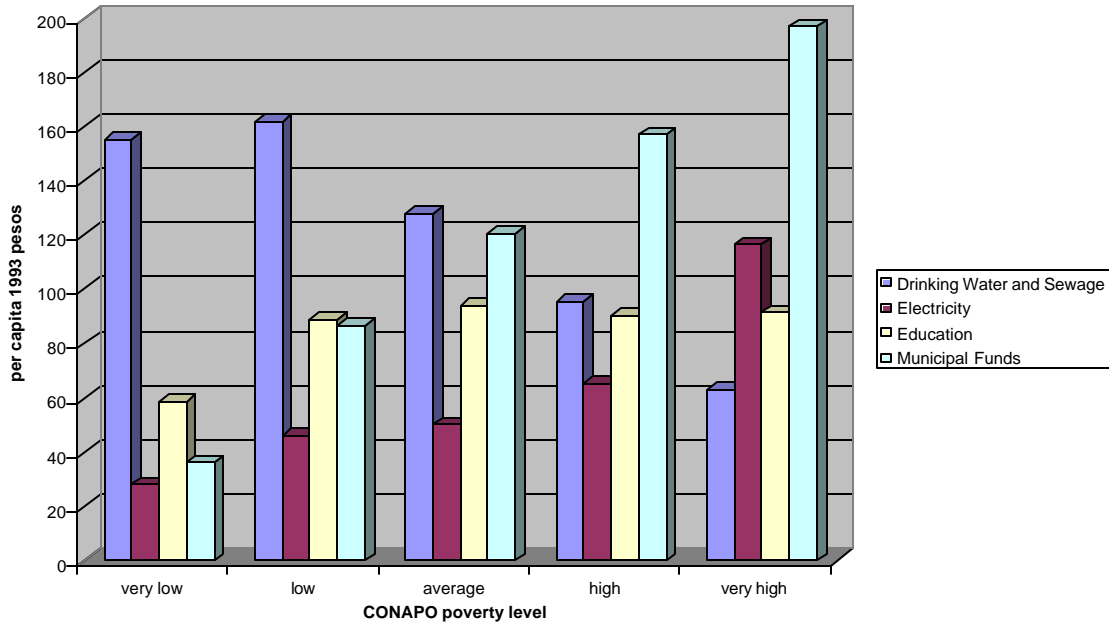


Figure 4

Improvement in Water Provision

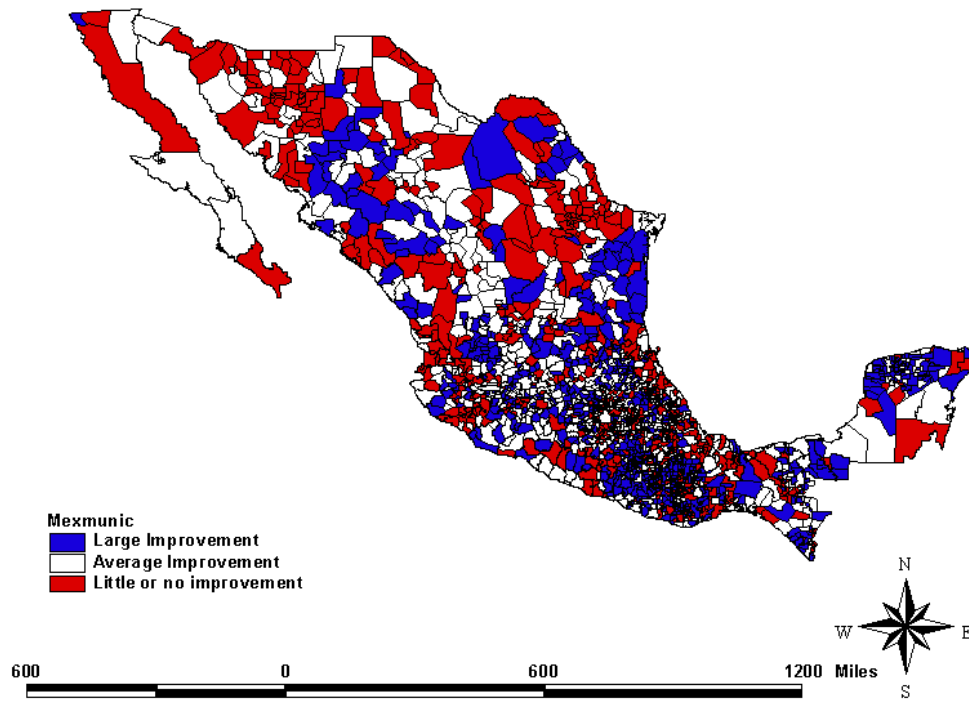


Figure 5

Improvement in Electricity Provision

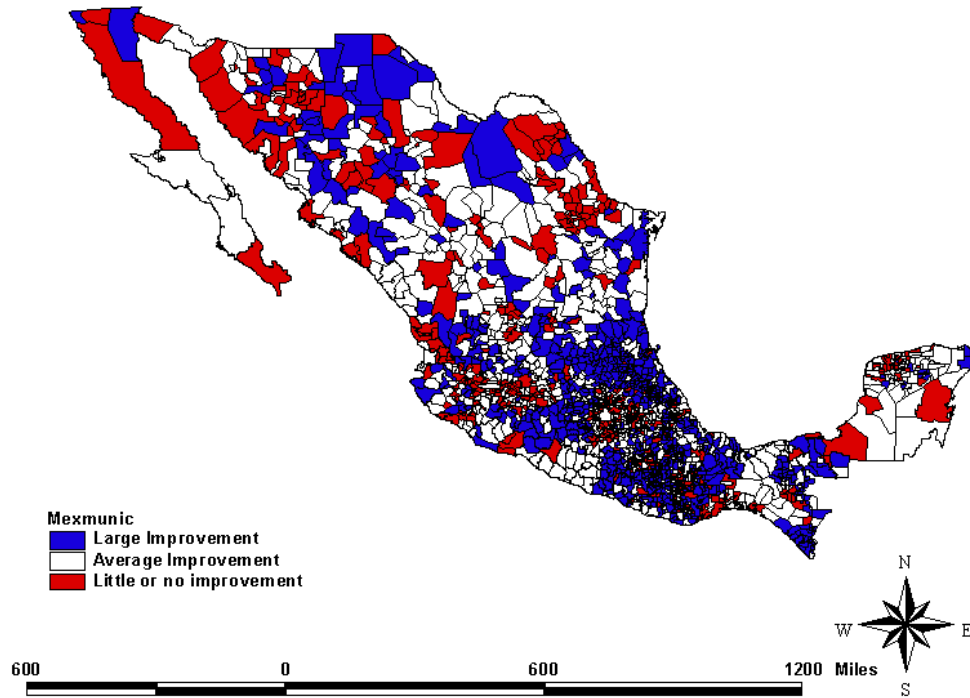


Table 1
Dependent variable: Change in Access to Drinking Water.
 Note: robust std errors in parentheses, t-scores in square brackets

Variable:	Model 1	Model 2	Model 3	Model 4
Intercept	.006413 (.0061933) [1.035]	.0121882 (.0066101) [1.844]	.0117892 (.0065148) [1.810]	.0122003 (.0065564) [1.861]
demstd: control for demographic growth	.0081922 (.0190186) [0.431]	.008247 (.0188602) [0.437]	.0108655 (.018939) [0.574]	.0114894 (.0188618) [0.609]
Agua: water network, initial endowment	-.2415333 (.0140467) [-17.195]	-.2426237 (.0140389) [-17.282]	-.2633265 (.0187115) [-14.073]	-.2630812 (.0186732) [-14.089]
aprpc: water network, PRONASOL funds per capita	-.0000297 (.0000129) [-2.302]	-.0000724 (.0000193) [-3.758]	-.0000681 (.000019) [-3.577]	-.0000682 (.000019) [-3.591]
etmap: total expenditure (excluding aprpc)	-3.68e-06 (1.60e-06) [-2.302]	-3.69e-06 (1.61e-06) [-2.295]	-3.98e-06 (1.67e-06) [-2.388]	-4.11e-06 (1.68e-06) [-2.449]
wkspc: public works per capita	-5.52e-06 (2.92e-06) [-1.888]	-.0000127 (4.11e-06) [-3.088]	-.0000119 (3.74e-06) [-3.183]	-.0000122 (3.89e-06) [-3.125]
fmrpc: municipal funds per capita	-.000027 (.0000113) [-2.387]	-.0000292 (.0000114) [-2.558]	-.0000325 (.0000119) [-2.720]	-.0000315 (.0000124) [-2.536]
aprpc*wkspc		4.54e-08 (1.52e-08) [2.992]	4.48e-08 (1.48e-08) [3.023]	4.47e-08 (1.48e-08) [3.031]
Aalta: dummy for municipalities with high/very high deprivation levels			.0168812 (.0066578) [2.536]	.0172409 (.0068201) [2.528]
Oax: dummy for Oaxaca				-.0004416 (.0076901) [-0.057]
Pue: dummy for Puebla				-.006687 (.0097591) [-0.685]
Adj. R ²	0.2338	0.2384	0.2398	0.2400
N	2403	2402	2371	2371

Table 2

Dependent variable: Change in Access to Electricity
Note: robust std errors in parentheses, t-scores in square brackets

	Model 1	Model 2	Model 3	Model 4
Variable:	β	β	β	β
Intercept	-.0107827 (.0035687) [-3.021]	-.0082708 (.0035609) [-2.323]	-.007582 (.0033436) [-2.268]	-.0046307 (.0038604) [-1.200]
Demstd: control for demographic growth	.028026 (.010396) [2.696]	.0273323 (.0103152) [2.650]	.0274951 (.0105036) [2.618]	.0275348 (.0106466) [2.586]
Electric: Electricity network, initial endowment	-.3495194 (.0170275) [-20.527]	-.3452404 (.0170047) [-20.303]	-.3403427 (.0203607) [-16.716]	-.345166 (.0207897) [-16.603]
elrpc: Electricity network, PRONASOL funds per capita	-.0001402 (.000036) [-3.895]	-.000191 (.000042) [-4.548]	-.0001925 (.0000425) [-4.533]	-.0002023 (.0000425) [-4.762]
etmel: total expenditure (excluding elrpc)	1.21e-06 (1.03e-06) [1.182]	1.13e-06 (1.02e-06) [1.116]	1.15e-06 (1.02e-06) [1.126]	4.66e-07 (1.00e-06) [0.464]
wkspc: public works per capita	2.40e-06 (2.32e-06) [1.036]	-2.77e-06 (3.15e-06) [-0.880]	-3.09e-06 (3.32e-06) [-0.931]	-5.82e-06 (4.25e-06) [-1.369]
fmrpc: municipal funds per capita	-5.31e-06 (4.87e-06) [-1.089]	-6.14e-06 (4.81e-06) [-1.278]	-5.33e-06 (5.18e-06) [-1.030]	1.46e-06 (5.07e-06) [0.288]
elrpc*wkspc		7.46e-08 (3.93e-08) [1.900]	7.47e-08 (3.94e-08) [1.897]	7.53e-08 (3.81e-08) [1.978]
Aalta: dummy for municipalities with high/very high deprivation levels			-.0037925 (.0035857) [-1.0581]	.0033795 (.0041764) [0.809]
Oax: dummy for Oaxaca				-.0136808 (.0050366) [-2.716]
Pue: dummy for Puebla				-.0233007 (.0055567) [-4.193]
Son: dummy for Sonora				.0302468 (.007455) [4.057]
Adj. R ²	0.5749	0.5814	0.5810	0.5871
N	2403	2402	2371	2371

Figure 6

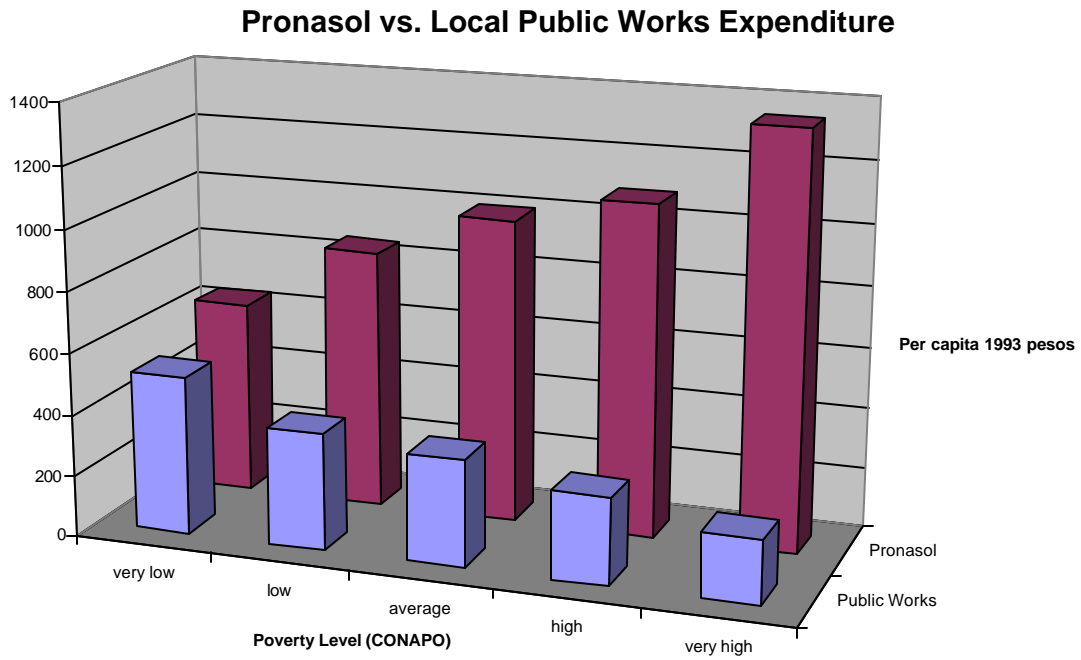


Figure 7

Effect of Pronasol Expenditure According to Level of Development

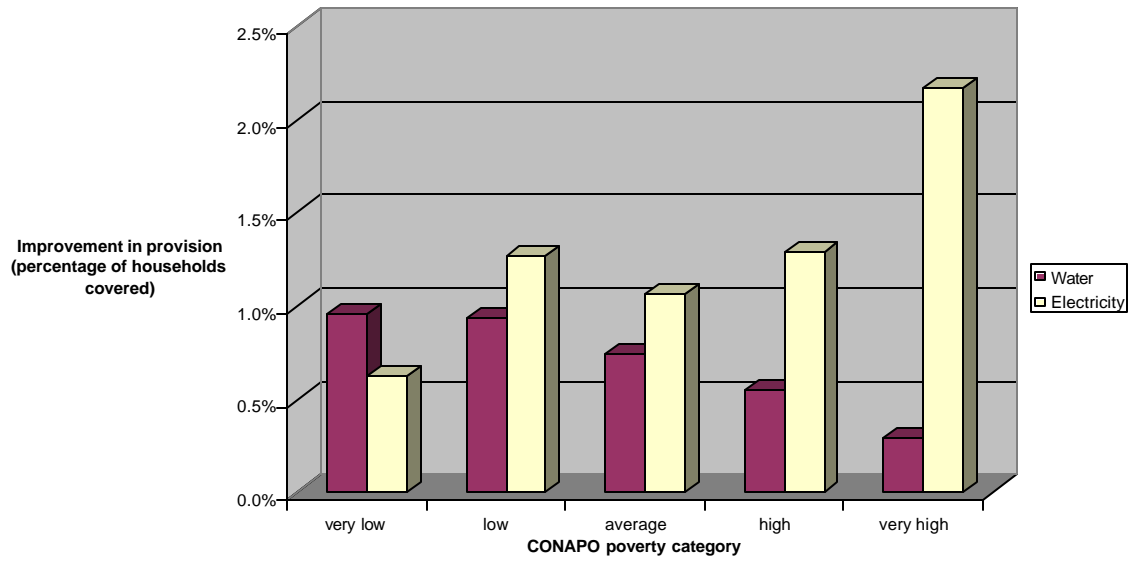
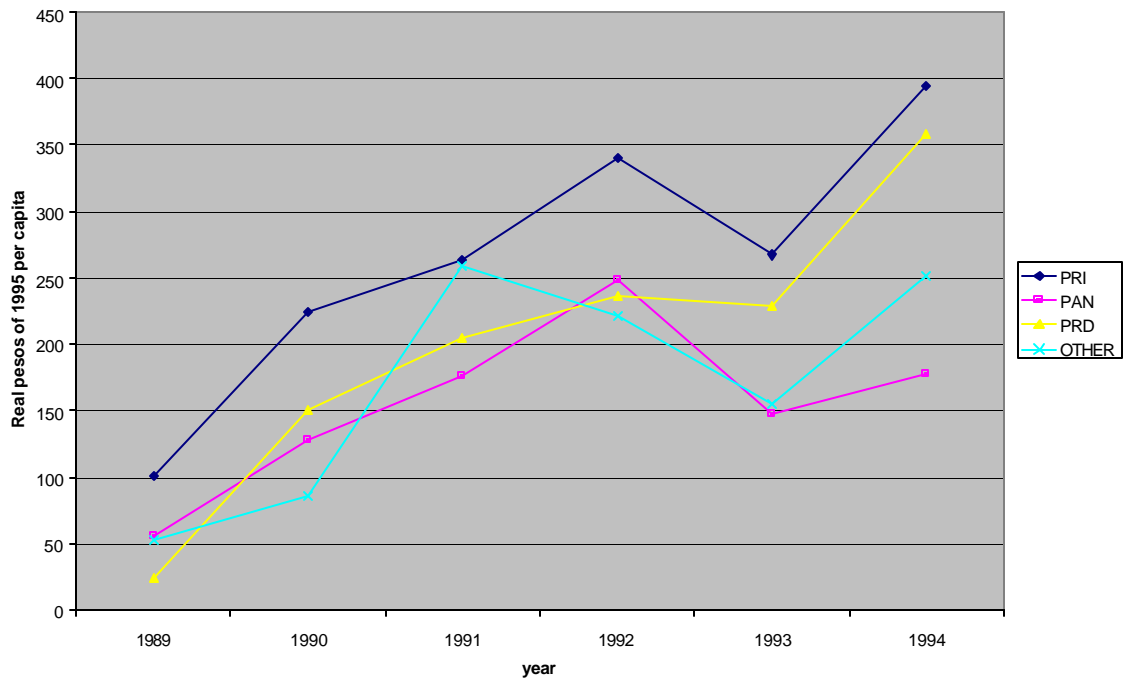


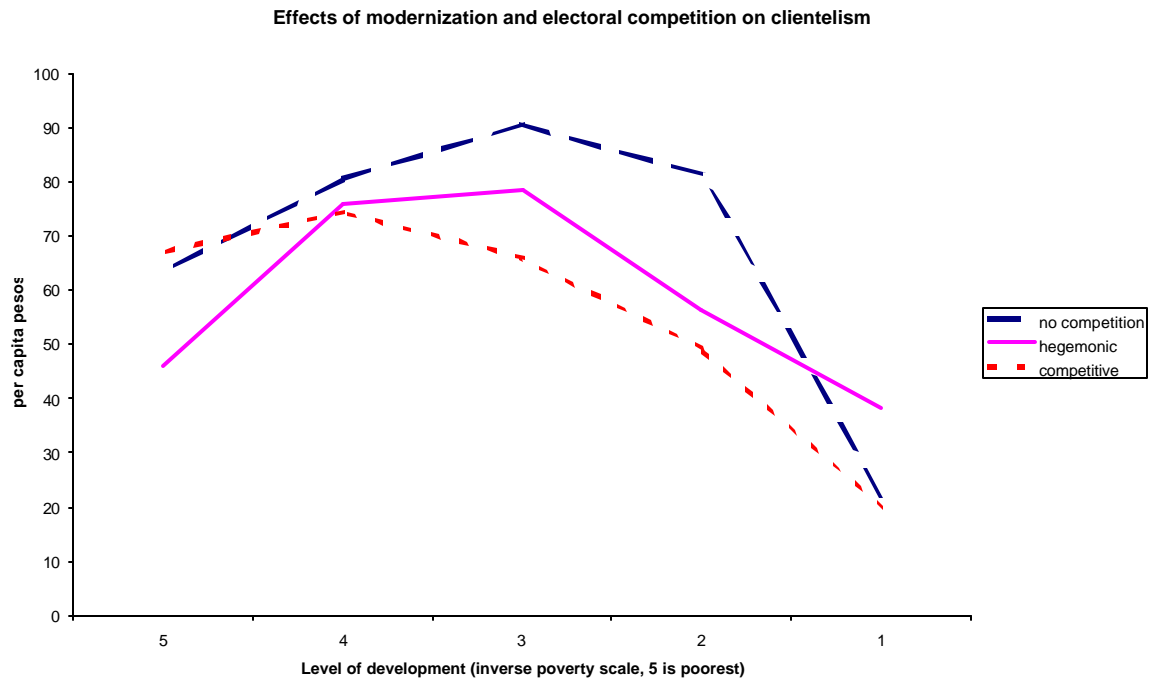
Figure 8

Average Per Capita PRONASOL Expenditure According to Party in Municipal Government



Source: Magaloni, Estevez and Diaz-Cayeros (2000)

Figure 9



Source: Magaloni, Diaz-Cayeros and Estévez (2003)

REFERENCES

- Ames, Barry (1987) *Political Survival: Politicians and Public Policy in Latin America* Berkeley: University of California Press.
- Ames, Barry (1995) "Electoral Rules, Constituency Pressures and Pork Barrel: Bases of Voting in the Brazilian Congress" *Journal of Politics* 57(2):324-43.
- Anderson, G.M. and Tollison, R.D. (1991) "Congressional Influence and Patterns of New Deal Spending, 1933-1939" *Journal of Law and Economics* 34:161-175.
- Archer, Ronald (1990) "The Transition from Traditional to Broker Clientelism in Colombia: Political Stability and Social Unrest" Kellogg Institute for International Studies, Working Paper # 140.
- Bailey, John (1994) "Centralism and Political Change in Mexico: The Case of National Solidarity" in Cornelius, Wayne, Craig, Ann & Fox, Jonathan (eds.) *Transforming State-Society Relations in Mexico: The National Solidarity Strategy* La Jolla: Center for U.S.-Mexican Studies, UCSD.
- Baron, David P. (1991) "Majoritarian Incentives, Pork Barrel Programs, and Procedural Control," *American Journal of Political Science* 35 (1):57-90.
- Behrman, J., Sengupta, P. and Todd, P. (2000) "The Achievement of Progresá in achievement test Scores in the First Year" Washington: IFPRI.
- Bennedsen, Morten (1998) "Vote Buying Through Resource Allocation in a Government Controlled Sector" (typescript)
- Bradbury, John, and Mark Crain, (2001). " Legislative Organization and Government Spending, Cross-Country Evidence," *Journal of Public Economics* 82: 309-325
- Bruhn, Kathleen (1996) "Social Spending and Political Support: The 'Lessons' of the National Solidarity Program in Mexico" *Comparative Politics* 26(January):151-177.
- Brusco, Valeria, Nazareno, Marcelo and Stokes, Susan "Clientelism and Democracy. An Analysis of Ecological Data for Argentina"
- Bueno de Mesquita, Bruce, *et. al.* (2002) "The Logic of Political Survival" Typescript, Stanford University.
- Consejo Nacional de Población (1993) *Indicadores Socioeconómicos e Índice de Marginación Municipal, 1990* Mexico: CONAPO-CNA

Cornelius, Wayne, Craig, Ann & Fox, Jonathan (1994) (eds.) *Transforming State-Society Relations in Mexico: The National Solidarity Strategy* La Jolla: Center for U.S.-Mexican Studies, UCSD.

Couch, Jim F. and Shughart, William F. (1998) *The Political Economy of the New Deal* Cheltenham (UK): Edward Elgar.

Cox, Gary, McCubbins, Mathew D. and Sullivan, Terry (1984) "Policy Choice as an Electoral Investment" *Social Choice and Welfare* 1:231-242.

Cox, Gary & McCubbins, Mathew D. (1986) "Electoral Politics as a Redistributive Game" *Journal of Politics* 48(May):370-89.

Cox, Gary and Thies, Michael (2000) "How Much Does Money Matter? 'Buying' Vote in Japan, 1967-1990" *Comparative Political Studies* 33(1):37-57.

Dahlberg, Matz and Johansson, Eva (2002) "On the Vote-Purchasing Behavior of Incumbent Governments" *American Political Science Review* 96(1).

Alberto Diaz-Cayeros (2001) "The Geography of Electoral Risk: A Portfolio Diversification Model of Fiscal Transfers" (typescript, UCLA).

Diaz-Cayeros, Alberto, Magaloni, Beatriz and Weingast, Barry (2001) "Democratization and the Economy in Mexico: Equilibrium (PRI) Hegemony and its Demise" (typescript, Stanford University).

Diaz-Cayeros, Alberto, Kenneth M. McElwain, Vidal Romero and Konrad A. Siewierski (2003) "Fiscal decentralization, legislative institutions and particularistic spending" (typescript, Stanford University).

Dixit, Avinash & Londregan, John (1996) "The Determinants of Success of Special Interests in Redistributive Politics" *Journal of Politics* 58(November):1132-55.

Dresser, Denise (1991) *Neopopulist Solutions to Neoliberal Problems: Mexico's National Solidarity Program*. Current Issue Brief Series, no.3. La Jolla: Center for U.S.-Mexican Studies, University of California, San Diego.

Dresser, Denise (1994) "Bringing the Poor Back In: National Solidarity as a Strategy of Regime Legitimation" in Cornelius, Wayne, Craig, Ann & Fox, Jonathan (eds.) *Transforming State-Society Relations in Mexico: The National Solidarity Strategy* La Jolla: Center for U.S.-Mexican Studies, UCSD.

Eisenstadt, S. N. and Lemarchand, René, eds. (1981) *Political clientelism, patronage and development*. Sage Studies in Contemporary Political Sociology v.3.

Estevez, Federico, Magaloni, Beatriz and Diaz-Cayeros, Alberto (2002) "A Portfolio Diversification Model of Electoral Investment" (typescript, Stanford University)

Fearon, James (2002) "Why Ethnic Politics and Pork Tend to Go Together"

Ferejohn, John (1974) *Pork Barrel Politics* Stanford: Stanford University Press.

Fleck, Robert K. (2001) "Population, Land, Economic Conditions, and the Allocation of New Deal Spending" *Explorations in Economic History* 38:396-304.

Fleck, Robert K. (1999) "The Value of the Vote: A Model and Test of the Effects of Turnout on Distributive Policy" *Economic Inquiry* 37(4):609-623.

Fleck, Robert K. (2001) "Inter-Party competition, Intra-Party competition, and distributive policy: A model and test using New Deal Data" *Public Choice* 108:77-100.

Fox, Jonathan (1994) "The Difficult Transition From Clientelism to Citizenship: Lessons from Mexico" *World Politics* 46(2)

Geddes, Barbara (1994) *Politician's Dilemma: Building State Capacity in Latin America* Berkeley: University of California Press.

Golden, Miriam (2000) "Political Patronage, Bureaucracy and Corruption in Postwar Italy" Russell Sage Foundation Working Paper #162.

Gómez López Marcela & Pineda Antúnez, Sandra (1999) *El Reparto Municipal del Pronasol: Criterios de Asignación en Aguascalientes y Michoacán* B.A. Thesis, ITAM, Mexico.

Guasti, Laura (1981) "Clientelism in Decline: A Peruvian Regional Study" in Eisenstadt, S. N. and Lemarchand, René (eds) *Political clientelism, patronage and development*. Sage Studies in Contemporary Political Sociology v.3.

Hiskey, Jonathan (2000). "Does Democracy Matter? Electoral Competition and Local Development in Mexico", paper presented at the 2000 Latin American Studies Association Meeting

Kaufman, Robert R & Trejo, Guillermo (1996) "Regionalismo, Transformación del Régimen y Pronasol: la Política del Programa Nacional de Solidaridad en Cuatro Estados Mexicanos" *Política y Gobierno* 3(2):245-280.

Keefer, Phillip (2003) "Clientelism, Development and Democracy" (Typescript: World Bank).

Khemani, Stuti (2003) "Partisan Politics and Intergovernmental Transfers in India" (Typescript: World Bank).

- Kitschelt, Herbert (2000) "Linkages between Citizens and Politicians in Democratic Politics" *Comparative Political Studies* 33(6/7).
- Lemarchand, Rene and Legg, Keith (1972) "Political Clientelism and Development: A Preliminary Analysis" *Comparative Politics* 4(2).
- Lemarchand, Rene (1972) "Political Clientelism and Ethnicity in Tropical Africa: Competing Solidarities in Nation Building" *American Political Science Review* 66(1).
- Levitt, Steven and James Snyder (1995) "Political Parties and the Distribution of Federal Outlays" *American Journal of Political Science* 39(4):958-980.
- Lindbeck, Assar & Weibull, Jorgen (1987) "Balanced Budget Redistribution as the Outcome of Political Competition" *Public Choice* 52(3):273-97.
- Lizzeri, Alessandro and Persico, Nicola (2001) "The provision of public goods under alternative electoral incentives" *American Economic Review* 91(1):225-39
- Magaloni, Beatriz, Estévez, Federico and Diaz-Cayeros, Alberto (2000) "Federalism, Redistributive Politics and Poverty Relief Spending: The Programa Nacional de Solidaridad in Mexico (1989-1994)" Paper delivered at the 2000 Annual Meeting of the American Political Science Association, Washington, D.C.
- Beatriz Magaloni, Alberto Diaz-Cayeros and Federico Estévez (2003) "Clientelism, development and party hegemony: the case of Mexico" (typescript, Stanford University).
- Milesi-Feretti, G-M, R. Perotti, and M. Rostagno (2001) Electoral Systems and Public Spending. In *IMF Working Paper WP/01/22*. New York.
- Medina, Luis Fernando and Stokes, Susan (2002) "Clientelism as Political Monopoly." Paper prepared delivered at the 2002 Annual Meeting of the American Political Science Association, Boston, August 29-September 1.
- Molinar, Juan & Weldon, Jeffrey (1994) "Electoral Determinants and Consequences of National Solidarity" in Cornelius, Wayne, Craig, Ann & Fox, Jonathan (eds.) *Transforming State-Society Relations in Mexico: The National Solidarity Strategy* La Jolla: Center for U.S.-Mexican Studies, UCSD.
- Myerson, Roger (1993) "Incentives to Cultivate Favored Minorities Under Alternative Electoral Systems" *American Political Science Review* 87(4):856-869
- Ozbudun, Ergun (1981) "Turkey: The Politics of Clientelism" in Eisenstadt, S. N. and Lemarchand, René (eds.) *Political clientelism, patronage and development*. Sage Studies in Contemporary Political Sociology v.3.

Persson, Torsten, Gerard Roland, and Guido Tabellini (2000) "Comparative Politics and Public Finance," *Journal of Political Economy* 108 (61):1121-1161.

Persson, Torsten and Tabellini, Guido (2001) *Economic Politics* Cambridge: MIT Press.

Piattoni, Simona (2001) *Clientelism, Interests and Democratic Representation* Cambridge: Cambridge University Press.

Polo, Michele (1998) "Electoral competition and Political Rents" Milan: IGIER and Bocconi University (typescript).

Robinson, James and Verdier, Thierry (2002) "The Political Economy of Clientelism" Paper presented at the Conference The Political Economy of Clientelism, Stanford University (May).

Robinson, James and Torvik, Ragnar (2002) "White Elephants" *CEPR Discussion Paper* No. 3459 (July).

Rojas, Carlos (1994) *El Programa Nacional de Solidaridad México: Fondo de Cultura Económica*.

Rozevitch, Simon and Weiss Avi (1993) "Beneficiaries from Federal Transfers to Municipalities: The Case of Israel" *Public Choice*

Salinas, Carlos (1982) *Political participation, public investment, and support for the system : a comparative study of rural communities in Mexico* La Jolla: Center for U.S.-Mexican Studies, University of California, San Diego.

Samuels, David J. (2002) "Pork Barreling Is Not Credit Claiming or Advertising: Campaign Finance and the Sources of the Personal Vote in Brazil" *Journal of Politics* 64(3):845-63.

Schady, Norbert R. (2000) "The Political Economy of Expenditures by the Peruvian Social Fund (FONCODES), 1991-95" *American Political Science Review* 94(2):289-304.

Schmidt, S.W. et al. (1977) *Friends, Followers and Factions: A Reader in Political Clientelism* Berkeley: University of California Press.

Scott, James (1972a) "Patron-Client politics and Political Change in Southeast Asia" *American Political Science Review* 66(1)

Scott, James (1972b) *Comparative Political Corruption* Englewood Cliffs: Prentice Hall.

Secretaría de Desarrollo Social (1994) *Hechos en Solidaridad* CD-ROM.

Seddon Wallack, J., A. Gaviria, U. Panizza, and E. Stein. 2000. "Political Particularism Around the World," Mimeo, IADB and Stanford University

Shefter, Martin (1994) *Political Parties and the State: The American Historical Experience* Princeton: Princeton University Press

Skoufias, E. (2001) "PROGRESA and its Impacts on the Human Capital and Welfare of Households in Rural Mexico: A Synthesis of the Results and and Evaluation by IFPRI" Washington: IFPRI

Snyder, James M. (1989) "Election Goals and the Allocation of Campaign Resources" *Econometrica* 57(3):637-660.

Stratmann, Thomas and Baur, Martin (2002) "Plurality Rule, Proportional Representation, and the German Bundestag: How Incentives to Pork-Barrel Differ Across Electoral Systems" *American Journal of Political Science* 46(3):506-14.

Strömberg, David (2001) "Radio's Impact on Public Spending" Stockholm: Institute for International Economic Studies.

Strömberg, David (2002) "Optimal Campaigning in Presidential Elections: The Probability of Being Florida" Stockholm: Institute for International Economic Studies.

Szekeli, Miguel (1998) *The Economics of Poverty, Inequality and Wealth Accumulation in Mexico* New York: St. Martin's Press.

Wallis, John Joseph (1984) "The Birth of the Old Federalism: Financing the New Deal" *Journal of Economic History* 44-139-159

Wallis, John Joseph (1987) "Employment, Politics and Economic Recovery During the Great Depression" *The Review of Economics and Statistics* 59:516-520.

Wallis, John Joseph (1998) "The Political Economy of New Deal Spending Revisited, Again: With and without Nevada" *Explorations in Economic History* 35:140-170.

Wantchekon, Leonard (2002) "Market for Votes: Evidence From a Field Experiment in Benin"

Ward, Hugh and John, Peter (1999) "Targeting Benefits for Electoral Gain: Constituency Marginality and the Distribution of Grants to English Local Authorities" *Political Studies* 47(1):32-52.

Warner, Carolyn (2001) "Mass Parties and Clientelism in France and Italy" in Piattoni, Simona (ed.) *Clientelism, Interests and Democratic Representation* Cambridge: Cambridge University Press

Weingast, Barry R., Kenneth A. Shepsle, and Christopher Johnsen (1981) "The Political Economy of Benefits and Costs: A Neoclassical Approach to Distributive Politics," *Journal of Political Economy* 89 (4):642-664.

Wodon, Quentin (1999) "Government Programs and Poverty in Mexico" Report No. 19214-ME, Washington: World Bank.

Wodon, Quentin (2001) "Government Programs and Poverty" in Marcelo Giugale, Olivier Lafourcade and Vinh Nguyen (eds.) *Mexico. A comprehensive development agenda for the New Era*, Washington: World Bank.

Wright, Gavin (1974) "The Political Economy of New Deal Spending: An Econometric Analysis" *The Review of Economics and Statistics* 56(1):30-38.