Patrons, Clients, and Policies

Patterns of Democratic Accountability and Political Competition

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8 Clientelism and portfolio diversification: a model of electoral investment with applications to Mexico

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Interest in the study of clientelism has reawakened in recent years. While the sociological and anthropological frameworks developed in the 1960s and 1970s still provide important insights into the logic of patron–client exchanges, a reckoning with the underlying political process that makes those forms of political linkage so prevalent is in order.[1] Clientelism was then viewed as a phenomenon typical of underdeveloped political systems, usually at early phases of institutionalization, often under authoritarian or colonial regimes. Indeed, the literature suggested that clientelism was the most characteristic form of political exchange occurring in backward agrarian societies. Presumably, as societies became more developed, social structures more differentiated, and political systems more institutionalized, clientelism was bound to disappear. Yet it has not. Throughout most of the developing world and even in many parts of the developed one, clientelism remains a political and electoral fact of life.

The defining trait of clientelism is that it involves direct exchanges between patrons and clients in which political support is traded for excludable benefits and services. Under what conditions do politicians attempt to buy votes through the provision of particularistic, excludable private goods, rather than through universalistic, non-excludable public goods? To answer this question, this chapter develops a portfolio theory of electoral investment and demonstrates its usefulness in the context of the erosion of hegemonic party rule in Mexico.

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[1] For some classic contributions see Lemarchand and Legg (1972), Scott (1972), and Lemarchand (1972).

Our theory proposes that the relative importance of clientelism *vis-à-vis* public goods provision depends upon the extent of poverty, political competition, and the level of electoral risk. We suggest that clientelism is a political investment strategy designed to deter voter exit and, simultaneously, to hedge electoral risks when more investment in public goods is required to win elections. While previous studies of clientelism have been unable to disentangle the effects of party system configuration and electoral risk from those of socioeconomic development, since they tend to be correlated through time in the course of the modernization process, our dataset allows us to separate the effect of socioeconomic modernization from those generated by electoral dynamics. In terms of modernization, we find that clientelism is most prevalent at intermediate ranges of development. Our findings also suggest that, controlling for levels of development, clientelism is less prevalent where there is more political competition. Nonetheless, consistent with the logic of the model, an incumbent party hedges electoral risks by investing disproportionately in clientelistic transfers in places where higher electoral risk reflects the defection of core supporters at rates faster than in the rest of the country.

The chapter is organized as follows. Clientelism is discussed next in the context of party hegemony in Mexico, reviewing the literature on clientelism and its insights about the distribution of public funds to political supporters. The following part presents the portfolio model of political investment, in which the logic of clientelism is clearly distinguished from that of the provision of public goods. Later, evidence is provided for the model, drawn from the case of the *Programa Nacional de Solidaridad* (Pronasol) in Mexico.

Sustaining hegemony through clientelism: deterring exit by targeting

Clientelism is characterized by dyadic personal relationships that are asymmetric but reciprocal. In electoral politics, this form of linkage translates into a direct exchange of private benefits and favors for votes. James Scott (1972: 125) argues that patron–client links are based on inequality, which arises from the fact that the "patron is in a position to supply unilaterally goods and services which the potential client and his family need for their survival and well-being." As a monopolist with control over critical resources, the patron is in a position to exploit his market power and demand compliance from those who wish a share of those goods. If the client did not need these goods, or if she had savings and alternative sources of income, or if she had the resources to move to another jurisdiction in order to secure needed services, she might not succumb to

the patron's domination. The patron–client relationship is also asymmetrical because there is normally just one patron and a multiplicity of clients. Clientelism, however, is a form of reciprocal exchange. Politicians must deliver in order to sustain the support of their clienteles, and clients must support their patron with votes. Potential shirking from either side to the contract creates an inevitable problem of commitment, the solution to which makes clientelism advantageous for electioneering but inefficient for social welfare.

In our view, clientelism pervades monopolistic political markets because it allows politicians to *deter* exit (Diaz-Cayeros, Magaloni, and Weingast 2002; Medina and Stokes this volume; and Magaloni forthcoming). To understand how clientelism serves to sustain a political monopoly, imagine a voter who faces the following choice: support the incumbent party and receive transfers in the form of jobs, income supplements, credit and the like, or opt for the opposition and receive none of these desirable benefits. Unless the voter possesses alternative sources of income and is indifferent to those benefits, her rational strategy is to support the incumbent, even if reluctantly. If most voters reason likewise, the political monopolist will remain in power. The dilemma voters face is one of coordination. If all could agree simultaneously to vote against the incumbent, they could defeat it; but if voters can't coordinate, each will fear to be the first to defect and face punishment in the form of lack of access to vital resources. In equilibrium, the incumbent party maintains its monopoly at the local level, not because voters prefer it to the alternatives, but because a credible threat of punishment inhibits exit.

This type of hegemonic equilibrium is maintained through a clientelistic form of political exchange. In Mexico, clientelistic exchange was based, first, on the monopoly over fiscal resources in the hands of the national PRI (*Partido Revolucionario Institucional*), and second, on the PRI's ability to target transfers by screening between supporters and opponents. Defecting to the opposition entailed a credible threat of exclusion from the stream of benefits that the PRI *qua* political monopolist controlled.

What is the difference between clientelism and other forms of democratic exchange in which politicians trade policies for votes? As in Medina and Stokes, we believe that the main difference lies in that the discretional nature of particularistic transfers always implies a credible threat of exclusion, should the client renege on her political commitments to the patron.[2] Thus, we invariably associate clientelism with the trade of

[2] In a somewhat different argument, but where credibility figures prominently, Phil Keefer (2003) suggests that clientelism emerges because politicians fail to credibly commit to a promise of delivering goods equally to all voters.

excludable benefits for political support. Public goods that are not divisible imply that a voter can support whichever politician she chooses, and still benefit from such policies.

Robinson and Verdier (2002: 1) provide a model in which clientelism represents a solution to this commitment problem. "By its very nature, since the law cannot be used to enforce [clientelistic] political exchanges, they must be self-enforcing. The problem of credibility is two-sided. Citizens/voters must indeed deliver their support, and politicians, once in power, must pay for their support with the policies they promised." In their model, the solution to the commitment problem is given by trading employment in the public sector for political support. We agree with Robinson and Verdier that the commitment problem is central to understanding clientelistic ties. We believe, however, that public jobs are only one of many possible instruments that politicians use to deal with this problem. In the analysis that follows, we implicitly assume that the more a party can target transfers, the better it can solve the commitment problem.

The PRI in Mexico could choose to target transfers to the individual, the local jurisdiction, or not to target at all, by investing in public goods extending beyond the locality. Public goods cannot solve the commitment problem, because they generate non-excludable and irreversible benefits. Local public works, however, are less risky than public goods spanning beyond a single political jurisdiction. Local or small-scale public goods allow the ruling party to employ *geographic targeting* according to the landscape of political units as in Diaz-Cayeros, Magaloni, and Weingast (2002). Nonetheless, in contrast to particularistic transfers, public works do not fully solve the commitment problem – once the party transfers a public good to a locality, it cannot be certain that *all* voters, especially those who prefer the opposition on ideological grounds, will comply with their part of the exchange. And once delivered, a public good cannot be withdrawn, as is clearly the case with private resource transfers.[3] This is the reason why we believe public goods are always riskier than private outlays.

Private benefits such as jobs and other transfers better solve the commitment problem. A party can identify voters individually, screen between supporters and opponents, and invest only in those core constituencies that will support it with certainty. A party requires a dense organizational network to successfully deliver these transfers and identify loyal partisans from all non-partisans who have incentives to misrepresent their type. Historically, the organizational network that the PRI employed to

[3] Diaz-Cayeros, Magaloni, and Weingast (2002) do not discuss the commitment problem since they assume that the locality coordinates in some way to reelect the PRI.

deliver private transfers ranged from party-affiliated unions and local party bosses, to schoolteachers, *caciques* (local bosses) and *presidentes ejidales* (the heads of the *ejidos*, a form of communal landholding). The goods that the party distributed through these networks ranged from land and water rights, cheap credit and fertilizers, to subsidized food, scholarships, and government-built housing, among many others.

The PRI did not coerce voters into choosing the ruling party over the opposition; it did not need to do so. In smaller and isolated localities there was often not even a menu of electoral choices. Even in the presence of some opposition, often all that the PRI really needed to do to get peasants to cast a vote for the party was to pay for their transportation, because peasants' "sincere" preference was the PRI. Peasants freely chose the PRI, although their choice was constrained. On the one hand, the PRI could use its monopolistic control over key resources to buy their support; and on the other, its network of party organizations and government agencies permitted it to monitor the political behavior of its clients in the countryside and in small cities. By threatening, whether explicitly or not, to suspend or withdraw the transfers that peasants needed, the PRI thus managed to deter rural voters from supporting another party or engaging in any form of open confrontation with the regime.

The story of the larger and wealthier localities is different. Since the early 1950s, the opposition had an important presence in the larger cities. Mexico City, for example, was the earliest opposition bastion (Ames 1970; Klesner 1996; Molinar Horcasitas 1991). Until the 1980s, the PRI enjoyed political support among the working class affiliated with the official unions. It also attempted to build clientelistic links among the migrant poor in the city slums and among informal sector workers (Cornelius 1975). To these groups, the party offered property titles, subsidized housing and food, work opportunities, and licenses for selling merchandise in the numerous flea markets of the cities, among other inducements. However, with the onset of the debt crisis, the urban poor were not loyal to the PRI, as became clear in the 1988 presidential elections when they defected *en masse* to Cuauhtémoc Cárdenas. Even some sectors of organized labor, traditionally unconditional in their support for the party, including the powerful oil workers' union, supported Cárdenas in that election.

Why was the PRI much weaker in the larger and wealthier localities? One key difference between the city and the countryside, we argue, is voter heterogeneity. The overwhelming majority of the urban poor that abandoned the PRI in 1988, for example, came from the low-skilled service sector of the economy – taxi and other public transportation drivers, domestic employees, low-level bureaucrats, nurses, etc. There

was no functional party organization that could encompass such dissimilar groups largely because these groups had few goals in common. Without efficient party organization, shirking from the clientelist contract became pervasive. The second difference between city and country is related to income levels. Richer voters are much less susceptible to vote-buying (Dixit and Londregan 1996). Modernization helps to undermine party hegemony because it makes clientelism less effective, as it is much more expensive to deter wealthier localities from voting for the opposition. The model below seeks to provide an understanding of how a political monopoly under threat might respond to electoral competition.

A strategy of portfolio diversification

The choice of clientelistic strategies is driven by both demand and supply factors. The most important demand factor stressed by the literature is the economic status of citizens, which permits them to accept or reject this type of exchange. If voters have an income elasticity of public good demand larger than one, they will prefer less clientelism delivered by government as they become richer. Other factors on the demand side are correlated with economic status: cognitive capabilities that depend on literacy rates, and organizational capabilities that depend on membership in voluntary and independent associations. Thus, a socioeconomic theory of clientelism is primarily a demand-side account.

Although explaining the demand for clientelism is important, our framework takes that demand as given and focuses on clientelist exchange as a strategic choice made by politicians.[4] The existing literature stresses the lack of a professional bureaucracy and the motivations that historically led politicians and parties to mobilize voters through clientelist inducements. In formal models of clientelism, its supply is constrained by monopoly over the control of valuable resources (Medina and Stokes this volume; Robinson and Verdier 2002). This chapter models the supply side as a budgetary decision by a risk-averse politician seeking to achieve a desired level of electoral support.

The gist of the model is the following: an incumbent party seeking reelection must decide how to allocate a basket of discretionary transfers to voters. These transfers range from private, excludable outlays that can be individually targeted, to non-excludable public goods that are targeted to a jurisdiction or consumed by all voter groups across several

[4] We thank Bob Bates for clarifying the supply and demand aspects of clientelism. For a discussion of clientelism as supply and demand based, see Shefter, Martin (1994), and Piattoni (2001).

jurisdictions. As instruments of electoral investment, these transfers differ in (a) their relative budgetary cost; (b) their expected electoral return, defined as the expected number of votes from a unit of transfer; and (c) their level of electoral risk. The model assumes a positive correlation between expected yields and risks – risky investments yield higher expected electoral returns.

Risk varies according to the "publicness" of the electoral investment instrument. Private, excludable transfers that can only be consumed by a party's core supporters are risk-free, while public, non-excludable goods that can be consumed by all voters, regardless of partisan ties, are the riskiest. Risk-free private goods do not, however, yield the highest electoral return, since fewer voters can normally be targeted through clientelism and governments face budget constraints. Private transfers can be extremely expensive due to the transaction costs that must be overcome for effective targeting and to the amount of vote-buying needed to ensure election victories. In contrast, public goods reduce transaction costs and are more cost-effective per beneficiary. But they are much riskier than private goods, because the incumbent can invest in them without receiving any *ex post* electoral pay-off.

The model is derived from a portfolio diversification approach to electoral investment. Incumbent politicians buy votes in order to stay in office, but are risk-averse. They would rather invest resources in private transfers targeted to loyal voters than spend on public goods consumed by all and with uncertain electoral yields. In their quest for a high electoral return, however, they shift their electoral investments into public goods that offer higher returns, notwithstanding the risks involved.

The diversification logic of "safety first" suggests that a party will never devote all of its financial resources to the provision of public goods. The electoral yield of public goods is potentially high, since they benefit a larger group of voters, but also highly uncertain. Private goods, in contrast, are safer bets; they assure, through the monitoring and compliance mechanisms entailed in clientelism, that beneficiaries will support the incumbent party. The problem of finding the politically optimal allocation of public funds from the incumbent's point of view can be conceived as a decision over the relative allocation of funds among particularistic and collective goods projects. Figure 8.1 depicts such a choice between a public good yielding an uncertain electoral return, described by the expected vote value E[X] with known variance σ^2; and a private good with a smaller but certain electoral return, denoted Y<E[X].[5] A crucial assumption in this framework is that the electoral return of clientelism does not match

[5] We thank Aaron Tornell for suggesting this depiction of the portfolio model.

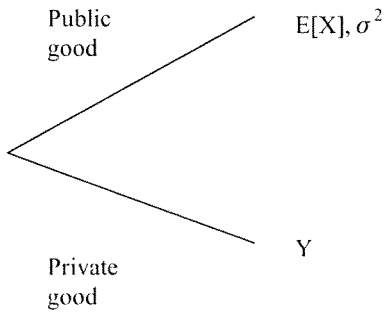

Figure 8.1 Incumbent choice set and expected payoffs

the expected return on public goods. But public goods do not embody monitoring and compliance mechanisms that ensure voters' support, the way clientelism does. Hence, while the vote return of public good investments is a random variable, with uncertain realizations (although with mean and variance known *ex ante*), the vote return from clientelism is assured. The two values are expressed in terms of the votes that an allocation of the entire budget (B) to each type of good would generate.

Hence, the electoral returns Y and E[X] incorporate both a budget constraint and the relative cost of public versus private good provision. Given a fixed budget B that can finance n_y private transfers with a unitary cost c_y for each beneficiary, if there are no transaction costs or commitment problems in the clientelist exchange, n_y voters would support the party for sure (when $B = n_y c_y$; $Y = n_y = B/c_y$). This means that the vote return of clientelism is given by the budget divided by a fixed unitary cost of each private transfer. For example, the unitary cost could represent the market price of a sack of grain, and the assumption in this framework is that the incumbent can be certain of receiving as many votes as the sacks of grains it distributes, given the size of its budget and the clientelistic networks already in place.

Of course, the effectiveness of private transfers depends on the relative propensity of voters to exchange their votes for money. For destitute voters, a small private transfer, such as a sack of grain, is likely to tilt their voting choice. With relatively rich voters, more generous private transfers will be needed. In either case, the size of the budget limits the provision of particularistic goods.

Alternatively, the budget could be allocated to a public good with total cost $C_x = B$. The number of voters that support the party with this strategy is uncertain (and might depend, for example, on a complex relationship given by heterogeneous public good demand functions). We

depict a reduced-form expression of this relationship in Figure 8.1, which says simply that the electoral yield of public goods (X) is a random variable that depends on an aggregate propensity to support the party that provides such benefits, with a known variance.

When budgets are not divisible, the choice-theoretic problem is whether to provide public or private goods. This choice hinges on the degree of risk aversion characterizing an incumbent. Even if public good provision has an expected yield greater than that of private transfers, an acutely risk-averse incumbent will prefer the safety of private good provision. Of course, the return on private transfers must be large enough to satisfy the minimum vote share necessary to keep the incumbent in office. This condition in turn depends on how cheap it is to buy votes from core constituencies. Hence, the central feature of the socioeconomic theory of clientelism, namely the association between poverty and clientelism, is accounted for in this model by the demand-side assumption that it is cheap to buy votes from the poor.

Budgets, however, are rarely if ever indivisible. Consequently, incumbents can be better off combining both clientelism and public goods in their investment portfolios, provided they have a preference over risk. If incumbents were risk-neutral, they would obtain no advantage from diversification, because they would have no use for risk hedging.

We assume that incumbents seek to obtain a given vote level that ensures their permanence in power, with the least possible risk. Their optimal strategy is then to find a diversified allocation of funds between public and private goods, devoting a proportion α of the budget to public goods, and the remainder $(1-\alpha)$ to private ones. This strategy yields a higher overall return, taking advantage of the electoral opportunities afforded by public good provision, while hedging risks through an optimal combination with the risk-free investment.[6]

The problem for the incumbent can then be reformulated into that of finding a combination of public and private goods that minimizes risk (the variance in vote returns), given the constraint of a desired level of expected electoral support. The vote constraint is given by:

$$V = \alpha E[X] + (1-\alpha)Y \tag{1}$$

where V is the exogenously desired level of votes (which may be well above a bare majority). Risk is measured by the variance in the total vote:

$$S = \alpha^2\sigma_y^2 + 2\alpha(1-\alpha)\sigma_{xy} + (1-\alpha)^2\sigma_x^2 \tag{2}$$

[6] A mixed portfolio *always* involves less risk (except when the covariance of both goods is 1).

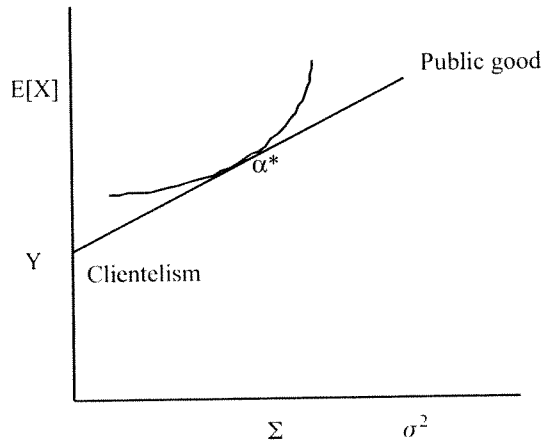

Figure 8.2 Closed form solution

Since private goods are assumed to provide a constant electoral return, the variance of private goods and its covariance with public ones is zero, $\sigma_x = \sigma_{xy} = 0$, which means that the variance in the total vote is only the first term in (2), the variance of public goods, discounted by its (squared) share in the portfolio.

A constrained maximization of (2) given (1) yields:

$$\alpha^* = \lambda(E[X] - Y)/2\sigma^2 \tag{3}$$

where λ is a Lagrange multiplier, denoting the degree of risk that is acceptable to the incumbent. This expression signifies that the optimal portfolio of electoral investments depends on individual risk-aversion, the variance of public good returns, and the spread between the electoral returns of public versus private goods.

Hence, *ceteris paribus*, the comparative statics of this expression predict that the proportion of private good allocations or clientelism will be higher:

The smaller the difference in yield between the two types of goods
The greater the risk of the public good
The higher the politician's risk-aversion

Figure 8.2 depicts the solution to the problem in a standard mean-variance space, showing a specific allocation of the electoral investment portfolio, given by an indifference curve.[7] The space depicts two goods,

[7] To simplify the exposition we have not introduced a utility function, which gives closure to the formal model. The mean-variance space and risk-aversion interpretation of the

labeled as clientelism and public good, according to their electoral yield and variance. The variance of clientelism is zero, but the votes it can provide are fewer than those of the risky investment in a public good. The difference between E[X] and Y on the vertical axis represents the first result in the comparative statics. As that gap grows, clientelism becomes less attractive. The variance on the horizontal axis represents the second result. As the level of risk increases, clientelism becomes more attractive as a "safety first" instrument. The line linking the public good and clientelism denotes all the possible combinations that produce intermediate risks and returns. Every point in the line yields a higher return in expected value than clientelism alone. In that sense, if politicians care about higher returns, diversification is always better than solely distributing private goods. Every point in the line also yields a lower risk than the public good, so diversification is attractive on the grounds of risk hedging. The specific solution to the composition of the investment portfolio depends on the curvature of the indifference curve (risk-acceptance, related to λ in the comparative statics), and the slope of the line (which depicts the relationship between risks and returns).

To sum up, the model suggests that the relative importance of clientelism depends upon the extensiveness of poverty, which makes it more prevalent; on political competition, which works at increasing public good provision; and electoral risk, which makes clientelism more attractive to incumbents. Were we able to measure politicians' attitudes towards electoral risk, our model suggests that more risk-averse politicians will maintain higher shares of clientelism in their portfolio mix. The next section provides some evidence on these predictions regarding the choice of clientelism as a response to electoral risk in the context of declining hegemonic control by the PRI in Mexico.

Clientelism and public goods in Mexico: the case of Pronasol

Launched in 1989 after one of the most contested and controversial presidential races in the history of the PRI, Pronasol's stated objective was poverty relief. Pronasol was the cornerstone of the Carlos Salinas government's war on poverty, with program expenditures averaging

utility function is a well-known result, dating back at least to Roy (1952). The simplest utility function that yields a mean-variance space like the one depicted in Figure 8.2 is a quadratic one. While economists dislike this functional form, in politics its properties are rather reasonable: at some point the marginal utility of some extra votes is negative, an assumption which is very reasonable for votes but not for money. See Hirschleifer and Riley (1992).

1.18 percent of GDP each year. This is a very significant amount. Had Pronasol resources been perfectly targeted as monetary transfers to the most desperately poor, about a third of Mexico's poverty could have been alleviated with those funds (World Bank 1999).

The program's true objective, however, was to halt the decline of the PRI's electoral hegemony.[8] Pronasol was organized around twenty programs, each of them geared toward various provisions of private or public goods. While earlier analyses of Pronasol's allocations have investigated the state- and municipal-level dynamics of the program, our work constitutes the first to present data on municipal-level allocations for the entire country and to provide an empirical assessment of the relative allocation of Pronasol funds between private goods targeted to core clienteles and public goods benefiting a wider range of voters, including opposition backers.

The coverage of Pronasol was so extensive that all municipalities in Mexico received some monies every year, although the composition by programs varied widely from year to year and among municipalities. By breaking down each program into the specific goods provided, we were able to classify the money spent according to two categories, consonant with the portfolio allocation model. The first are private goods, which we identify with clientelism and include strictly excludable goods delivered to individuals and organized groups of producers, Indians and women. For public goods we included both projects that were limited in their impact to local jurisdictions as well as projects that spanned the municipality and beyond. Clientelism in Pronasol expenditures is measured through the share of private goods in total spending and the per capita allocation of private goods. Table 8.6 in the Appendix provides a detailed description of the projects involved in each of the programs, and the way we classified them. The main indicator we used for the classification was information regarding the unit of measurement of the project, as reported in Table 8.6.

Throughout the life of the program, clientelism constituted 29 percent of the funds received by an average municipality. As the program became consolidated throughout the years, it became more clientelistic; when Pronasol was initiated in 1989, 25 percent of the funds distributed to the average municipality constituted private transfers; by 1994 the share had increased to 35 percent. The overwhelming majority of the municipalities were provided shares of private goods below 40 percent. This suggests that the PRI was providing public goods through Pronasol as a strategic

[8] The literature on Pronasol is extensive. Some references include articles in Cornelius *et al.* (1994), Bruhn (1996), Hiskey (1999), and Magaloni (forthcoming).

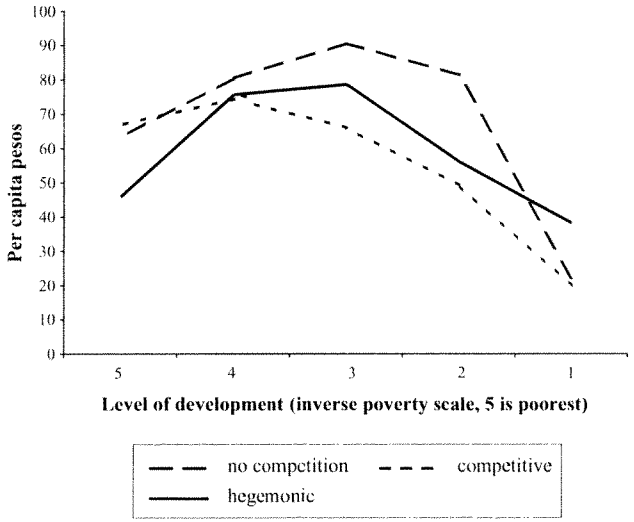

Figure 8.3 Pronasol spending on private goods per capita by municipality

effort to reach out to voters beyond its core clienteles. Most municipalities received combinations of goods, consonant with a portfolio diversification logic.

Diversification strategies can be distinguished according to two dimensions of interest: the poverty levels of municipalities as a measure of socioeconomic modernization, and the competitiveness of their party systems, as a measure of electoral considerations. Below we explore both of these issues.

Figure 8.3 shows the average per capita allocation of Pronasol in private goods (clientelism) disaggregated by socioeconomic development levels and partisan configurations. Development is measured through the deprivation index from the *Consejo Nacional de Población* (CONAPO), which is constructed with a factor analysis of census variables commonly associated with deprivation (illiteracy, no elementary school, dwellings lacking access to drinking water, sewage and electricity, quality of housing construction, population living in rural localities, and workers earning less than two minimum wages) (Consejo Nacional de la Población 1993). The figure reports how clientelism varies at different levels of development in municipalities characterized by various partisan configurations. We distinguish between municipalities without *any* electoral competition (the PRI received 100 percent of the vote); hegemonic municipalities,

where there was some opposition presence, but the effective number of parties (using the Laakso-Taagepera (1979) index) was lower than 1.7; and competitive localities where there were two or more effective political parties (N above 1.7).

With regard to socioeconomic development, the graph shows that clientelism exhibits an inverted J-shape relationship, which is striking from the point of view of a modernization account. Regardless of party configurations, clientelism tends to be greatly eroded at the highest level of development (localities showing a deprivation index of 1, which represent only 5 percent of our observations). This suggests that, consonant with the socioeconomic theory of linkage-building, rich voters much prefer public goods provision over private transfers, which makes it too expensive for a party to attempt to buy them off through particularism. However, clientelism is most prevalent in middle-range levels of development (deprivation index of 4, 3, and 2, which represent close to 80 percent of our observations). In the poorest localities (14 percent of our observations at deprivation index 5) clientelism is higher than in the richest ones, but lower than in the intermediate ones. The figure thus suggests that voters in semi-urban localities and smaller cities are highly susceptible to vote buying, and that modernization does not erode clientelism until it surpasses a sufficiently high threshold.

The figure also shows how political competition impacts clientelism. As we expected, holding development levels constant, political competition induces politicians to invest more in public good provision in an attempt to cater to wider and more heterogeneous electorates. Note that at high levels of electoral competition, clientelism is abandoned very quickly; the inverted J almost becomes a downward sloping curve.

Electoral competition induces investment in public goods. However, a question remains as to whether electoral competition is responding to economic development, lacking an independent effect. Our dataset allows us to separate the socioeconomic from the political processes that influence clientelism. Development, of course, is correlated with political competition. However, the correlation between the deprivation index and the effective number of parties is negative, but moderate at best (−0.37), which means that there are poor localities with significant party competition and rich localities with none.

Table 8.1 shows how party system configurations are related to the CONAPO deprivation index. Among competitive configurations, the table distinguishes between bipartisan (N between 1.7 and 2.3) and multipartisan ones (N greater than 2.3). Indeed, the richest municipalities (with a CONAPO index of 1) tend to have more bipartisan and multipartisan configurations, but there are quite a few highly developed

Table 8.1 *Party system configurations and socioeconomic development (percentages)*

Marginality Index[a]	Bipartisan: Non-competitive N = 1	Bipartisan: Hegemonic 1 > N > 1.7	Bipartisan: 1.7 > N > 2.3	Multipartisan N > 2.3	Total
Very high (5)	27	12	7	7	14
High (4)	44	37	26	15	34
Medium (3)	16	22	21	21	20
Low (2)	13	25	38	44	27
Very low (1)	1	3	8	14	5
Total	100	100	100	100	100

[a]CONAPO index measures marginality, so 5 is poorest, 1 is richest.

municipalities that are hegemonic. By the same token, the poorest municipalities (with a CONAPO index of 5) tend to have less competition, but there are many very poor localities that are competitive. Municipalities at middle-range levels of development exhibit almost an equal chance of being hegemonic or bipartisan. Multipartisan configurations are the least likely at all levels of development, but tend to concentrate in the richest municipalities.

Thus, electoral competition and development, while correlated, are clearly distinguishable variables. Holding political competition constant, there is more clientelism at middle-range levels of development; holding development constant, there is less recourse to clientelism as political competition increases.

An additional political variable that our portfolio model stresses is electoral risk. Our expectation is that political competition should lead politicians to diversify their portfolios, introducing more public good provision in an attempt to attract votes from a more heterogeneous electorate. Nonetheless, since public good provision is accompanied by higher risk, we expect politicians to attempt to hedge these risks by disproportionately investing in clientelism in the riskiest localities, holding levels of support constant.

Measuring risk in each municipality is not straightforward. One possibility is to measure the standard deviation of PRI support. This measure, however, is largest in those municipalities where PRI support has been highest. Given the general trend for convergence in levels of electoral support, a standard deviation measure would make the politically most backward municipalities seem to be the riskiest. The measure of risk we use instead, drawing from the finance literature, is the *systematic risk*

Table 8.2 *Beta coefficients according to party system and development*

Development index	No competition	Hegemonic	Two party	Multiparty	Total
Very high marginality	0.182	1.011	1.855	2.212	0.729
High marginality	0.336	1.096	1.854	2.193	1.038
Medium marginality	0.639	1.122	1.841	2.244	1.303
Low marginality	0.780	1.191	1.626	1.845	1.356
Very low marginality	0.393	1.081	1.216	1.497	1.178

for each municipality, controlling for electoral risk at the national level. Systematic risk is calculated through what the finance literature calls a *beta coefficient*[9] for each municipality, regressing the PRI's municipal vote share on its national vote share.

We measure risk as the coefficient of the independent variable in a linear regression of the form $Y = \alpha + \beta X$, where X is the national support for the PRI since 1970, and Y is the support in each municipality. Depending on the staggered electoral calendar of municipal elections, the number of observations is six or seven. National PRI support is calculated for each year according to the elections taking place in that particular year. This means that the national vote trend for the party depends on the specific states that held elections that year. This calculation allows for a comparison across municipalities that discounts the shocks that might occur to the national support for the party, isolating the risks that are specific to each locality. It also separates an idiosyncratic component of electoral volatility, the non-systematic risk (measured by the variance of the error term in the regression). Politicians cannot predict non-systematic risk, since it depends on random events that are, statistically speaking, mere "noise." Hence, they should not concentrate simply on how volatile vote shares are, but rather on their systematic behavior in comparison with national trends.

Table 8.2 reports the average beta coefficients calculated for Mexican municipalities according to the CONAPO classification of level of development and the partisan configuration given by the effective number of parties. Any coefficient above 1 implies that the municipality is riskier than national electoral trends. Places with risk below 1 compensate the national trends. Risky places, instead, would constitute attractive places

[9] For the seminal work introducing this concept see Sharpe (1964). A huge discussion emerged from the empirical work. See, in particular, Fama and French (1996). A good textbook discussion is Bodie *et al.* (2001). For one of the few applications of beta coefficients as risk measures in political science, see Crain, Messenheimer, and Tollison (1993). For an application to Mexico see Diaz-Cayeros, Magaloni, and Estevez (2003).

for electoral investment to the extent that they have high expected vote shares, or are pivotal for winning an election.

On average, municipalities are riskier than the nation as a whole for the PRI, since the average beta coefficient for all municipalities is slightly above 1 ($\beta = 1.15$). Furthermore, risk is linked to partisan configurations and more competitive municipalities entail higher risk for the PRI. Yet, as can be inferred from the table, risk and party configurations are different measures. There is large variance in the level of risk even among municipalities with the same partisan configuration. Starting from the last column, which shows the average risk regardless of party system, only the poorest municipalities show electoral behavior that can hedge against the national trends; in those places, given that PRI support has remained high, even as it falls elsewhere, the beta coefficient is less than one. Localities of high marginality show the same trend as the country as a whole. The next least risky municipalities are the richer areas of the country. This is probably due to the fact that competition there has stabilized or consolidated into two- and three-party systems, where the PRI is sometimes capable of reversing the national trend. The biggest collapses, and highest risks, were faced in bipartisan and multipartisan races, at intermediate and low levels of development.

Thus, electoral risk cannot be considered a consequence of economic development. Developed regions are riskier than the poorest areas, but when partisan configurations are taken into account, developed areas in the country with stable bipartisan and multiparty electoral configurations are less risky, from the incumbent's perspective, than poorer areas where electoral competition is just emerging. Hegemonic party configurations on average are slightly riskier than the nation; and it is only in non-competitive municipalities that electoral risk is less than in the country as a whole. The richest cities and the poorest rural municipalities are not the riskiest arenas of competition for the PRI. This provides a rationale for the greater emphasis on clientelism at intermediate levels of development.

To see that the beta coefficient as a measure of risk is not the consequence of political modernization, Table 8.3 groups municipalities according to whether their beta coefficient is above or below the municipal average. It also separates the outlier cases, namely, the coefficients that are outside one standard deviation on either side of the distribution. The average beta coefficient was 1.15, with a standard deviation of 1.30. Hence, we define as very low beta coefficients those that fall outside of the range on the mean minus one standard deviation ($b < -0.15$); as below average those that are within one standard deviation under the mean ($-0.15 < b < 1.15$); as above average, those within one standard

Table 8.3 *Risk distribution by level of development (percent)*

Beta coefficient	Very high marginality	High marginality	Medium marginality	Low marginality	Very low marginality
Very low	9	10	8	9	7
Below average	61	48	41	35	39
Above average	19	26	34	36	47
Very high	11	16	17	19	7
Total	100	100	100	100	100

Table 8.4 *Clientelism (private good provision) by risk and development (entries are the percentage of funds channeled to clientelism)*

Betacat	Very high marginality %	High marginality %	Medium marginality %	Low marginality %	Very low marginality %	Total %
min/−.15	22.8	24.5	24.1	20.2	15.1	22.6
−0.15/1.15	23.1	26.7	31.6	24.9	16.3	26.0
1.15/2.30	28.3	32.3	33.5	27.7	21.8	29.9
2.30/max	29.2	32.7	33.7	35.3	22.9	33.2
Total	25.0	29.0	32.1	27.6	19.3	28.6

deviation above the mean ($1.15 < b < 2.45$); and as very high, those that are above the one standard deviation range ($b > 2.45$).

The risk distribution is skewed to the left in very poor places, reflecting a modernization effect, in that poorer places are less risky. However, past an intermediate level of development the risk distributions are quite symmetric, and even slightly skewed to the right, suggesting greater-than-average risk in poorer areas. What this means in terms of the allocation of clientelism is that poor places might be given resources because they are poor, or because they are riskier places, where the PRI is losing support at faster rates than the national trend. If both poor and rich places are allocated more clientelism when they have high levels of risk, we can be relatively confident that the overriding consideration is electoral risk, rather than economic or social development.

Table 8.4 provides the final evidence that this is the case, by showing the average share of clientelism according to level of development and risk category. The final column in Table 8.4 reveals that clientelism increases with risk – while in low-risk areas clientelism constitutes about a fifth of Pronasol funds, in the highest-risk municipalities this share increases to one third. In places with very low marginality, clientelism is less prevalent,

but the share still increases as risk increases. At intermediate levels of development clientelism is most prevalent, and still responds to risk. This general pattern is confirmed to be statistically significant in an unreported test of means as well as in a multivariate regression including controls for level of development.

In the remainder of this section, we explore the plausibility of our hypotheses more systematically. We employ a GLS maximum likelihood estimation of the share of private good provision in slightly less than 2,400 municipalities from 1989 to 1994. One lag of the dependent variable (*Lag*) is used to control for serial correlation. The independent variables are the level of development (*Develop*), using the deprivation index from CONAPO. The index was rescaled to take positive values ranging from 0 to 5. The rescaling also allows us to introduce a quadratic term ($Develop^2$), which tests whether development has a curvilinear relationship with the dependent variable. Our expectations are that, *ceteris paribus*, greater investment in clientelism should occur in poorer municipalities. The effect of the deprivation index should thus be positive. If development exercises a curvilinear effect and the quadratic term for the deprivation index is negative, it would signify that municipalities at middle levels of development receive larger shares of clientelist benefits.

We also employ the effective number of parties (*Effective N*) and the margin of victory (*Margin*) in the previous municipal race. Our argument is that clientelism is less efficient at vote buying in more heterogeneous and in more competitive municipalities. We thus expect these variables to have a negative sign. Due to the high correlation between *Effective N* and *Margin of victory*, we run these variables in separate models.

We also include our measure of systematic risk (*Beta/risk*), calculated through the *beta coefficient* that reflects how fast the PRI is losing votes in any municipality relative to the national trend for that party. Recall that this variable is calculated with municipal vote returns since the 1970s. Thus, our measure of risk reflects long-term electoral patterns that are missed when simply using the number of parties or margins of victory. The correlation between *risk* and effective number of parties is obviously positive, but not that strong (0.46). Similarly, our measure of risk is negatively correlated with margins of victory (0.40). Our expectation is that the PRI should hedge risks by investing more in clientelism in high-risk municipalities, those in which the PRI has been losing votes at a faster rate relative to the national trend. We thus expect systematic risk to show a positive sign. Because clientelism shares increased through the six years Pronasol operated, the analysis controls for the time trend (*Trend*). Our theory of political investment does not yield predictions regarding the particular combination of private versus public good provision in

Table 8.5 *Determinants of clientelism, 1989–1994*[a]

	Coef.	(SE)	z	Coef.	(SE)	z
Lag	0.32***	(0.01)	36.77	0.32***	(0.01)	37.50
Develop	0.11***	(0.01)	11.15	0.12***	(0.01)	11.64
$Develop^2$	−0.02***	(0.00)	−9.48	−0.02***	(0.00)	−9.87
Beta/risk	0.01***	(0.00)	5.23	0.01***	(0.00)	5.04
Effective N	−0.01**	(0.01)	−1.99			
Margin of victory				0.02*	(0.01)	1.73
No opposition	−0.04***	(0.01)	−6.17	−0.04***	(0.01)	−5.98
Trend	0.03***	(0.00)	18.51	0.03***	(0.00)	18.33
constant	−0.04**	(0.02)	−2.25	−0.07***	(0.02)	−5.01
N Observations	10171			10251		
N Groups	2363			2364		
Wald χ^2 (df=7)	2366.08***			2417.51***		
R^2 Between	0.58			0.58		
R^2 Overall	0.18			0.19		

*p < 0.10 **p < 0.05 ***p < 0.001

[a]Dependent variable is share of private good provision per municipality. Coefficients come from a random effects GLS regression. *Develop* is the rescaled CONAPO deprivation municipal-level index. $Develop^2$ is the index squared. *Beta/risk* is our measure of systematic risk. Effective N is the effective number of parties and PRI margin is the PRI's margin of victory in the previous municipal race. *Election* is a dummy indicating if a municipal election took place that year.

municipalities where there is no opposition presence. To control for this particular political configuration, we add a dummy for municipal elections where the opposition did not even field candidates and the PRI got 100 percent of the vote (*No opposition*). Results are reported in Table 8.5 above.

All our expectations are confirmed. With respect to the socioeconomic theory of clientelism, we find strong evidence that there is more clientelism in poorer municipalities and that clientelism tends to shrink as municipalities develop. However, against the expectations of modernization theory, there is greater recourse to clientelism in municipalities at middle levels of development. The variables that put our approach to the test, with respect to the *political logic* driving clientelism, all perform as expected. Clientelism tends to be less prevalent in politically heterogeneous municipalities, as measured by the effective number of parties. When margins of victory are employed instead of effective N, the result is that there is *less* clientelism in municipalities that are won by smaller margins. Thus, political competition has a virtuous effect in generating incentives for politicians to shift their investments toward

public good provision in such environments. However, consistent with our expectations, particularism is more prevalent in high-risk municipalities, as measured by our *beta coefficient*, which reveals a faster rate of vote loss by the PRI than it suffers in the nation as a whole. An intriguing finding is that there is less investment in particularistic transfers in municipalities where there is no opposition presence at all.

These results suggest that to defend its monopoly under threat, the long-lasting ruling party in Mexico diversified its portfolio of electoral investments, allocating more public goods to more heterogeneous and competitive municipalities in an attempt to cater to a wider voting audience. At the same time, the PRI intensified its clientelistic practices by allocating more private goods to high-risk municipalities, those where its core voters were defecting at a faster rate than the national trend. Consistent with our approach, clientelism is thus a political investment strategy designed to deter voter exit and, simultaneously, to hedge electoral risks when more uncertain investments in public goods are needed to win elections.

Conclusion

This chapter employs a portfolio diversification model to make predictions about politicians' choice of clientelism as an electoral investment strategy. Under the assumption that politicians seek both to obtain a certain electoral threshold *and* to minimize electoral risk, we argue that incumbents will diversify their portfolios between risk-free particularistic transfers and public good provision, for which an electoral return is more uncertain.

Clientelism, we have argued, minimizes electoral risk because politicians can employ preexisting clientelistic networks to target transfers to core constituencies and true partisans whose electoral support is certain. In addition, clientelism has the advantage of allowing incumbents to retain their electoral clienteles for the future because it allows them to deter exit with remarkable effectiveness. By targeting benefits to supporters and punishing opponents, politicians can deter an opposition-leaning voter from actually defecting. That voter is confronted with the choice of backing an incumbent with funds or the opposition without funds. Unless the voter can live without access to the incumbent's resources the logic compels her to support the incumbent, even if reluctantly. This deterrence logic applies as long as the incumbent possesses a monopolistic control of resources and can effectively target transfers according to the recipient's electoral behavior or political identity.

Budget constraints and transaction costs in targeting do not allow politicians to rely upon clientelism as their sole investment strategy, however. Only where voters are really poor, we have argued, is the exclusive reliance on clientelism optimal. As a country modernizes and the pivotal voter becomes wealthier, politicians will be compelled to rely less on clientelism and to introduce public good provision as a dominant form of political exchange.

From the incumbent's point of view, public goods have the advantage of lowering transaction costs and benefiting a larger and more heterogeneous electorate. In our view, the expected electoral return of public goods is higher than that of private goods, yet public goods have the disadvantage of greater risk precisely because all voter groups can consume them regardless of their expected voting behavior.

Clientelism thus differs from pork-barreling and other forms of vote buying in two main respects: first, it is targeted to individuals or clearly specified groups; and second, it is delivered through a party's clientelistic network such that screening between true loyalists and opponents takes place. Our approach yields three main empirical predictions, the first two related to the impact of development and the erosion of party hegemony over time and the last one with prevailing configurations of party competition and electoral risk. First, as a country develops and the pivotal voter becomes wealthier, clientelism should erode as a dominant form of political exchange simply because it becomes too costly. Second, as the size of the incumbent's electoral monopoly shrinks over time, the party should attempt to buy-off the increasingly more heterogeneous electorate through public good provision. This means that there should be less clientelism as political competition is consolidated. Third, consistent with the logic of portfolio diversification, the incumbent should attempt to hedge the higher risks involved in public good provision by devoting more resources to clientelistic transfers in the riskiest localities, those where its core base is eroding quickly, holding party system configurations and the incumbent's level of electoral support constant.

Appendix

In Table 8.6, we provide a detailed description of the projects involved in each of the programs, and the way we classified them. The main indicator we used for the classification was information regarding the unit of measurement of the project on which basis we contrast private goods and club goods with public goods.

Table 8.6 *Classification of pronasol expenditure by type of good, according to the unit of measure reported for each project*

Program name	Clientelism		
	Private good	Club good	Public good
Drinking water and sewage (*agua potable y alcantarillado*)			Wells; systems; meters
Food and distribution (*alimentación y abasto*)			Milk; market; slaughter-house; work
Support for social services (*apoyo al servicio social*)	Scholarship		
Health (*atención a la salud*)			Lake; community; hospital
Productive ecology (*ecología productiva*)		Work	
Rural and urban electrification (*electrificación rural y urbana*)			Colony; work; well; system
Solidarity production funds (*fondos de solidaridad para la producción*)		Hectare	
Solidarity municipal funds (*fondos municipales de solidaridad*)			Unit; system; park; work; M2; garden; building center; workshop; factory; cooperative; warehouse
Dignified hospital (*hospital digno*)			Center
(Mexican Social Security Institute) (IMSS-Solidaridad)			Hospital Center Clinic
Highway infrastructure (*infraestructura carretera*)			Kilometer Bridge
Infrastructure for productive support (*infraestructura de apoyo productivo*)		Group; apiary; wood mill; warehouse; dam (*Bordo*); cattle; cattle/year; canal; center; collector; hatchlings; packing; equipment establishment; stable; pond; factory; hectare	
		vegetable garden; research; kilometers; lot; luminaries; Meters2; Meters3; mine; mill; work; plant; plant/year; well; processor; terrace; ton; ton/year; Ton/catch; unit; vehicle; nursery	
Sports infrastructure (*infraestructura deportiva*)			Unit Court
Education infrastructure (*infraestructura educativa*)			Altas; annex; auditorium; classroom; center; school; laboratory; square; workshop
Women in solidarity (*mujeres en solidaridad*)		Action; team; mill; workshop; tortilleria; unit	Lavatory
Regional development programs (for the national indigenous institute) (*programas de desarrollo regional*)		Study team	
Solidarity for a dignified school (*solidaridad para una escuela digna*)			School
Urbanización (*urbanizacion*)			Kilometer; Meter; Meter2; Meter3; work; bridge; system; vehicle
Housing (*vivienda*)	Toilet Dwelling		
Drinking water (*agua potable*)			System
Children in solidarity (*niños en solidaridad*)	Scholarship		