

Determinants of Redistributive Politics: An Empirical Analysis of Land Reforms in West Bengal, India

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We investigate political determinants of land reform implementation in the Indian state of West Bengal. Using a village panel spanning 1974–1998, we do not find evidence supporting the hypothesis that land reforms were positively and monotonically related to control of local governments by a Left Front coalition vis-à-vis the right-centrist Congress party, combined with lack of commitment to policy platforms. Instead, the evidence is consistent with a quasi-Downsian theory stressing the role of opportunism (reelection concerns) and electoral competition. (JEL D72, O13, O17, Q15)

In this paper we investigate political determinants of land reform implementation in the Indian state of West Bengal since the late 1970s. There is now considerable evidence that land reforms have significant potential for simultaneously reducing poverty and promoting agricultural growth in many developing countries, including India.¹ Despite this, the extent of land reforms enacted typically remains small in most developing countries relative to what could potentially be achieved. The causes are rooted mainly in lack of political will, the power of landed interests, and formidable legal and administrative barriers (see, for example, the review of the land reform experience of different Indian states by P.S. Appu 1996).² It can be argued, however, that persistence of legal and administrative barriers owe ultimately to lack of political will: when governments really do intend to carry out land reforms they can improve the land records, push through legislative reforms to close loopholes, and pursue necessary litigation. From this standpoint

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¹ For instance, there is evidence that small farms are more productive than large farms (e.g., Pranab K. Bardhan 1973; Albert Berry and William Cline 1979; Hans P. Binswanger and Mark R. Rosenzweig 1986, 1993; Binswanger, Klaus Deininger, and Gershon Feder 1995), and that owner-cultivated farms are more productive than tenant farms (Clive Bell 1977, Abhijit Sen 1981, Radwan Shaban 1987), both of which imply agricultural output would rise following redistribution of land. Moreover, Abhijit V. Banerjee, Paul J. Gertler, and Maitreesh Ghatak (2002) argue that protection of sharecroppers against eviction and regulating sharecropping contracts in West Bengal during the period we study caused significant growth in agricultural yields. Timothy Besley and Robin Burgess (2000) find that implementation of land reforms (particularly with respect to tenancy protection legislation) in Indian states between 1958 and 1992 led to significant reductions in rates of rural poverty.

² The latter stem from poor state of land records, pervasiveness of legal loopholes and legal systems ill-equipped to deal with large volumes of litigation.

political will is the fundamental *sine qua non*. Accordingly there is an urgent need to understand better the determinants of political will of elected governments to implement land reforms.

Theoretical models of political economy are frequently classified (see, e.g., John Roemer 2001) according to the motivation of competing parties or candidates, as either purely opportunistic (where they care only about the probability of winning elections), or where they have intrinsic policy preferences derived from their ideology (defined broadly to include interests of constituents they represent). Accordingly, these respective approaches differ in their emphasis on the importance of electoral competition relative to the political ideology of elected officials in explaining policy choices observed in democracies. Models in the tradition of Anthony Downs (1957) which are based on the former assumption stress the role of *competition* and electoral opportunism.³ The Downsian view emphasizes the role of competitive electoral incentives: that political will is driven ultimately by policy preferences of voters and special interest groups, not elected officials.

In contrast, ideology-based theories of politics which trace their origin to Seymour M. Lipset (1960) and Donald A. Wittman (1973) have recently received prominence in citizen-candidate models of Martin Osborne and Al Slivinski (1996) and Besley and Stephen Coate (1997). These are based on the assumption that candidates cannot commit to their policy platforms in advance of elections and are myopic in that they ignore implications of current policy choices for future reelection prospects. These theories predict that policy choices of elected candidates are entirely determined by their “ideology” or policy preferences. Accordingly predicting policy choices translates into predicting electoral success of parties or candidates with heterogeneous policy preferences, rather than the intensity of political competition or preferences of median voters.

Not much is known, however, about the relative importance of electoral competition and heterogeneous policy preferences of elected officials, in determining redistributive effort of governments. This is important in terms of understanding the way that democracies promote responsiveness of government to voter needs and preferences. The nature of land reform and political competition in West Bengal over the past quarter century provides an opportunity to test the two competing theories in a simple and compelling way. There have been two principal competing parties in West Bengal with distinct political ideologies and constituencies: a coalition of Leftist parties led by the Communist Party of India (Marxist) (CPIM) with a strong political commitment to land reform, and a centrist Indian National Congress (INC) (or offshoots such as the Trinamul Congress) that has traditionally represented interests of big landowners in rural areas. Given the nature of these traditional ideologies and key constituencies of the two parties, the ideology hypothesis predicts that the extent of land reform should rise as the composition of local governments (key implementing agencies in West Bengal villages) swings in favor of the Left Front coalition. In contrast, the Downsian theory predicts these should have no effect. If the latter approach is extended to incorporate policy-nonconvergence across competing parties owing to moral hazard (or special interest influence), we show in Section III of the paper that the resulting quasi-Downsian approach predicts an inverted-U relationship between Left control of local governments and land reform implementation. In other words, variations in land reform implementation are explained, if at all, by the extent of electoral competition: villages with closer

³ These include models of electoral competition extended to include probabilistic voting (Assar Lindbeck and Jorgen Weibull 1987) and special interest groups (David Baron 1994, Gene M. Grossman and Elhanan Helpman 1996). Standard formulations of this model assume that candidates have no intrinsic policy preferences, and that they commit to policy platforms in advance of elections. In a two candidate setting the outcome is *policy convergence*: both candidates select the same policy owing to their common vote-maximization objective. In the presence of interest groups such convergence does not obtain. But as indicated later in the paper, the predictions of such an extension with interest groups is similar to the quasi-Downsian model developed in this paper: increased competition makes both parties more responsive to voter preferences.

electoral contests witness greater land reform implementation. This implies that once the Left obtains a majority, further increases in its share of local government seats will *decrease* the extent of land reforms implemented.

Simple regressions or plots between land reform implementation and the Left share of local governments (shown in Section II) fail to show any significant positive relationship, in either cross-village data or a village panel. Instead, the raw pattern in the data resembles an inverted U, suggesting the role of political competition.

Section III presents a theoretical model which nests the principal hypotheses as special cases. The model is characterized by probabilistic voting, co-existence of heterogeneous redistributive preferences of two competing parties, and a mixture of opportunism (i.e., reelection concerns) and (current) rent-seeking motives of their candidates. In particular, elected officials may be subject to rent seeking or other forms of political moral hazard (e.g., land reforms require costly administrative effort on the part of the officials).⁴ Under specific parameter values (reflecting low heterogeneity of redistributive preferences, relative to opportunistic motives), interactions between moral hazard and electoral competition generate an inverted-U relationship: a more lopsided electoral contest (arising from more skewed preferences among voters in favor of one party) translates into lower redistributive effort by the dominant party. With greater heterogeneity of policy preferences, there is a monotone relationship between redistributive effort and party composition, as predicted by a pure citizen-candidate model.

The theoretical model is thereafter used to guide the empirical specification. The impact of rising Left share of local government seats on land reform reflects rising competitive strength of the Left Front coalition vis-à-vis the Congress, as represented by the realization of voter loyalty shocks. The latter can be proxied by differences in vote shares between the two parties in preceding elections to the state assembly (rather than the local government elections), averaging across different constituencies in a district. In other words, the relative popularity of the two parties in the region in which the village happens to be located, is reflected in this difference in vote shares in assembly elections (typically held two years prior to local government elections). The competition effect generated by our quasi-Downsian model is represented by a negative interaction effect between this measure of voter loyalty shocks and the Left share of local government seats, after controlling for the Left share *per se*, village demographic and land characteristics, and village and time dummies. The direct effect of control is represented by the effect of the Left share alone, which the citizen candidate or “ideology” model would predict to be positive, the Downsian model predicts to be zero, and the quasi-Downsian model predicts to be inverse-U shaped.

We estimate this regression using a panel dataset for land reform implementation in a sample of 89 villages in West Bengal, spanning the period 1974–1998. The econometric analysis additionally incorporates endogenous censoring (as many villages do not implement any reforms in various years) and endogeneity of the Left share. For the latter, we use as instrument the presence of the Congress Party in national Parliament, interacted with incumbency patterns in local government.

The empirical results continue to find no evidence in favor of an increasing relationship between Left share of local government and land reforms implemented. The effect of Left share continues to follow an inverted U, the statistical significance of which varies with the exact regression and time period used. For land titling over the entire 1974–1998 period we find evidence of a significant negative interaction predicted by the theory between voter loyalty swings

⁴ This model can be viewed as an extension of hybrid ideology-competition models of Lindbeck-Weibull (1993) and Avinash Dixit and John Londregan (1998) to accommodate moral hazard. Similar predictions would also result from the special interest models of Baron (1994) and Grossman and Helpman (1996), as shown in an earlier version of this paper.

in favor of the Left and Left share. Significant spikes in the titling program during preelection years and in the tenancy registration program in election years are also found, consistent with the role of electoral competition. However, the precision of these results drops markedly for the time period 1978–1998. We thus have some, but not entirely robust, evidence that permits us to discriminate between the quasi-Downsian and the pure Downsian theory. But there is no evidence in favor of the role of ideological differences between the two contesting parties.

Section II describes the institutional background, the data sources, and the raw correlations between Left share and land reform. Section III presents the theoretical model, and Section IV the empirical tests. Details of data sources are described in the Appendix.

I. Historical Background

Following Independence in 1947, land reforms were an important priority for newly elected governments at both the central and state levels in India. These included abolition of intermediary landlords (*zamindars*), redistribution of lands above mandated ceilings, and regulation of tenancy. Responsibility for agricultural policy was vested in state governments under the Indian Constitution. Respective states proceeded to enact suitable legislation in the early 1950s, with encouragement and assistance from the central government.

A. Programs

Legislation governing land reform in West Bengal for the period under study is defined by the second West Bengal Land Reforms Act, passed in 1971. This Act imposed a limit of five “standard” hectares of irrigated land (equal to seven hectares of unirrigated land) for a family of up to five members, plus $\frac{1}{2}$ hectare per additional family member, up to a maximum of seven hectares for each family.⁵ Landowners were required to submit a return (Form 7A) providing details of the lands in their possession, their family size, and the surplus lands that they would consequently surrender. Problems of implementation of the new Act however soon became evident, arising out of the need to identify the genuine family members of any given landholder (Appu 1996, 176) and nonfiling of returns by an estimated one half of all landholders.

In 1977, the Left Front came into power in the state government with an absolute majority in the state legislature, displacing the Indian National Congress which had dominated the state government for all but three years since Independence. The Left Front thereafter set about implementing the 1971 West Bengal Land Reforms Act, which had been amended in 1972. The government did not succeed in appropriating (or *vesting*, as it is commonly referred to in West Bengal) significantly more land from large landholders owing to the legal problems described above. So the principal initiatives in which they did achieve considerable success involved (a) distribution of vested lands in the form of land titles or *pattas* to landless households, and (b) the tenancy registration program called *Operation Barga*. Registration made tenancy rights hereditary, rendered eviction by landlords a punishable offense, and shifted the onus of proof concerning identity of the actual tiller on the landlord. Shares accruing to landlords were capped (at 25 percent, or 50 percent if the landlord provided all material inputs).

In what follows we will refer to the issuing of *pattas* or land titles simply as the *titling program*. In the empirical analysis we will use the proportion of cultivable area or households receiving these as the key measures of implementation of the titling program and refer to them simply as

⁵ One hectare equals two and a half acres. Orchards were allowed two standard hectares, and religious and charitable organizations up to seven standard hectares (except in suitably deserving cases).

the percent area and percent households titled.⁶ We shall refer to the other program as the tenancy registration program or Operation Barga. Corresponding measures of the implementation of this program will be the proportion of cultivable area or households registered.⁷

A massive mass-mobilization campaign involving party leaders, local activists, and the administrators was mounted to identify landowners owning more land than the ceiling, or leasing to sharecroppers. Election to local governments (*panchayats*) were mandated from 1978 onwards, and the active cooperation of the newly elected bodies was sought in this process. Most commentators have reviewed the outcomes of this process favorably. Appu (1996, Appendix IV.3) estimated the extent of land distributed in West Bengal until 1992 at 6.72 percent of its operated area, against a national average of 1.34 percent.

B. Data

Our sample consists of 89 villages covered by 57 different *gram panchayats* (GPs) or local governments located in 15 districts of the state.⁸ The selected villages are those for which we could obtain farm-level production records from cost of cultivation surveys carried out by the state's agriculture department using a stratified random sampling frame.⁹

For each of these villages, we visited the concerned local Block Land Records Office (BLRO) which vests land, issues land titles, and registers tenants. We collected data for all land titles distributed and all tenants registered for these in each sample village for every year between 1971 and 1998. The records provide details of the number of these, as well as characteristics of the concerned plot (i.e., whether it is homestead land, and of the remainder, the proportion that is cultivable). We therefore have precise estimates of annual land reform implementation in each of the sample villages.¹⁰

Inspection of records of the concerned local governments generated details of all elected officials in every GP between 1978 and 1998. Each GP administers ten to 15 *mouzas* or villages, and elects ten to 20 officials from election constituencies defined by population size. Each GP is elected to a five-year term. Prior to 1977, the chief implementing agency was the land reforms department of the state government, which was dominated by the Congress. From 1978 onward elected GP administrations played a key role in the process of identifying beneficiaries of land reforms, in collaboration with farmer unions and the land reforms department. Prior to 1977, thus, we set the Left share to zero, while from 1978 onward we use the Left share seats in the concerned GP to represent the involvement of the Left Front in the implementation of the reforms. Additional data concerning vote shares in state assembly and national parliament elections were collected from official statistics of the government.

We collected data concerning relevant voter characteristics in each village for two specific years, 1978 and 1998, based on an (indirect) household survey of land, occupation, literacy, and caste. We subsequently interpolate these to form a yearly series. The rationale for this is that village-specific time trends in the distribution of voter characteristics serves as a control for the regressions. Moreover, no other comparable yearly series is available. Data on the distribution

⁶ Of course, other landowners will hold titles to land they have purchased or inherited. These will not be included in our measures of titling.

⁷ We discuss further below the rationale for choice of these particular measures.

⁸ Calcutta and Darjeeling were excluded owing to the paucity of agriculture in those districts: Calcutta is primarily urban, while Darjeeling is a mountainous region dominated by tea plantations. District boundaries within Dinajpur have changed within the period being studied, so we aggregate all the data for Dinajpur villages.

⁹ Two blocks were randomly selected (from approximately 20) within each district, and two villages within each chosen block.

¹⁰ Since the unit of observation is the village in question, there are no problems of attrition.

of land for individual villages in our sample is not available from any existing source. We made efforts to compile these from land records in the local Block Land Records Offices, but these did not prove practical on account of the fact that the records are kept on a plot-by-plot basis in a way that makes it impossible to identify the aggregate landholding of any given household. The most disaggregated information available concerns the distribution of operational holdings at the district level from the state Agricultural Censuses (once every five years), and at the state level from the National Sample Survey (once every ten years, the most recent one available pertaining to 1991–92).

To overcome these problems, we conducted an indirect household survey, on the basis of voter lists for the 1998 and 1978 elections.¹¹ Detailed interviews with three or four village elders in each village helped identify voters belonging to the same household and provided details of each household's demographic, occupational, and land status (the latter including landownership, tenancy by area and irrigation status, mode of acquisition for owned land, and *barga* registration status for tenants).¹²

This "indirect" household survey procedure has the advantage of eliciting rich community information concerning the distribution of land and avoiding problems stemming from reluctance of individual households to declaring their assets to outside surveyors.¹³ It could, however, suffer from lapses of knowledge or memory of third-party informers. We compared the size distribution of holdings compiled in this manner aggregated to the district level for 1978 and 1998 against the state Agricultural Censuses for 1980 and 1995 and the National Sample Survey for 1981–1982 and 1991–1992. These estimates are provided in Table 3 below, which shows that the information from the three different sources for the state as a whole match quite closely.

C. Descriptive Statistics

Table 1 provides the districtwise breakdown of the sample, as well as the percent seats in the GPs secured by the Left Front alliance party. The Left secured a majority in most districts. The mean proportion of GP seats secured by the Left was 69 percent, with the median slightly higher, and with the first quartile at approximately 50 percent. In three quarters of the GP administrations, thus, the Left obtained an absolute majority.

Table 2 provides economic and demographic characteristics of the sample villages on the basis of the household survey in the years 1978 and 1998. These show a sharp increase in the number of households within villages, the result of population growth, migration, and splits of joint households. Statistics concerning the land distribution pertain to ownership of cultivable land (excluding that distributed in the titling program). The proportion of landless households rose from 47 to 52 percent, so landless households composed a majority in the population by 1998. Among landowners the land distribution became more equal, with a significant rise in area share of small holdings below five acres from 57 percent to 74 percent. Since these pertain to nontitled land, these reflect the effect of land market transactions and intrahousehold transfers. Table 3 shows that our land distribution data aggregated for the state as a whole match closely corresponding estimates of the distribution of operational holdings from the state Agricultural Censuses, as well as from the National Sample Survey.

¹¹ In about 20 GPs the 1978 voter lists were not available, so we used the 1983 lists instead for those, and then interpolated (or extrapolated for years prior to 1983) on this basis.

¹² The information provided was cross-checked across different elders and adjusted thereby until a consensus was reached among them.

¹³ Several land experts in West Bengal, including Debu Bandyopadhyay, the state Land Reform Commissioner during the late 1970s and the early 1980s, advised us to carry out an indirect rather than direct survey for this reason.

TABLE 1—DISTRICTWISE ALLOCATION OF SAMPLE VILLAGES

District	Number of villages in sample	Left Front percent of seats in GP (average 1978–1998)
24 Parganas (N)	6	56
24 Parganas (S)	8	54
Bankura	5	87
Birbhum	6	56
Bardhaman	8	84
Cooch-Behar	8	85
Hooghly	6	70
Howrah	4	79
Jalpaiguri	5	74
Malda	2	60
Midnapur	8	78
Murshidabad	6	46
Nadia	5	79
Dinajpur	4	51
Purulia	8	62
West Bengal	89	69

TABLE 2—VILLAGE CHARACTERISTICS IN SAMPLE VILLAGES OVER TIME

<i>Panel A.</i>	1978	1998
Number of households	228	398
Operational land-household ratio (acre/hh)	1.54	0.87
Percent households landless	47.3	52.3
Percent households marginal (0–2.5 acres)	35.2	39.1
Percent households small (2.5–5 acres)	11.2	6.4
Percent households medium (5–12.5 acres)	4.7	2.0
Percent households big (12.5– acres)	1.6	0.3
Percent land small	56.7	73.9
Percent land medium	23.9	18.5
Percent land big	19.5	7.6
Percent poor households low caste	38.3	39.8
Percent up to small households illiterate	44.1	31.9
Percent big households illiterate	4.4	3.2
Percent households in nonagricultural occupation	41.1	51.4
Population-bank ratio	41.6	23.1
<i>Panel B.</i>	1981	1995
Farm yield (value added Rs/acre)	1,009.22	5,345.86
Nominal hourly farm wage (Rs/hour)	1.17	4.21
Rice price, Rs/kg (aus, lcl)	1.00	5.46
Rice price, Rs/kg (aman, lcl)	1.19	4.35
Cost of living index (1974 = 100)	136.81	411.67
Farm yield (in 1974 Rs/acre)	737.69	1,298.59
Hourly farm wage (in 1974 Rs/hour)	0.85	1.02

Notes: “Poor” denotes either landless or marginal landowner. “Up to small” denotes either landless, marginal, or small landowner. All land information pertains to distribution of cultivable non-*patta* land owned.

Source: Indirect household survey, except data on farm yield, rice prices, and wages, which are based on cost of cultivation farm surveys. Cost of living index (for agricultural workers) and population-bank ratio from *West Bengal Economic Review*, various years.

TABLE 3—LAND DISTRIBUTION DATA FROM DIFFERENT SOURCES

Source	Year	0–2.5 acres percent land	2.5–5 acres percent land	5 acres and more percent land
Agricultural census	1980	28	32	39
	1995	43	29	27
NSS	1981	29	29	42
	1991	40	31	29
Indirect survey	1978	28	28	43
	1998	46	28	26

Sources: West Bengal Agricultural Censuses, National Sample Survey (NSS) Operational Land Survey 1991–92, and our indirect survey. Census, NSS data pertain to operational holdings; indirect survey pertains to cultivable nontitled land owned.

Tables 4 and 5 provide details of the land reform program. Sixteen percent of operational land area had been *vested*, or secured from surplus owners, by 1998. This is consistent with the estimate reported by Appu (1996). However most of the vesting occurred prior to 1978, confirming accounts that the Left Front did not achieve much progress on this dimension since coming to power in 1977. Their achievement was notable, in contrast, with regard to distribution of land titles to the landless. Approximately 70–75 percent all land titles distributed until 1998 had been distributed after 1978. Most of the distributed land was cultivable (ranging between 70 and 90 percent). We shall therefore focus on land titling rather than vesting operations when examining the land redistribution program.

Distributed land in our sample constituted about 3.7 percent of operational land area in the Gangetic part of West Bengal, and 5.7 percent for the state as a whole, somewhat below the state government's own statistics or the estimate of Appu already cited. The proportion of households receiving land titles was 14.6 percent, higher than the proportion of operational land area distributed. Title holders constituted about 30 percent of all landless households, consistent with the statistics quoted by Lieten (1992). The land distribution program was therefore far more significant in terms of the number of households that benefited from the program, rather than actual land area distributed. Most recipients received plots below one acre in size, substantially below average holding sizes in the village.

The fact that land area distributed (five to six percent) was substantially less than the total amount of land vested (16 percent) is somewhat surprising. One typically expects appropriation rather than distribution to be the difficult component of land reform implementation, from either political, legal, or administrative standpoints. Why wasn't the government distributing all the lands it had already vested? One can only surmise the reasons for this, based on anecdotes and opinions expressed by various people associated with the reforms. One possibility is that lands officially listed as vested were still under litigation, and the process of identifying suitable beneficiaries and granting them official land titles was lengthy and cumbersome. Another is that local landed elites exercise influence over local governments to prevent distribution of land titles to the poor, for fear that this will raise wage rates of hired labor and reduce dependence of the poor on them for credit and marketing facilities. The most common account is that elected officials have been exploiting undistributed vested lands for their personal benefit in various ways.¹⁴ Irrespective of which is the correct story, it is evident that the availability of vested land did not

¹⁴ For instance, informal accounts allege that undistributed vested lands are used by GP officials to allocate to select beneficiaries to cultivate on a temporary basis, as instruments of extending their political patronage. There may also be outright corruption whereby GP officials extract rents from the assigned cultivators. We have been informed of this in

TABLE 4—LAND REFORMS IMPLEMENTED

	1974 average	1978 average	1998 average
Percent cultivated land vested (cumulative)		16.4 ^a	15.3
Percent cultivated land distributed as pattas	0.02	1.4	5.7
Percent hh's receiving land titles	0.10	4.8	14.6
Percent cultivated land leased		2.7	4.2
Percent cultivated land with registered tenants	0.02	1.4	5.0
Percent hh's registered	0.05	2.3	3.7
Percent tenants registered		43.4	51.2

Note:

^a Available for only 34 villages.

Source: Block Land Records Offices for land reforms implemented; indirect survey for number of households and total cultivable area.

TABLE 5—TIME PROFILE OF LAND REFORM IMPLEMENTATION

Period	Number villages titling	Percent households titled	Percent cult. area titling	Number villages registering	Percent households registered	Percent cult. area registered
1974–77	36	7.63	1.71	35	3.36	2.96
1978–83	34	9.81	3.37	51	2.87	3.71
1983–88	38	4.56	1.34	35	1.03	0.93
1988–93	37	3.08	0.55	21	0.43	0.24
1993–98	20	1.26	0.18	10	0.12	0.08

Source: Block Land Records Offices for land reforms; indirect survey for number of households, total cultivable area.

constrain the distribution of land titles; instead political will did. In particular, popular accounts indicate that personal rent-seeking motives of local government officials played a role.

Equally surprising is how small the titling program was in comparison to the changes in land distribution occurring through market sales and/or household subdivision. Recall from Table 2 that the proportion of nontitled land (i.e., by which we mean non-*patta* land) in medium and big holdings declined by about 20 percent, through land sales or subdivision, and fragmentation of landholdings resulting from splitting of households. This “market” process was thus almost four to six times as large as the redistribution achieved by the *patta* program, and thus unlikely to have been “caused” by the latter. Accordingly we use the distribution of nontitled (i.e., non-*patta*) land as an independent determinant of voter demand for land reform.

Turning now to the tenancy registration program, we confront the problem that the maximum feasible scope of the program, i.e., the extent of land under tenancy in any given village, is likely to be measured with considerable error owing to the reluctance of landlords and tenants to disclose their relationship to third parties.¹⁵ We use as a measure of tenancy the total extent of leasing reported in the indirect survey. That this results in an underestimate of the true extent of tenancy is indicated by the fact that more land appears to have been registered under *Operation Barga* than

conversations with Debu Bandyopadhyaya, the Land Reforms Commissioner during the late 1970s and early 1980s. We have also recently heard such accounts in the course of our currently ongoing surveys of these villages.

¹⁵ This is especially true in a context where the Left parties dominate local politics, in which landlords are viewed as “class enemies” and exploiters of the poor. Those leasing lands therefore seek to do so on condition that their tenants not disclose the lease to others in the village.

was reported in the survey. Table 4 shows that the proportion of cultivable land registered was 5.0 percent, whereas the proportion of cultivable area reported under tenancy in the indirect survey was 4.2 percent.¹⁶ Since the data on the number of households and cultivable land area is likely to be far more reliable, we use these as bases to assess the extent of land reforms implemented rather than reported tenancy. Our empirical analysis thus uses the proportion of village cultivated area and of number of households that were registered as measures of tenancy registration effort.

Table 4 also provides an indication of the relative significance of the titling and tenancy registration programs. The tenancy registration program represented approximately the same land area (between five and six percent), but benefited a far lower proportion of households (3.7 percent rather than 14.6 percent). The titling program benefited one in every seven households in the village by 1998, in contrast to one in 25 for the tenancy registration program. The reason is that the area of plots distributed was far smaller on average than the plots registered for tenancy. Hence the titling program was politically more significant in this sense.

Regarding the timing of the reforms, Table 4 shows that very little had been implemented prior to 1974. The bulk of the reforms occurred between 1974 and 1988. Contrary to general impressions, a significant amount were implemented prior to 1977, when the Congress controlled the process. Hence it makes sense to use the time span 1974–1998 for our analysis, with possibly a structural break in 1978 when elected local governments came into being. We shall thus present results for both 1974–1998 and 1978–1998 periods. Table 5 also shows that more than half the villages experienced no land reforms at all in any given GP administration. This indicates the need to incorporate endogenous censoring in the empirical analysis.

D. Preliminary Regressions of Land Reform on Left Share

To obtain a preliminary feel for the relationship between land reform implementation and Left control of GPs, Table 6 presents simple regressions of different measures of land reforms implemented with respect to the Left share of GP seats. The different measures include proportion of nontitled (i.e., non-*patta*) cultivable land and proportion of households covered by either titling or tenancy registration programs.

Owing to the significant censoring in the data, we report results of Tobit regressions. The cross-section Tobits aggregate across the entire 20-year period 1978–1998, while the panel Tobits aggregate within each five-year period spanning a single GP administration¹⁷ and use dummies for districts as well as for the four time blocks.¹⁸ The cross-section titling Tobits control for the proportion of land vested by 1978 which represented the land available for distribution, and the population density in 1978 which represents a measure of the demographic pressure for land distribution. The cross-section tenancy registration regressions control for the extent of unregistered land or households in 1978, which represented the potential for registration.

¹⁶ Comparisons with other data sources concerning the extent of tenancy provide another way of gauging the extent of underreporting of tenancy in the indirect survey. For West Bengal as a whole, the Operational Holdings survey of the National Sample Survey (NSS) for the year 1991–1992 indicates that 14 percent of all operational holdings (and 10.4 percent of the area) was leased in. Of these 3.7 percent were fixed rent tenants, while 8.8 percent were sharecroppers. Of the total area leased in, about 48 percent was on sharecropped contracts, and 19 percent on fixed rent contracts. Hence, on the basis of the NSS estimates, the extent of sharecropping tenancy in the state seems to have been of the order of five percent of operational area. In light of this, our estimates of the coverage of the tenancy registration program do not seem unreasonably low.

¹⁷ Election years are treated as part of the time block of the outgoing administration, given the existence of lags arising from legal delays and the fact that a new administration usually assumes office in the second half of the year.

¹⁸ We do not use village fixed effects because of the well known inconsistency of Tobit estimators with village fixed effects. The number of fixed effects to be estimated declines substantially when they are at the level of the district: consistency of the estimator refers to limiting properties as the number of villages per district grows large, assuming that all the unobserved heterogeneity arises at the district rather than village level.

TABLE 6—SIMPLE TOBIT REGRESSIONS OF LAND REFORM ON LEFT SHARE OF GP SEATS

	Percent land titled		Percent households titled		Percent land registered		Percent households registered	
	Cross section	Tobit dist FE	Cross section	Tobit dist FE	Cross section	Tobit dist FE	Cross section	Tobit dist FE
Percent left	1.08 (0.95)	0.02 (0.12)	1.64 (1.20)	0.23 (0.26)	2.43 (3.24)	0.06 (0.14)	-0.18 (0.44)	0.08 (0.11)
Percent left sq.	-0.87 (0.80)	-0.03 (0.10)	-1.22 (1.01)	-0.26 (0.22)	-1.70 (2.71)	-0.10 (0.12)	0.22 (0.37)	-0.11 (0.09)
Total observations	89	351	89	351	89	351	89	351
Censored obs.	13	225	13	225	19	239	19	239
Turning point	62	39	67	45	72	30	40	33

Notes: Data are aggregated into five-year time blocks representing successive GPs. Tobit estimates, with district fixed effects (Dist FE) and time dummies included in panel are not reported here. Titling cross-sections control for percent land vested and population density in 1978. Cross-sections control for percent unregistered land per household and population density in 1978. Standard errors in parentheses.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

In no case do we see evidence of a statistically significant relationship of land reforms implemented with Left control of the local GP. The point estimates of the regression coefficients imply that this relationship takes the form of an inverted U, with a turning point at or below the mean (and median) Left share. This implies that *for the majority of the sample, higher Left control was associated, if at all, with less land reform*. This is contrary to both the pure “ideology” model and the pure Downsian model. Of course, the absence of a statistically significant relationship may be viewed as consistent with the Downsian model. But one cannot rely entirely on these simple regressions: a more careful empirical analysis is needed to assess the relationship between party composition and policy outcomes, involving appropriate specification of the regressions, choice of controls, treatment for endogenous censoring and possible endogeneity of the Left share. For this one needs a theoretical framework.

II. Theoretical Model

In this section we develop a model which generalizes the Downsian theory of two-party competition to accommodate heterogeneous policy preferences of candidates, and moral hazard or rent seeking among elected officials. The model nests Downsian and “ideology” theories as special cases and is shown to be consistent with an inverted-U relationship suggested by the preliminary regressions above. We use this model thereafter to formulate the regression specifications in the following section.

We extend the Grossman and Helpman (1996) model of two-party electoral competition with probabilistic voting to accommodate differing policy preferences across the two parties, as well as rent seeking or moral hazard among elected officials. Consider any village v with total voter population normalized to unity, where voters belong to different landowning classes $c = l, g, s, m, b$ consisting respectively of the landless, marginal, small, medium, and big landowners. The last category consists of those holding land above the legislated ceiling, from whom the government may seek to vest lands and distribute to the landless. The demographic weight of class c is α_c . Elected governments select a policy π from some policy space P . Preferences of a voter in class c are represented by utility $U_c(\pi)$. It will be convenient to represent the policy space

by some one-dimensional measure of the extent of land reform, though most of the theory applies to higher dimensional policy spaces as well.

There are two parties denoted L and R . Let the policy of a party p candidate or elected official be denoted π_p . These either represent the policy platform of the candidate prior to the election, which the candidate is committed to in the event of being elected, or represent the policy actually carried out by the candidate while currently in office. In this case, we shall assume that voters project the current policies into their future expectations, so voting behavior in the next election is determined by these policies.

A fraction τ_c of class c voters turn out to vote in the election. Of these, a further fraction β_c are *aware* voters, who vote partly on the basis of personal policy preferences over policy platforms (or current policies pursued), and partly according to predetermined party loyalties. The remaining voters vote purely on the basis of party loyalties, which are influenced by election campaign mobilization efforts of the two parties: we call them *impressionable* voters.¹⁹

Within village v , predetermined voter loyalty to the party L candidate is assumed to be distributed uniformly with density f_c (which may be specific to the class c the voter belongs to) and mean ϵ_{ct}^d . An aware voter in class c with loyalty ϵ votes for the L party candidate if $U_c(\pi_L) + \epsilon > U_c(\pi_R)$. Given campaign sizes M_L, M_R of the two parties, an impressionable voter with relative loyalty ϵ to the Left party votes for that party as long as $\epsilon + h[M_L - M_R] > 0$, where $h > 0$ is a given parameter.

The resulting vote share of the Left party is then

$$(1) \quad \frac{1}{2} + \frac{1}{\sum_c \alpha_c \tau_c} \left[\sum_c \alpha_c \frac{\tau_c}{f_c} \epsilon_{ct}^d + \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} \{U_c(\pi_L) - U_c(\pi_R)\} \right. \\ \left. + h \sum_c \alpha_c \frac{\tau_c (1 - \beta_c)}{f_c} (M_L - M_R) \right].$$

Denote by $\chi \equiv h \sum_c \alpha_c \tau_c (1 - \beta_c) f_c$ a parameter which represents the value of electoral campaigns in mobilizing voters, which is proportional to the fraction of impressionable voters. Then the vote share expression can be simplified to

$$(2) \quad V_L = \frac{1}{2} + \frac{1}{\sum_c \alpha_c \tau_c} \left[\sum_c \alpha_c \frac{\tau_c}{f_c} \epsilon_{ct}^d + \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} \{U_c(\pi_L) - U_c(\pi_R)\} + \chi (M_L - M_R) \right].$$

In contrast to the Grossman-Helpman theory, we assume that campaigns are financed by parties themselves, rather than from contributions raised from special interest groups. It can, however, be shown that similar results obtain in the presence of campaigns financed by special interests, as shown in an earlier version of this paper.

Vote shares determine the probability ϕ_L of the Left party winning the election, according to $\phi_L = \phi(V_L)$, a strictly increasing, continuously differentiable function. The presence of randomness in election turnout and errors in vote counting cause this function to be smooth rather than a 0–1 discontinuous function.

Turn now to the objectives of parties. In the pure Downsian model, each party has no intrinsic policy preferences, seeking only to maximize the probability of being elected. In the ideology model, parties have intrinsic preferences over policy choices. For expositional convenience, however, we shall refer to these as “ideology,” represented by a set of welfare weights w_c^i assigned by

¹⁹ Grossman and Helpman refer to them as “informed” and “uninformed” in their 1996 article, and as “strategic” and “impressionable” in their 2001 book.

party i to the interests of class c . It is natural to suppose that the Left party assigns greater weight to classes owning less land, with the opposite true for the Right party, so the ideologically desired policies by the two parties are ordered, with the Left party desiring greater land reform: $\pi_L^* > \pi_R^*$ where π_i^* maximizes $\sum_c \alpha_c w_c^i U_c(\pi)$.

Besides ideology, elected officials are also subject to moral hazard, arising from private costs to elected officials (either effort or forgone rents) that depend upon the extent of land reform: $e = e(\pi)$. Party objectives thus represent a mixture of opportunism, ideology, and moral hazard. The opportunistic component arises from the opportunity to earn rents while in office. Part of these rents is exogenously fixed and denoted E_i for party i . These could represent “ego-rents,” or pecuniary rents arising from the power of officials over other areas of policy apart from land reform. The remaining variable rent component is represented by $-e_i(\pi)$. Hence, the total rent is $E_i - e_i(\pi)$.

Finally, the two parties may differ with respect to their respective costs of election campaigns: we assume a campaign of size M_i costs party i an amount $\theta_i M_i$, where θ_i is a given parameter representing the party’s skill (or lack thereof) in raising funds and organizing campaigns. The ex ante payoff of party i (with $j \neq i$) denoting the other party, and $\phi_i, \phi_j \equiv 1 - \phi_i$ their respective win probabilities, is then

$$(3) \quad O_i(\pi_i, M_i; \pi_j, M_j) = \phi_i \left[\sum_c \alpha_c w_c^i U_c(\pi_i) - e_i(\pi_i) + E_i \right] \\ + (1 - \phi_i) \sum_c \alpha_c w_c^i U_c(\pi_j) - \theta_i M_i.$$

This formulation presumes that parties commit to policy platforms in advance of the election. The same characterization of equilibrium policy choices holds when such commitment is not possible: if voters forecast future policies from current ones, the vote shares in the *next* election are given by the same function (2) of current policy choices. Let D_i denote the expected rents from future office, and δ_i the discount factor of a party i incumbent. Then this incumbent will select π_i, M_i to maximize

$$(4) \quad \sum_c \alpha_c w_c^i U_c(\pi_i) - e_i(\pi_i) + E_i - \theta_i M_i + \delta_i \phi_i (V_i) D_i.$$

This model nests different polar theories of political competition. The Downsian model obtains when we assume that candidates have no ideological preferences ($w_c^i \equiv 0$), nor any policy-related sources of personal rents ($e_i(\pi_i) \equiv 0$).²⁰ The pure ideology model obtains when incumbents cannot commit to their future policies, earn no rents ($E_i = e_i \equiv 0$), and discount the future at a high enough rate that they ignore implications of current policy choices on future reelection prospects ($\delta_i \equiv 0$).

The more general version presented here admits a hybrid of electoral opportunism, rent seeking, and party-specific policy preferences. The ingredients we add to the model can all be justified by an appeal to the reality of the West Bengal political context, besides the need to accommodate the facts. It is well known that the Left parties have been subject to internal debate concerning the need to strike a balance between traditional ideology and opportunism.²¹ As a reading of

²⁰ Then with commitment the payoff of i reduces to maximization of $\phi_i E_i - \theta_i M_i$, and with no commitment reduces to maximization of $\delta_i \phi_i E_i - \theta_i M_i$. Hence the policy π_i chosen by i must maximize the probability of winning ϕ_i . Expression (2) shows that both parties will select the same policy π^* which maximizes $\sum_c \alpha_c \gamma_c U_c(\pi)$, where $\gamma_c \equiv \tau_c \beta_c f_c$.

²¹ See, e.g., Marcus Franda (1971); Partha Chatterjee (1984); T. J. Nossiter (1988); Georges K. Lietaen (1992, 128–133); and Dwaipayan Bhattacharya (1999). The transition of the CPI(M) from a revolutionary party in the 1940s to subsequent capture and consolidation of the state government is generally attributed to the pragmatism of its leaders

Lindbeck and Weibull (1993) and Dixit and Londregan (1998) indicates, such a model is quite complex, and it is not evident from their results whether such a model can account for the empirical findings reported in the previous Section. That is the question we now pose. The following proposition represents the main prediction of the hybrid model concerning equilibrium policy choices.

PROPOSITION 1: *Consider any equilibrium of the hybrid ideology-competition model (either with or without policy commitment) in which both parties select positive campaign levels, voter utilities are differentiable, and the policy space is an open interval of a Euclidean space. The policy choice π_i^* of party i will maximize*

$$(5) \quad \sum_c \alpha_c \mu_c^i U_c(\pi) - e_i(\pi)$$

where the welfare weights are given by

$$(6) \quad \mu_c^i = w_c^i + \frac{\theta_i}{\chi \phi_i^*} \frac{\tau_c \beta_c}{f_c}$$

and ϕ_i^* denotes the equilibrium probability of party i winning.

PROOF OF PROPOSITION 1:

Consider the version with policy commitment, where the payoffs are given by (3); an analogous argument applies in the no-commitment case (with payoffs (4)). Note that the payoff of party i can be written as $\phi(V_i)D_i + \sum_c \alpha_c w_c^i U_c(\pi_j) - \theta_i M_i$, where $D_i \equiv \sum_c \alpha_c w_c^i \{U_c(\pi_i^*) - U_c(\pi_j^*)\} - e_i(\pi_i^*) + E_i$ denotes the winning stakes for party i . The first order condition with respect to choice of campaign level M_i yields $\phi_i' D_i \chi = \theta_i$. The first order condition for policy choice yields

$$(7) \quad \frac{\phi_i' D_i}{\sum_c \alpha_c \tau_c} \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} \frac{\partial U_c}{\partial \pi_i} + \phi_i^* \left[\sum_c \alpha_c w_c^i \frac{\partial U_c}{\partial \pi_i} - e_i'(\pi_i) \right] = 0.$$

Using the property that $\phi_i' D_i = \theta_i / \chi$, the first order condition for the policy choice can be written as

$$(8) \quad \sum_c \alpha_c \left[w_c^i \phi_i^* + \frac{\theta_i}{\chi} \frac{\tau_c \beta_c}{f_c} \right] \frac{\partial U_c}{\partial \pi_i} = \phi_i^* e_i'(\pi_i)$$

from which the result follows.

Equilibrium winning probabilities ϕ_i^* will depend in turn on chosen policies, election campaigns, and patterns of voter loyalties, as represented by the expression for vote shares (2). These

Jyoti Basu and Promode Dasgupta who consciously chose an approach that would secure widespread political support with voters, at the cost of disenchantment of some of the party's ideologues. Lietaen provides some of the internal critiques of the Left Front government's performance from those disillusioned with its compromise with traditional ideology. Bhattacharya describes the political transition of the CPI(M) in West Bengal as pursuing the "politics of middleness."

are jointly determined along with equilibrium policies and campaign sizes. Nevertheless, equilibrium policy choices π_i^* have the property that they maximize

$$(9) \quad \sum_c \alpha_c \mu_c^i U_c(\pi_i) - e_i(\pi_i),$$

a mixture of ideological, opportunistic and rent-seeking motives. Expression (6) shows the implicit welfare weight μ_c^i on interests of class c voters equals the sum of an ideological component w_c^i and an opportunistic component $\tau_c \beta_c / f_c$ representing voter awareness, turnout, and swing factors. The opportunistic component is weighted relative to the ideology or rent-seeking components by the factor $\theta_i / \chi \phi_i^*$, which declines as the probability of winning ϕ_i^* rises. A ceteris paribus shift in voter loyalty to party i will raise its equilibrium win probability, inducing a lower weight on the opportunistic component. This will result in greater focus on ideology and rent seeking.

What are the implications for observed land reform outcomes? It is reasonable to assume that the actual policy pursued by a GP is a compromise between the policies pursued by candidates of the two respective parties, with weights that reflect the strengths of the two parties in the GP. Let the weight on party i 's policy choice be denoted by $q_i = q(\phi_i^*)$, an increasing function of party i 's share of GP seats, lying between 0 and 1, and with the property that $q(0) = 0$, $q(1) = 1$. The observed land reform outcome π^* in the GP is given by

$$(10) \quad \pi^* = q(\phi_i^*)\pi_i^* + [1 - q(\phi_i^*)]\pi_j^*.$$

Let π_i^I denote the ideal policy for party i which it would pursue in the absence of any opportunistic motive, i.e., which maximizes $\sum_c \alpha_c w_c^i U_c(\pi) - e_i(\pi)$. And let π^D denote the Downsian equilibrium policy outcome, which maximizes $\sum_c \alpha_c (\tau_c / f_c) U_c(\pi)$. Note that the Downsian policy does not incorporate the personal rents of elected officials. If the extent of land reform π is a one dimensional variable then for reasons explained above one would expect $e_i(\pi)$ to be an increasing function. Then the extent of land reform will tend to be underprovided as a result of the political moral hazard problem. This will be mitigated only if party i has a sufficient ideological preference for the reform.

Consider the case where the political moral hazard problem dominates ideological considerations, in the sense that the Downsian policy π^D strictly exceeds the ideal policy π_i^I of both parties $i = L, R$. This is illustrated in Figure 1. Call this Case 1 from now on. Here a rise in its win probability causes the equilibrium policy of the Left to move closer to its own desired policy π_L^I , i.e., it carries out less land reform. At the same time the Right party will implement more land reform in order to recover ground with voters. If the Left party was carrying out more land reform initially, the gap between the two parties will narrow. As voters continue to shift loyalty to the Left party, eventually the gap will vanish and then get reversed, with the Right party carrying out more land reform than the Left.²²

The comparative static effect is different in the other case (referred to as Case 2) where the moral hazard effect is weaker than the ideological effect so that the Left party intrinsically desires more redistribution than the Downsian mean voter ($\pi_L^I > \pi^D$). Suppose that the Right party still desires less redistribution than the Downsian outcome. Then an increase in its win probability motivates the Left party to carry out more redistribution. The Right party also wishes to carry out

²² The reason is that (by virtue of Proposition 1) as the win probability of the Left party approaches one, the equilibrium policy of the Left party will approach its own desired level π_L^I , while the Right party will approach the Downsian policy π^D . Hence, there will exist some value of ϕ_L^I where their respective policies will cross.

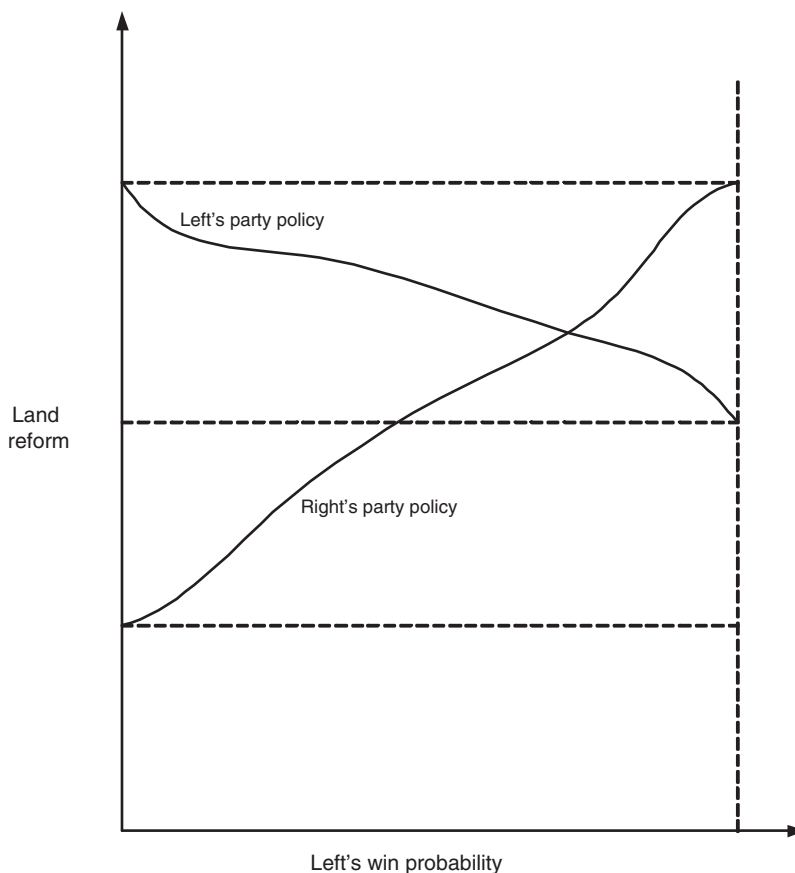


FIGURE 1 CASE 1. POLITICAL MORAL HAZARD EFFECT DOMINATES

more redistribution. In this case both parties carry out more land reform with a shift in voter loyalty to the Left, as illustrated in Figure 2. Moreover here the Left party will always carry out more redistribution than the Right party (since the Left will always want to carry out more than the Downsian policy, and the Right party less than the Downsian policy). In this case the results will be akin to the pure ideology model: there will be a monotone, increasing relationship between Left share of GP seats and the extent of land reform.

III. Testing the Model

The first step in empirical testing is to incorporate possible endogeneity of the Left share. Unobserved determinants of citizen preferences for land reform could be correlated with loyalties to the Left Front alliance. Normally one would expect that these would be positively correlated, in which case the bias in estimating the coefficient is positive. The absence of a positive observed relation of land reform with Left share would be consistent with the pure ideology hypothesis only if unobserved preferences for land reform were negatively correlated with the success of the Left Front. This seems rather farfetched, given the stated ideology and constituencies represented by the two parties. Nevertheless, just to be sure, we need to obtain instruments for the Left share.

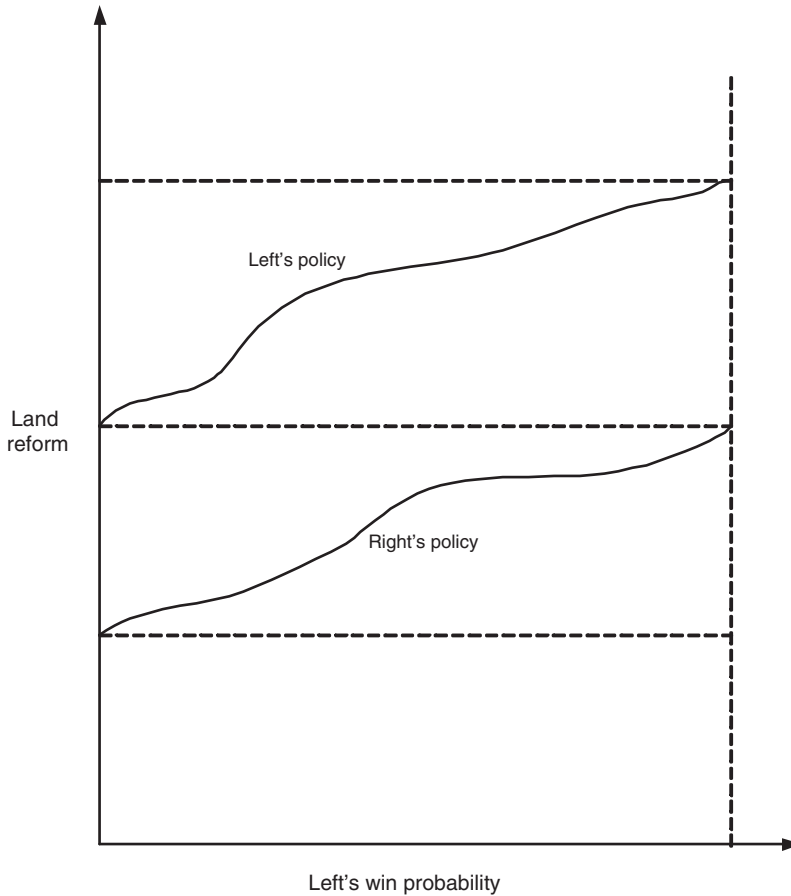


FIGURE 2 CASE 2. IDEOLOGY DOMINATES

A. Predicting Success of the Left in Local Elections

Probabilistic voting models allow voting behavior to reflect both loyalties of voters to different parties for various exogenous reasons (such as historical factors, incumbency, the specific characteristics of candidates etc.), as well as their policy preferences. We can therefore search for determinants of voter loyalty to the Left that reflect factors external to the village, or historical circumstances orthogonal to issues affecting the current election. The Left and Congress contest elections at various different levels above the GP, such as the state and federal legislatures (which we shall henceforth refer to as the assembly and Parliament respectively). These elections are staggered across different years: the assembly elections are typically held one or two years before the GP elections (they were held in 1977, 1982, 1987, 1991, and 1996). The Left and the Congress were the principal adversaries in the state assembly elections, as well as elections for seats representing West Bengal constituencies in the national Parliament.

Given that local government elections were introduced for the first time in 1978, and that most voters in India tend to view politics in terms of state or national rather than local issues, it is plausible to suppose that voter loyalties to the two rival parties in local elections were determined

TABLE 7—LEFT SHARE REGRESSIONS

	Cross-section (OLS)	Panel (Ar-Bond)	Panel (Ar-Bond)	Panel (Ar-Bond)
Assembly vote share difference (AVSD)	1.32*** (0.40)			1.93** (0.90)
Percent cong seats in Parliament		-0.69*** (0.23)	-0.77*** (0.27)	-0.44 (0.31)
Percent cong seats Parliament × lagged GP Left share		1.64*** (0.36)	1.69*** (0.40)	1.44*** (0.47)
Lagged Left share in GP		-0.87*** (0.22)	-0.93*** (0.23)	-0.66* (0.34)
Observations (GPs)	57	221 (56)	221 (56)	221 (56)
Wald stat (d.f.)	4.87 (9)	56.54 (4)	395.32 (12)	2,049.48 (13)
<i>p</i> -value, second order Serial corr. diff. residuals		0.77	0.95	0.87

Notes: Robust standard errors clustered at district level in parentheses. Controls include interpolated values of percent households in the village that were landless, marginal, small, and medium landowners, as defined in notes to Table 2; percent non-*patta* land in holdings below 5 acres, and above 12.5 acres respectively; proportion households whose heads were illiterate and who were either landless or marginal landowners; and proportion of households belonging to scheduled castes and tribes.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

to a considerable extent by regional or national issues. These are proxied by the relative strength of the two parties in the national Parliament. The Congress formed the national government between 1980 and 1984 and reinforced its position between 1984 and 1989 following the assassination of Indira Gandhi in 1984. Between 1989 and 1991 a non-Congress government prevailed at the national level, representing a coalition of different regional parties supported by the West Bengal Left Front. Then again from 1991 until 1996 the Congress formed a government at the national level, with the Left in the opposition.

The fluctuating strength of the two parties in Parliament had considerable implications for relations between the central and the state government over fiscal transfers or execution of central government projects in the state, which would be likely to have significant spillovers into inflation, employment, and public services. The Congress party can obtain an advantage in local elections from shifts in voter loyalty towards the Congress in general owing to national events. Conversely, Left candidates can blame a Congress-inclusive coalition central government for starving the state of fiscal transfers or public investments and use this in their election rhetoric in order to mobilize voters against the Congress party.

Table 7 presents regressions predicting Left control of local GPs, on the basis of a variety of factors both external and internal to the villages in question. The external factors include the proportion of seats secured by the Congress in the currently elected national Parliament. We also include the average vote share difference (AVSD, hereafter) between Left and Congress candidates in the immediately preceding state assembly elections, averaged at the district level, as a proxy for prevailing voter loyalty to the two parties on the basis of district, state, or national issues. State assembly elections are held every five years but interspersed with elections to local governments. There is typically a two- or three-year period separating assembly elections and GP elections. The AVSD from the last state assembly election provides a signal of the competitive strength of the two parties in the corresponding assembly constituency. To remove the influence

of issues concerning the local area in which a GP is located, we average the AVSD across all constituencies in the district.²³

Local factors that may affect electoral success of the Left in GP elections include incumbency patterns in the GP, besides land distribution, literacy, and caste in the village. The regressions interact local incumbency with the share of the Congress in national Parliament seats, since (as argued above) voters' reaction to changes in national politics are likely to depend on which party dominates the local area.

Table 7 shows results of the GP Left share regression applied to five successive GP elections (1978, 1983, 1988, 1993, and 1998). The regressions control for village land distribution, illiteracy rate among landless, marginal, and small landowners, and proportion of households in scheduled castes and tribes. The first column shows cross-section least squares results, while the remaining three show the panel estimates (which include village dummies). In the panel we use the estimator proposed by Manuel Arellano and Stephen Bond (1991) to avoid the bias that arises from a lagged dependent variable (incumbency, i.e., Left share in the previous GP election) as a regressor. The hypothesis of lack of first-order serial correlation in the time-varying errors (equivalently lack of second-order correlation in the differenced residuals) is not rejected (the p -value of the test is 0.77).

The cross-section regression shows that the assembly vote share difference at the district level was a strong predictor of local GP outcomes. The panel regressions in the remaining columns of Table 7 replace or augment the district voter loyalty variable with its underlying determinants. The second and third columns show that changing fortunes of the Left in GP elections (conditional on incumbency patterns) were predicted by changes in national politics—the presence of Congress in national Parliament—rather than changes in village characteristics.²⁴ The nature of this dependence is intuitively plausible: rising Congress fortunes at the national level helped the Congress in GP elections in constituencies where they were already strong. A rise in the presence of the Congress at the national level also benefited the Left party in areas where the Left was traditionally powerful. This probably reflects ability of the Left to gain mileage with voters by blaming a Congress-dominated national government for local problems. The last column of Table 7 shows that even after controlling for these factors, the district level vote share difference in the previous assembly elections remains significant as a determinant of Left share in the GP election. Conversely, controlling for the assembly vote share difference, the presence of the Congress in national Parliament interacted with local incumbency patterns continue to be a significant predictor of GP election outcomes.

B. Instrumental Variable Estimates of the Land Reform-Left GP Share Relationship

The preceding results suggest that external and historical factors driving the fluctuations in Left control of local GPs could be used as instruments to correct for potential endogeneity of the Left share variable in the land reform regression. This requires the assumption that these factors were unrelated to village-specific time-varying factors affecting land reforms, after controlling for their effects on GP election outcomes. This assumption seems credible for the presence of Congress in the national Parliament. This variable reflects the growing importance of coalition politics at the national level and other events in the rest of the country.²⁵ Add to this the fact that West Bengal

²³ There are approximately 20 assembly constituencies (and 200 GPs) per district.

²⁴ Inclusion of lagged land reform in the village concerned on the right-hand side did not yield a significant coefficient either, irrespective of whether it was included by itself or in interaction with incumbency.

²⁵ These include secessionist movements in Punjab and Kashmir, the assassinations of Indira Gandhi and Rajiv Gandhi which subsequently created a pro-Congress wave, rising power of regional parties and the Bharatiya Janata Party in other parts of India, and border tensions with Pakistan.

accounts for only 42 out of 540 seats in the national Parliament, and that most seats secured by the Congress in Parliament were from other states, and the likelihood of reverse causality is remote.

The exclusion restriction requires that the instruments, changes in Congress presence in national Parliament in conjunction with lagged Left share of GP seats, were uncorrelated with unobserved determinants of year-to-year changes in land reform implemented in villages, after controlling for village and time dummies and local distribution of land, caste, and literacy. Congress presence in national Parliament could of course affect macroeconomic variables such as inflation and unemployment, which in turn could affect poverty and income distribution in villages, and hence the political demand for land reform. They could also affect fiscal transfers to the state of West Bengal and investment projects funded by the central government. But these would affect all villages within West Bengal in the same way and would therefore be picked up by the time dummies.²⁶

Moreover, Table 7 shows we cannot reject the hypothesis of absence of serial correlation in the Left share regression after controlling for village fixed effects. Combined with the assumption of zero serial correlation in unobservables in both land reform Left share regressions after controlling for village and time dummies, incumbency (lagged Left share) also satisfies the exclusion restriction.²⁷

Accordingly, we use the second column of Table 7 to predict the Left share in each GP, and then use these in a second-stage instrumental variable land reform–Left share regression.²⁸

C. Regression Specification

We now describe the regression specification implied by the theory. Recall equation (policy) which generates the land reform outcome in any village as a function of the Left share of the GP, and the policies pursued by the two parties. For village v in year t :

$$(11) \quad \pi_{vt} = q(LS_{vt})(\pi_{vt}^L - \pi_{vt}^R) + \pi_{vt}^R$$

where we use a quadratic formulation $q(l) \equiv al + bl^2, l \in [0, 1]$ for Left control.

The Left share of GP seats is jointly determined along with the policies chosen by the two parties, besides determinants of voter loyalties. Shifting voter loyalties also affect equilibrium policy choices in the model, by affecting relative competitive strength of the two parties. Recall that policies are chosen by elected officials in a given administration partly with an eye to their reelection prospects in the *next* election. Hence the implicit welfare weights in (6) are based on the best estimate available to the officials of their win probability in the next election. Let LD_{vt} denote a signal available to parties concerning voter loyalty to the Left relative to the Congress. Also let S_{vt} denote a vector of distributional characteristics pertaining to land, literacy, and caste in village v in year t . The policy of the Right party can then be represented by

$$(12) \quad \pi_{vt}^R = \lambda_0 + \lambda_1 LD_{vt} + \lambda_2 S_{vt} + \eta_{vt}^R$$

²⁶ Transfers to local governments are made by the state government, and central government transfers are routed through the state government. The national government thus has little discretion to alter allocation of transfers across local governments within any given state. It is therefore unlikely that changes in the role of Congress in the national government would affect resource transfers or investment projects to different villages within West Bengal differently.

²⁷ In other words, the assumption is that the village fixed effects soak up all the serial correlation in unobserved factors, in both the Left share and land reform regressions. This was empirically verified in the case of the Left share regression. Note that no restriction is needed for contemporaneous correlation of time-varying unobservables across the two equations.

²⁸ The correlation between the predicted and observed changes was 0.32.

and the divergence in policies between the two parties by

$$(13) \quad \pi_{vt}^L - \pi_{vt}^R = \mu_0 + \mu_1 LD_{vt} + \mu_2 S_{vt} + \eta_{vt}^d,$$

where η_{vt}^R, η_{vt}^d denote regression residuals.

Combining the policy equations with (11), we obtain the following prediction for land reform:

$$(14) \quad \begin{aligned} \pi_{vt} = & \lambda_0 + \lambda_1 LD_{vt} + \lambda_2 S_{vt} \\ & + \mu_0 q(LS_{vt}) + \mu_1 LD_{vt} q(LS_{vt}) + \mu_2 S_{vt} q(LS_{vt}) + \eta_{vt}. \end{aligned}$$

The coefficient μ_1 represents the interaction between moral hazard and competition missing in the pure Downsian and ideology models. The Downsian model predicts no policy divergence ($\mu_0 = \mu_1 = \mu_2 = 0$) and irrelevance of voter loyalties ($\lambda_1 = 0$). The pure ideology model also implies irrelevance of voter loyalties ($\mu_1 = \lambda_1 = 0$), while policy divergence is predicted ($\mu_0 \neq 0, \mu_2 \neq 0$). The hybrid model predicts that voter loyalties matter for policy. If political moral hazard is severe enough in the sense explained in the previous section, $\lambda_1 > 0, \mu_1 < 0$.

Note that in the presence of significant interactions between moral hazard and competition, the land reform regression estimated previously was misspecified. The interaction effects are correlated with the Left share variable, causing the estimated coefficient of $q(LS_{vt})$ to be biased. The sign of this bias depends on the sign of the interaction effect. If Case 1 applies, the moral hazard–competition interaction causes policy divergence to narrow and get reversed when voters shift loyalty to the Left, causing a downward bias in the estimated coefficient μ_0 .

D. Empirical Results

To operationalize this approach, we need a variable representing LD_{vt} , a measure of relative voter loyalties to the Left available to elected officials prior to the election. One possible proxy is $AVSD_{vt}$, the average vote share difference between the two parties in the preceding state assembly elections in the local area. Another is LS_{vt} , the proportion of seats secured by the Left in the local GP in the preceding panchayat election. Either or both of these could be used. We prefer to use the former, the assembly vote share difference, for a number of reasons. First, with state assembly elections held halfway between panchayat elections, the most recent assembly results provide a more up-to-date signal of voter loyalties for at least the second half of the current GP administration. In addition, the interaction term can be simply interpreted as the extent to which rising competitive strength within a broader area and context (the district assembly elections) motivates a slackening of land reform effort. Second, using LS_{vt} would imply that the key interaction between $q(LS_{vt})$ would reduce to a higher-order term involving LS_{vt} . This interaction would then be difficult to distinguish from (a higher-order term in a polynomial approximation to) the effect of Left control of the local GP represented by $q(LS_{vt})$.²⁹

One useful indication of pressures of electoral competition is the presence of spikes of reform effort in periods immediately preceding elections. Such spikes are difficult to reconcile with the intrinsic policy preferences or ideological concerns. We shall therefore run the regression on data at

²⁹ It is difficult to know for sure the exact nature of nonlinearity of $q(\cdot)$, i.e., the way that the control of the GP varies with the Left share of seats. Moreover, if $q(\cdot)$ is represented by a quadratic, the interaction term would reduce to a cubic term in LS_{vt} , which would also raise multicollinearity problems and reduce statistical precision.

TABLE 8—LINEAR AND TLAD TOBIT REGRESSIONS FOR TITLING PROGRAM YEARLY DATA 1978–1998

	Percent land titled			Percent households titled		
	Linear IV	TLAD non-IV	TLAD IV	Linear IV	TLAD non-IV	TLAD IV
Percent LF in GP	–0.002	1.44	–2.34	0.09	1.72	0.55
standard error	(0.04)	(0.90)	(1.50)	(0.08)	(1.07)	(1.40)
block-bootstrapped standard error	(0.04)	(2.07)	(2.94)	(0.11)	(1.56)	(2.26)
Percent LF sq.	–0.01	–2.30	0.53	–0.09	–2.51	–0.98
standard error	(0.03)	(1.01)**	(1.21)	(0.06)	(1.08)**	(1.03)
block-bootstrapped standard error	(0.03)	(1.78)	(2.28)	(0.08)	(1.43)*	(1.59)
AVSD × percent LF	–0.12	–13.46	–2.69	–0.52	–12.64	–2.69
standard error	(0.10)	(11.31)	(13.37)	(0.46)	(6.26)**	(10.05)
block-bootstrapped standard error	(0.18)	(15.32)	(13.75)	(0.58)	(9.49)	(12.68)
AVSD × percent LF sq.	0.15	16.17	8.57	0.63	15.89	7.02
standard error	(0.09)	(8.59)*	(11.29)	(0.39)*	(6.57)**	(7.66)
block-bootstrapped standard error	(0.16)	(12.64)	(10.36)	(0.48)	(8.43)*	(9.47)
AVSD	–0.03	–0.52	–4.63	–0.12	–1.48	–4.07
standard error	(0.03)	(3.67)	(3.57)	(0.12)	(1.36)	(2.98)
block-bootstrapped standard error	(0.05)	(4.01)	(5.21)	(0.16)	(2.91)	(4.29)
Election year dummy	–0.001	–0.06	–0.05	–0.004	–0.06	–0.07
standard error	(0.001)	(0.08)	(0.10)	(0.003)	(0.06)	(0.06)
block-bootstrapped standard error	(0.001)	(0.07)	(0.07)	(0.004)	(0.08)	(0.08)
Preelection year dummy	0.002	0.16	0.15	–0.001	–0.002	–0.01
standard error	(0.002)	(0.16)	(0.18)	(0.004)	(0.06)	(0.06)
block-bootstrapped standard error	(0.002)	(0.11)	(0.11)	(0.01)	(0.08)	(0.08)
Total observations	1,740	1,755	1,740	1,740	1,755	1,740
Censored observations	1,558	1,570	1,558	1,558	1,570	1,558
Number groups	88	89	88	88	89	88
Turning point: percent LF		31	N/A	48	34	28
Turning point: AVSD × percent LF	40	42	16	41	40	19

Notes: Standard errors and block-bootstrapped standard errors both clustered at district level. IV: instrumental variable regression; instruments for Left share, its square, and interactions with AVSD, are based on Table 7, column 2. Linear regression makes no adjustment for censoring. Controls include village dummies, characteristics, and time block dummies. Coefficients of village characteristics in IV regressions are reported in Table 12.

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

the village-year level, adding dummies for election and preelection years. In order to identify these, we cannot use year dummies. We therefore use time block dummies (each corresponding to a five-year GP administration) in conjunction with election-year and preelection year dummies, in order to capture macroeconomic effects and those associated with a given elected GP administration.³⁰

This compounds the problem of censoring in the data. Table 5 indicated that in most five-year time blocks, upwards of two-thirds of all villages did not carry out any titling or tenancy registration at all. The extent of censoring is even higher when the data is organized at the yearly level: upwards of 1,500 village years out of a total of 1,740 witnessed no titling or tenancy registration. Accordingly, the regression ought to incorporate endogenous censoring, which is challenging in the context of panel data (since the resulting nonlinearity of the model implies that village dummies cannot be “washed out” by taking interyear deviations for any given village).

³⁰ Alternatively, year dummies can be used, but then election timing effects cannot be estimated. We have also run the regressions with year dummies and obtained similar results. The results for these regressions are available on request.

TABLE 9—LINEAR AND TLAD TOBIT REGRESSIONS FOR TENANCY REGISTRATION PROGRAM, YEARLY DATA 1978–1998

	Percent land registered			Percent households registered		
	Linear IV	TLAD non-IV	TLAD IV	Linear IV	TLAD non-IV	TLAD IV
Percent LF in GP	-0.01	4.62	2.37	0.03	0.93	1.81
standard error	(0.03)	(2.57)*	(6.65)	(0.02)	(0.69)	(1.00)*
block-bootstrapped standard error	(0.04)	(5.57)	(5.19)	(0.03)	(1.37)	(2.19)
Percent LF sq.	0.01	-4.77	-1.53	-0.02	-0.98	-1.09
standard error	(0.03)	(2.07)**	(4.65)	(0.01)	(0.53)*	(0.73)
block-bootstrapped standard error	(0.03)	(4.21)	(3.39)	(0.02)	(1.03)	(1.46)
AVSD × percent LF	0.03	-30.84	-18.30	0.03	-2.40	-3.57
standard error	(0.16)	(20.58)	(23.72)	(0.10)	(5.48)	(7.57)
block-bootstrapped standard error	(0.13)	(44.08)	(27.66)	(0.12)	(10.39)	(10.24)
AVSD × percent LF sq.	-0.07	26.87	12.36	-0.03	2.82	1.84
standard error	(0.15)	(14.55)*	(16.51)	(0.09)	(3.97)	(5.09)
block-bootstrapped standard error	(0.11)	(33.48)	(18.99)	(0.10)	(8.09)	(6.64)
AVSD	0.02	3.83	3.45	0.01	0.03	1.38
standard error	(0.03)	(6.85)	(8.23)	(0.03)	(1.78)	(2.69)
block-bootstrapped standard error	(0.05)	(12.88)	(9.33)	(0.04)	(3.02)	(3.83)
Election year dummy	0.01	0.30	0.27	0.004	0.16	0.15
standard error	0.003*	(0.15)*	(0.13)**	(0.002)*	(0.05)***	(0.05)***
block-bootstrapped standard error	(0.004)	(0.16)*	(0.15)*	(0.002)*	(0.05)***	(0.06)**
Preelection year dummy	0.000	-0.13	-0.18	0.000	0.000	-0.01
standard error	(0.001)	(0.08)	(0.10)*	(0.000)	(0.01)	(0.02)
block-bootstrapped standard error	(0.000)	(0.07)*	(0.11)	(0.000)	(0.02)	(0.02)
Total observations	1,740	1,755	1,740	1,740	1,755	1,740
Censored observations	1,573	1,588	1,573	1,573	1,588	1,573
Number groups	88	89	88	88	89	88
Turning point: percent LF	48	48	77	86	47	83
Turning point: AVSD × percent LF	19	57	74	39	42	97

Note: See notes to Table 8.

In what follows we deal with the censoring problem as follows. First we estimate the Tobit version of the regression, using the semiparametric trimmed LAD estimator with village fixed effects proposed by Bo E. Honoré (1992). Besides controlling for intervillage heterogeneity and censoring, the latter estimator avoids the normality assumption on residuals, replacing it with only a symmetry (i.i.d.) restriction on the distribution of time-varying residuals.

Tables 8 through 11 present the linear-IV and censored TLAD land reform regressions with and without instrumental variables. The TLAD specification takes the form³¹

$$(15) \quad \pi_{vt} = \max[0, \mu_0 q(LS_{vt}) + \mu_1 AVSD_{vt} q(LS_{vt}) + \lambda_1 AVSD_{vt} + \lambda_2 S_{vt} + \lambda_v + \delta_{T(t)} \\ + \theta_1 D_{Pt} + \theta_2 D_{Et} + \eta_{vt}]$$

with the linear specification being the corresponding uncensored version, where D_{Pt} , D_{Et} denote preelection and election year dummies, $T(t)$ denotes the time block corresponding to a given GP

³¹ For the sake of parsimony and limiting multicollinearity, we drop interactions between $q(LS_{vt})$ and S_{vt} .

TABLE 10—TLAD TOBIT REGRESSIONS FOR TITLING PROGRAM, YEARLY DATA 1974–1998

	Percent land titled			Percent households titled		
	Linear IV	TLAD Non-IV	TLAD IV	Linear IV	TLAD Non-IV	TLAD IV
Percent LF in GP	0.03	1.60	1.61	0.12	1.94	1.91
standard error	(0.02)	(0.57)***	(0.86)*	(0.06)**	(0.84)**	(0.90)**
block-bootstrapped standard error	(0.02)	(0.98)	(1.05)	(0.07)*	(1.18)	(1.43)
Percent LF sq.	−0.02	−1.85	−1.56	−0.11	−2.32	−2.12
standard error	(0.02)	(0.65)***	(0.79)**	(0.06)**	(0.87)***	(0.91)**
block-bootstrapped standard error	(0.02)	(1.11)*	(1.01)	(0.07)	(1.23)*	(1.25)*
AVSD × percent LF	−0.22	−9.68	−11.58	−0.88	−13.36	−16.98
standard error	(0.08)***	(3.11)***	(4.34)***	(0.29)***	(4.38)***	(3.83)***
block-bootstrapped standard error	(0.10)**	(6.40)	(4.83)**	(0.34)**	(6.04)**	(5.72)***
AVSD × percent LF sq.	0.22	11.01	12.87	0.87	13.59	17.54
standard error	(0.08)***	(3.87)***	(5.33)**	(0.29)***	(4.64)***	(3.82)***
block-bootstrapped standard error	(0.10)**	(6.75)	(5.29)**	(0.34)**	(6.67)**	(5.88)***
AVSD	0.03	1.78	1.62	0.08	1.96	1.61
standard error	(0.01)**	(0.57)***	(0.64)**	(0.03)**	(0.62)***	(0.75)**
block-bootstrapped standard error	(0.02)	(1.04)*	(1.04)	(0.05)*	(0.82)**	(0.97)*
Election year dummy	0.000	0.003	−0.004	−0.003	−0.06	−0.05
standard error	(0.001)	(0.04)	(0.05)	(0.00)	(0.05)	(0.06)
block-bootstrapped standard error	(0.001)	(0.04)	(0.05)	(0.00)	(0.07)	(0.08)
Preelection year dummy	0.004	0.23	0.23	0.01	0.11	0.11
standard error	(0.002)*	(0.13)*	(0.12)**	(0.01)**	(0.05)**	(0.06)*
block-bootstrapped standard error	(0.002)*	(0.11)**	(0.10)**	(0.01)	(0.07)	(0.08)
Total observations	2,185	2,200	2,185	2,185	2,200	2,185
Censored observations	1,960	1,972	1,960	1,960	1,972	1,960
Number groups	89	89	89	89	89	89
Turning point: percent LF	63	43	52	54	42	45
Turning point: AVSD × percent LF	50	44	45	51	49	48

Note: See notes to Table 8.

administration, and η_{it} is an i.i.d. error term. Both versions with observed and predicted (i.e., instrumented) Left shares are shown for the TLAD estimates. As explained previously, the instruments for Left share include local incumbency (lagged Left share of GP seats), the presence of Congress in the national Parliament, and interactions between these. The predicted Left shares are generated from column 2 in Table 7. We also instrument the interactions between AVSD and Left share and its square, by the interactions between AVSD and predicted values and squares of the Left share.

Standard errors are clustered at the district level, and in the IV regressions are reported both with and without bootstrapping. To correct for possible serial correlation in the residuals for any given village not captured by village fixed effects, we use a block bootstrap as recommended by Marianne Bertrand, Esther Dufo, and Sendhil Mullainathan (2004).³² Since this method often tends to “overcorrect,” we report standard errors both with and without bootstrapping.³³ Controls

³² Specifically, all the data for a given district is kept as a single block, and 200 samples are generated by sampling with replacement from the blocks in a way that yields between 90 and 100 villages in each sample. (There are 15 districts, each containing between two and eight villages, as shown in Table 1). Both first stage and second stage regressions are run for each sample, so that the bootstrapped standard errors incorporate first stage prediction errors as well as serial correlation and clustering of residuals.

³³ See Colin Cameron, Douglas Miller, and Jason B. Gelbach (2006) for Monte Carlo evidence that the Bertrand-Dufo-Mullainathan block-bootstrap procedure tends to generate standard errors that are “too large” when the number

TABLE 11—TLAD TOBIT REGRESSIONS FOR TENANCY PROGRAM, YEARLY DATA 1974–1998

	Percent land registered			Percent households registered		
	Linear IV	TLAD non-IV	TLAD IV	Linear IV	TLAD non-IV	TLAD IV
Percent LF in GP	−0.01	3.66	3.36	0.01	0.94	1.08
standard error	(0.02)	(1.88)*	(2.81)	(0.01)	(0.55)*	(0.43)**
block-bootstrapped standard error	(0.03)	(2.22)*	(2.30)	(0.01)	(0.69)	(0.81)
Percent LF sq.	0.01	−3.89	−2.78	−0.01	−1.03	−0.96
standard error	(0.02)	(1.88)**	(2.17)	(0.01)	(0.51)**	(0.35)***
block-bootstrapped standard error	(0.03)	(2.16)*	(1.71)	(0.01)	(0.61)*	(0.67)
AVSD × percent LF	0.09	−15.15	−10.17	−0.01	−2.32	−1.28
standard error	(0.10)	(9.40)	(10.54)	(0.05)	(1.92)	(1.50)
block-bootstrapped standard error	(0.11)	(10.41)	(8.36)	(0.06)	(2.44)	(1.93)
AVSD × percent LF sq.	−0.12	14.75	8.05	−0.004	2.54	0.65
standard error	(0.11)	(9.13)	(10.62)	(0.06)	(2.16)	(1.68)
block-bootstrapped standard error	(0.12)	(11.04)	(7.98)	(0.06)	(3.00)	(2.17)
AVSD	0.02	0.95	1.17	0.02	0.42	0.57
standard error	(0.01)*	(0.55)*	(0.69)*	(0.01)**	(0.22)*	(0.21)***
block-bootstrapped standard error	(0.01)*	(0.90)	(1.30)	(0.01)**	(0.22)*	(0.32)*
Election year dummy	0.01	0.48	0.43	0.01	0.16	0.17
standard error	(0.004)	(0.30)	(0.35)	(0.003)**	(0.05)***	(0.04)***
block-bootstrapped standard error	(0.01)	(0.30)	(0.28)	(0.003)*	(0.05)***	(0.05)***
Preelection year dummy	−0.002	−0.14	−0.21	−0.001	−0.02	−0.04
standard error	(0.001)**	(0.07)*	(0.10)**	(0.001)	(0.02)	(0.02)
block-bootstrapped standard error	(0.001)*	(0.09)	(0.11)*	(0.001)	(0.02)	(0.02)*
Total observations	2,185	2,200	2,185	2,185	2,200	2,185
Censored observations	1,972	1,987	1,972	1,972	1,987	1,972
Number groups	89	89	89	89	89	89
Turning point: percent LF	59	47	61	34	46	56
Turning point: AVSD × percent LF	38	51	63		46	98

Note: See notes to Table 8.

included in S_{vt} include interpolated (i.e., village-specific time trends in) area and population shares in different landownership size-classes, illiteracy rates among households owning less than five acres of non-*patta* land, and the proportion of households belonging to scheduled castes and tribes. In addition the regression includes dummies for different time blocks, villages, and election/preelection years.³⁴

We report the regression results for two different time spans. Tables 8 and 9 pertain to titling and sharecropped registration over the 1978–1998 period, spanning four successive elected GP administrations. Tables 10 and 11 pertain to the period 1974–1998, adding the period 1974–1978 when GPs had not yet been created and land reforms were implemented at the behest of the state government, which was dominated by the Congress. We accordingly put the Left share during

of cluster groups is small. However, owing to the censored nature of our regression, we are unable to implement the “wild-bootstrap” procedure they recommend (since the underlying residuals of the regression cannot be recovered for censored observations).

³⁴ It could be argued that the regression should additionally include measures of land reform implemented in the past, as this affects the residual capacity for further reform. We avoid this owing to the well-known econometric problems associated with lagged dependent variables, apart from the fact that in the case of the titling program there seems to continue to be a large surplus of vested land that still remains to be distributed, which implies that “capacity constraints” ought not to matter.

TABLE 12—VILLAGE CHARACTERISTICS COEFFICIENTS IN IV TLAD REGRESSIONS, YEARLY DATA 1978–1998

	Percent land titled	Percent households titled	Percent land registered	Percent households registered
Percent HH landless	-3.70	0.04	1.31	-2.11
standard error	(6.89)	(1.26)	(4.53)	(1.71)
block-bootstrapped SE	(5.43)	(2.67)	(3.30)	(1.60)
Percent HH marginal	-2.05	2.99	-1.31	-1.26
standard error	(5.57)	(1.41)**	(2.73)	(1.31)
block-bootstrapped SE	(5.25)	(2.73)	(4.50)	(1.85)
Percent HH small	-4.85	1.00	4.17	0.43
standard error	(5.71)	(1.61)	(3.70)	(1.42)
block-bootstrapped SE	(5.02)	(2.51)	(3.89)	(0.96)
Percent HH medium	-12.66	-8.19	-2.30	-0.68
standard error	(8.18)	(3.09)***	(2.84)	(1.01)*
block-bootstrapped SE	(9.67)	(3.44)**	(4.80)	(1.82)
Percent land small	-1.38	-2.50	0.45	-0.35
standard error	(1.43)	(0.93)***	(1.06)	(0.36)
block-bootstrapped SE	(1.77)	(0.88)***	(1.50)	(0.50)
Percent land big	0.28	0.28	-0.04	-0.09
standard error	(0.33)	(0.33)	(0.20)	(0.07)
block-bootstrapped SE	(1.17)	(0.51)	(0.42)	(0.22)
Percent of poor illiterate	-1.30	-1.10	-0.10	0.55
standard error	(1.05)	(0.70)	(0.64)	(0.22)**
block-bootstrapped SE	(1.15)	(0.66)*	(0.98)	(0.44)
Percent HH SC/ST	-6.12	-0.41	-5.16	-1.03
standard error	(2.53)**	(0.95)	(2.13)**	(1.19)
block-bootstrapped SE	(4.27)	(1.13)	(4.48)	(0.94)

Notes: Coefficients of village characteristics in TLAD-IV regressions in Tables 8 and 9. All other notes to Table 8 apply.

the pre-1978 period at zero. This longer time span enables us to add observations from a period when the implementing agency was controlled by the Congress rather than the Left Front. As it turns out, this adds considerably to the statistical precision of the results.

Tables 8 through 11 show that the signs and magnitudes of the TLAD coefficients of Left share, its square, and interactions of these with average vote share difference (AVSD) in preceding assembly elections are consistent with the predictions of the theory for Case 1, where the competition–moral hazard interaction effect outweighs the ideology effect.³⁵ For this case the theory predicts the coefficient of Left share to be positive and its square to be negative, with an opposite pattern for the respective interactions with AVSD. Implied turning points for the quadratic in the Left share itself and implicit in the interaction of this with average voter loyalty are reported at the bottom of each column. The theory predicts these two turning points will be the same, which is seen to borne out reasonably well in the TLAD regressions.

However, when the sample is restricted to the 1978–1998 period, most of the relevant coefficients are imprecisely estimated, as the standard errors are large. The precisions are higher in Tables 10 and 11, which are based on the 1974–1978 period. This is particularly so in the case of the land titling program, where interaction effects of Left share and its square with AVSD remain significant at the five percent level after adjusting for censoring, endogeneity, and bootstrapping standard errors to control for clustering and serial correlation of residuals. In addition, we see significant spikes in preelection years for the proportion of land titled in all three regressions in

³⁵ The single exception is the 1978–1998 TLAD IV regression for proportion of land titled, in which implementation is decreasing in Left share. Even in this case, the evidence is unfavorable for the ideology hypothesis.

Table 10. The results are less precise for tenancy registration, with the exception of significant election year spikes in proportion of households registered, and a significant (at ten percent) increase in implementation in Congress-dominated villages when voter loyalties (indicated by vote shares in the preceding assembly election) swung in favor of the Left.

The corresponding coefficients of other village characteristics in the regressions in Tables 8-9 are shown in Table 12. The proportion of households receiving land titles was higher when there were more marginal landowners, fewer medium landowners, a smaller fraction of non-*patta* land was in small holdings below five acres, and the poor (landless or marginal landowners) were less illiterate. This is consistent with the notion that the titling program was responsive to voter preferences and awareness, as postulated by the Downsian theory. Medium landowners are likely to have been the most politically active groups opposing the land reform, as giving land to the poor would raise the self-sufficiency of the latter, reducing their willingness to work for low wages on the farms of landowners. Large landowners would have the same (or greater) interest in blocking the reforms, but they lost most of their political clout after the Left coalition gained power at both the state and local levels since 1978. So the main opposition to the reforms within the village would come from medium farmers.³⁶ The group most likely to be active in pushing for the reforms would be marginal landowners, who would be politically more effective if they were more literate. And they would be able to make a stronger case for the reforms if the local land distribution was more skewed against small holdings. An increase in the proportion of low caste households (who tend to be poorer than the average household) also reduced the proportion of land reformed, but this is significant only when standard errors are not bootstrapped.

IV. Concluding Comments

In summary, we find no evidence supporting the hypothesis that land reform implementation in West Bengal since the 1970s was driven simply by the extent of control exercised by the Left Front coalition over local governments, combined with a stronger ideological commitment among the Left Front to implement land reform. Instead it is consistent with Downsian or quasi-Downsian theories which stress the importance of electoral opportunism and competition. The point estimates are consistent with the quasi-Downsian theory predicting an inverted-U pattern between land reform and Left share of seats in the local government, and a negative interaction between Left share and voter loyalty towards the Left. In other words, the Left was less inclined to implement the reforms when its control over local governments increased beyond an absolute majority (which was mostly the case). This was accentuated when the Left was in a stronger competitive position, as indicated by an increase in their vote share in preceding state assembly elections in the concerned district.

However, the statistical precision of these estimates is unreliable and depends on the exact dependent variable, specification, and time period studied. If on this basis we were to conclude that the evidence for the inverted-U pattern is not robust, we would be inclined to view the evidence as indicating the absence of any significant relationship between land reform implementation and Left control of local governments. In other words, we would see this as evidence in favor of the pure Downsian theory vis-à-vis the quasi-Downsian theory. We find no evidence of a monotonic positive association between Left share of local governments and land reforms implemented, as the ideology model predicts. The role of electoral competition is further indicated by the significant spikes observed in election or preelection years.

³⁶ See Bhattacharya (1999) for ground-level evidence of the Left Front being captured by medium farmers.

A number of caveats are in order. The Left Front undoubtedly played a significant role at the level of the state government by putting land reform at the forefront of their agenda for agrarian reform in the state. There is no doubt West Bengal achieved significantly more compared with most other Indian states with regard to implementing land reforms. Our results pertain only to the role of officials elected to local governments and may therefore reflect problems of agency between the Left Front and the candidates it nominated to local government elections.

Alternative explanations to moral hazard or rent seeking on the part of elected officials may be provided for their reluctance to implement much land reform when they are in a strong competitive position.³⁷ For instance, it is possible that they perceive a given stock of land reform that can be implemented between the current time and future, defined by the amount of vested land or the extent of land under tenancy yet to be registered. They may want to hold back on the amount currently implemented, so as to leave more available for the future when they are in a weaker competitive position compared to the current period. We have no way of discriminating empirically between this theory and the one we have offered in the paper. However, even this hypothesis is driven by the importance of electoral competition and related strategic responses of local elected officials, albeit in a dynamic setting.

The results of this paper indicate the relative importance of electoral competition and ideology or policy preferences of elected officials. Our results pertain to the context of land reforms implemented in West Bengal in a specific time period. Studies pertaining to other countries, regions, or programs are needed before we can draw any general inferences.

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