

POLITICAL ECONOMY OF LAND REFORMS IN WEST BENGAL 1978-98¹

Pranab Bardhan² and Dilip Mookherjee³

This version: September 30, 2003

Abstract

This paper examines land reforms implemented in a longitudinal sample of over 80 villages in West Bengal since the mid-1970s. Since 1978 the state government (throughout dominated by a coalition of Leftist parties) devolved implementation of land reforms to elected local governments. It is difficult to explain the observed patterns on the basis of differences in redistributive ideology alone. Land distributed to the poor had an inverse-U pattern with respect to the share of local government seats secured by the Left, with the downward sloping part prevailing over most of the sample. We offer an interpretation of this in terms of reduced incentive for elected officials to implement land reforms when there was less competitive pressure for re-election, owing either to moral hazard or the influence of local landed elites. We find evidence consistent with the competitiveness hypothesis for the land distribution program. Added evidence for the role of competitive motives is provided by significant pre-election year spikes in land reform activity, and substantial land reform preceding the advent of the Left Front government.

¹We thank the MacArthur Foundation Inequality Network for funding the data collection. Sankar Bhau-mik and Sukanta Bhattacharya of the Department of Economics, Calcutta University led the village survey teams that collected the data. Indrajit Mallick helped us obtain the election data. We are grateful to Partha Chatterjee for useful conversations concerning West Bengal politics, and to Kevin Lang for econometric advice. Alfredo Cuecuecha provided outstanding research assistance. Nobuo Yoshida and Amaresh Tiwari also provided useful assistance. Mookherjee thanks the John Henry Simon Guggenheim Foundation for funding a sabbatical year when much of this research was conducted. The paper has benefited from the comments of seminar participants at Jadavpur, MIT, PennState, Stanford, Toulouse, the World Bank and the Center for Studies in Social Science, Calcutta.

²Department of Economics, University of California, Berkeley

³Department of Economics, Boston University

1 Introduction

Land reforms have significant potential for simultaneously reducing poverty and promoting growth, yet remain largely untapped throughout the developing world. The causes are rooted mainly in the nature of governance: lack of political will, the power of landed interests, and formidable legal and administrative barriers. 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. It may however be argued that the persistence of legal and administrative barriers owe in turn 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 political will is the fundamental *sine qua non*. If so, it is important to understand the sources of political will of governments to carry out land reform.

Post-Independence India represents a interesting instance of stated objectives of land reform as a central priority of elected governments since the 1950s, where the actual amount of progress achieved has been minor by comparison. The key problems have been with regard to implementation of the stated objectives. Agriculture being a state subject in the Indian Constitution, implementation of land reforms has been left to the state governments. It is generally admitted that the pace of implementation has been largely a matter of political will of the corresponding state governments (see, for example, the review of the Indian land reform experience by Appu (1996)).

This paper focuses on the experience of West Bengal, an Indian state with a democratically elected Left Front government continuously since 1977, which is reported to have enacted a successful land reform program during this period. From 1978 onwards, they created a system of mandatory election to local governments with a five year term, and devolved to them significant responsibility for implementation of the reforms. The principal reform initiatives comprised land redistribution (*patta* program) and registration of sharecroppers (*barga* program). Our analysis is based on a longitudinal dataset we have assembled of over 80 villages spread throughout the state since the early 1970s.

Given that the land reform program of West Bengal appeared to take off only after

the advent of the Left Front government in the late 1970s, a natural hypothesis is that the redistributive ideology of the Left was principally responsible for the reforms. The popular view accordingly assigns most of the credit for the programs to the Left parties. An alternative and more cynical view is that the compulsions of electoral competition combined with opportunistic power-seeking motives were the real driving forces. Given large degrees of landlessness, high population density and ‘land hunger’ emanating from lack of adequate employment opportunities in industry, land reforms represented a way for the Left parties to build up a large electoral constituency among the poor.

These alternate views correspond to different political economy theories. The *ideology* based hypothesis (which goes back to Lipset (1960) and Wittman (1973)) is that parties or politicians have intrinsic policy preferences derived from their ideology (defined broadly to include interests of constituents that they represent). When combined with the assumption that candidates cannot commit to their policy platforms in advance, and also ignore implications for future re-election prospects, such a theory implies that policy choices of elected candidates are entirely ‘ideology’ determined. Accordingly predicting policy choices translates into predicting electoral success of parties with different ideologies.

In contrast the theory of Downs (1957) stresses the role of *competition* and electoral opportunism, by assuming that candidates have no intrinsic policy preferences at all. Policy choices are chosen in order to secure votes in current or future elections. In a two candidate setting it predicts that both candidates must select the same policy owing to their common vote-maximization objective. Such a theory predicts policy choices are independent of the identity of the winning candidate, and are explained instead by preferences and turnout of voters. In contrast to the ideology-based theory which stresses the role of political parties, the Downsian view stresses the role of competitive electoral incentives and the importance of a functioning democracy wherein most voters need to turn out and vote in a well-informed fashion to ensure accountability of governments.

Simple correlations with the share of seats in local governments (*gram panchayats (GP)*) captured by the Left Front shows no support for the ideology hypothesis. While the correlations are generally statistically insignificant, the data shows an inverted U-pattern both

across and within villages over time, with the downward sloping portion prevailing over most of the sample. The inverted-U pattern is statistically significant for one of the land reform measures, viz. the proportion of households receiving land titles (*pattas*). This means that increasing control of local governments by the Left Front relative to the center-right Congress party was generally associated with less rather than more land reform, contrary to the predictions of either ideology or competition hypotheses. This pattern remains virtually unchanged when we control for a variety of village characteristics (concerning demographics, landownership distribution and literacy) that potentially affect the Left share of GP seats.

Lacking any truly exogenous source of variation in the electoral success of the Left in local government elections, it is difficult to conclusively establish the validity or otherwise of either hypothesis. While explanations in terms of unobserved voter preferences or village characteristics cannot be ruled out, we interpret the pattern as representing a tendency for land reform to decline with increasing political concentration in the local area, wherein a village dominated by a single party tends to carry out less reform. We subsequently explore two possible theoretical explanations of the negative effects of political concentration.

One is the influence of special interest groups representing big and medium landowners that resist the reforms, in the spirit of Baron (1994) and Grossman-Helpman (1996). According to this theory, special interest groups tend to exercise more influence via campaign contributions when there is a single dominant party. In the West Bengal context the possibility of large landowners influencing Left party policies via campaign contributions may not appear plausible.⁴ We therefore present an alternative theory based on moral hazard among elected officials owing to the significant effort costs involved on their part in implementing land reforms. Parties that are in a stronger competitive position *vis-a-vis* their electoral rivals can then afford to slacken their land reform effort. This is related to the models of Lindbeck-Weibull (1993) and Dixit-Londregan (1998)) where the objective of political parties is a mixture of ideology and electoral opportunism.⁵

⁴However there is a possibility of the Left having been influenced by medium landowners who opposed the land reforms on account of its impact on the cost of hired labor. We do find evidence of a strong negative impact of the demographic weight of medium landowners on the land distribution program.

⁵Case (2001) presents a different explanation of a related phenomenon in the context of income redis-

While the special interest and moral hazard hypotheses are empirically indistinguishable from one another, they have a common testable implication: voter loyalty swings in favor of the Left party will strengthen their competitive position and induce a slackening of land reform effort of Left candidates relative to Congress candidates. We find evidence consistent with this prediction in the case of the land distribution program. In the case of the sharecropper registration (*barga*) program, there is less evidence that Left control mattered at all, so the Downsian model cannot be rejected. In some specifications where Left control was a significant determinant of *barga* activity, the evidence is consistent with this prediction (though not statistically significant).

While most of the preceding analysis concerns the cumulative extent of land reforms carried out by each post-1978 elected local government, we are also able to examine yearly variations in land reform effort, and compare the post-1978 land reforms with those occurring in the five years preceding 1978 (when the Congress retained control of the state government and there were no elected local governments). We find significant pre-election year spikes in land reform activity throughout the 1970s and 1980s. Moreover, we cannot reject the hypothesis that the reforms implemented five years prior to 1978 were comparable to those in the post-1978 period. This adds to the evidence of importance of electoral competition motives in the land reforms, which operated equally for both the Left and Congress parties. In view of all the evidence, we are therefore inclined in favor of the view that electoral competitiveness rather than ideological differences played a significant role in the West Bengal land reforms.

The paper is organized as follows. Section 2 describes the institutional background to the West Bengal land reforms. Section 3 describes the data sources used. Section 4 presents descriptive statistics, followed by simple correlations with Left control of GPs. Section 5 discusses the two theories based on the role of election campaigns either of which

tribution programs in Albania. She postulates that central government officials have incentives to allocate more resources to ‘swing’ districts where elections are more contested. In our context this would require higher (i.e., block, district or state) level officials to allocate more effort to villages that are more contested (in elections to those higher level governments). We find, however, that the effects of contestation of village rather than higher level governments matter with respect to land reforms implemented. For this reason the hypotheses we focus on deal with politics at the village level.

can potentially explain the key facts. Section 6 tests some of the empirical implications of these theories. Section 7 concludes.

2 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.

2.1 Land Redistribution Program

West Bengal passed the West Bengal Estates Acquisition Act (WBEA) in May 1953, and a Land Reforms Act in March 1956. The main purpose was to acquire lands of intermediaries (*zamindars*, those not involved in cultivation) and of *raiyats* (cultivators traditionally responsible for paying land taxes directly to the government) in excess of prescribed ceilings. Ceilings for intermediaries were imposed on the holdings of individuals: 20 acres of agricultural land, 25 acres of non-agricultural land, with exemptions for religious and charitable institutions, as well as lands devoted to fruit orchards and tanks. The West Bengal government ran into a host of problems in implementing these Acts, arising from subdivision of properties, poor land records and loopholes in legislation. Accordingly the second West Bengal Land Reforms Act was passed in 1971. This Act imposed a limit of 5 ‘standard’ hectares of irrigated land (equal to 7 hectares of unirrigated land) for a family of up to five members, plus $\frac{1}{2}$ hectares per additional family member, up to a maximum of 7 hectares for each family.⁶ Orchards were allowed 2 standard hectares, and religious and charitable organizations up to 7 standard hectares (except in suitably deserving cases). Landowners were required to submit a return (Form 7A) providing details of the lands in their possession,

⁶One hectare equals two and a half acres.

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, p.176)), and nonfiling of returns by an estimated one half of all landholders.

In 1977, the Left Front came into power in the state, displacing the Indian National Congress which had formed the government for all but three years since Independence. A left-wing United Front government had briefly taken over for three tumultuous years in the late 60s, a period too brief to implement any serious structural changes. Since 1977, the Left Front has won a majority in all subsequent elections to the state legislature, in marked contrast to all other Indian states where incumbents have frequently lost office and even otherwise rarely secure an outright majority.

Immediately upon forming the government, the Left Front set about implementing the 1971 West Bengal Land Reforms Act, which had been amended in 1972. Some of the legal loopholes (registration of land in religious and charitable trusts, and conversion into ponds) were sought to be closed by a new amendment in 1981, which however was approved by the country's President only in 1986. The President had inserted a number of statutory provisions (e.g., requiring the government to issue notices to landowners, and wait for their returns before taking any action to recover surplus lands above the ceiling), which reduced their effectiveness considerably. Owing both to this and the high degree of fragmentation of holdings in process for a few decades that reduced the amount of land in large holdings, the government was not able to vest (i.e., secure land from surplus landholders) as much land as it had originally hoped to.⁷

Where the Left Front appears to have distinguished itself was distribution of vested lands in the form of *pattas* to poor households, and the tenancy registration program of *Operation Barga*. According to most accounts, this was largely a matter of political will (see, for example, Appu (1996), Bergmann (1984), Kohli (1987) or Lieten (1992, p. 128-9)). A massive mass-mobilization campaign involving party leaders, local activists and the

⁷Compared to other states, however, the West Bengal government appears to have performed significantly better on this dimension — whereas in the early 70s West Bengal had an estimated 1.8% of all declared surplus land in the country, by 1985 this had increased to 16% (Lieten (1992, p. 127)).

administrators was mounted to identify surplus or *barga* land, and distribute (or register) them. Election to local governments (*panchayats*) were mandated from 1978 onwards, and the active cooperation of the newly elected bodies was sought in this process. The *panchayats* set up land reform committees (*Bhumi Sanskar Sthayee Samiti*) with the state government's junior land reform officer acting as convener, which was empowered to form 'lists' of surplus lands and of suitable beneficiaries. Settlement camps were set up, with follow up re-orientation camps, to create an open and participatory process for the preparation of these lists, in which tenants and poor farmers participated widely. (Lieten (1992, pp 135-136)), Pramanick and Datta (1994, p. 17-18) and Webster (1992, pp. 74-78)).

Most commentators have reviewed the outcomes of this process favorably. P.S. Appu (1996, Appendix IV.3) estimated the extent of land distributed in West Bengal until 1992 at 6.72% of its operated area, against a national average of 1.34%; only one other state (Jammu and Kashmir) achieved a higher percentage, with the vast majority of states distributing less than 1.5% of operated area. Lieten (1992, p.138) cites the growth of land operated by small and marginal farmers (operating holdings under five acres) in the state, as reflected in the state Agricultural Censuses: between 1970-71 and 1985-86 the proportion of land operated by this group rose from 48% to 63%.⁸

2.2 Sharecropper Registration: Operation Barga

Historically the extent of sharecropping in West Bengal has been quite large: the literature on agrarian relations in Bengal prior to 1947 is dominated by the consequences of the 1793 Permanent Settlement Act on creating a large extent of sharecropping of land by cultivators who leased the land from *zamindars*, creating agricultural stagnation and widespread poverty (see e.g., Cooper (1988) or Chatterjee (1984)). The 1961 Census estimated one third of all cultivator households in West Bengal were *bargadar* households, in line with a 1958 government report (cited in Lieten (1992, p. 147)). The extent of sharecropping is also believed to have declined subsequently (see Lieten (1992, p. 150-151)).

⁸Of course this may have also arisen from the process of fragmentation of land holdings arising from population growth and subdivision of families, besides attempts to evade land ceiling regulations.

The 1955 Land Reforms Act which incorporated the Bargadars Act of 1950 included a number of provisions for regulation of sharecropping contracts. Landlords were allowed to evict bargadars if they had not properly cultivated the land, and were eligible to one third of the produce, and upto an additional one third depending on the extent to which the landlord shared in cultivation costs. Disputes could be handled by a *Bhagchash Board* nominated by the government, but the recommendations of this Board were not binding. It appeared that most bargadars remained unrecorded subsequently, with mass evictions and various legal struggles in the courts.

Amendments to the 1955 Act were initiated by the United Front Ministry in the late 60s, and incorporated in the 1972 Land Reform Act by the intervening Congress government. A further Amendment was created in 1977 by the new Left Front government. These amendments now made sharecropping hereditary, rendered eviction by landlords a punishable offense, and shifted the onus of proof concerning identity of the actual tiller on the landlord. The 1981 Amendment Act received Presidential assent in 1986 restricted the scope of the Act to bargadars with less than 10 acres.

The Left Front government subsequently made Operation Barga the centerpiece of its mass mobilization effort of poorer peasants throughout the state. Membership in the *Kisan Sabha* swelled from 1.3 million in 1977-78 to 8.5 million by 1990. While the initial drive in 1979 was interrupted by the floods, the operation was mounted again in 1980, with the active cooperation of the *panchayati* institutions. Over a million bargadars were registered by 1981, up from 242,000 in 1978 (Lieten (1992, Table 5.1)), and increasing to almost one and a half million by 1990. Lieten (1992, p. 161) estimates on the basis of different assumptions concerning the actual number of sharecroppers in the state, that upwards of 80% of all sharecroppers were registered in the state.

3 Description of Survey Methods and Data

Our data consists of over 80 villages (or more accurately hamlets (*mouzas*)), spread over 16 out of 18 districts in West Bengal.⁹ The villages do not represent a random sample, and were chosen on the basis of our ability to locate farm production records. The lowest level of village government is the *gram panchayat (GP)*, which covers on average 8-12 *mouzas*. The village surveys include details of elected GP representatives for every five year term since 1977 (when GP elections were first held), and a listing of all households in the village from a list of registered voters for a recent election year (1998 in most instances) and an earlier year (either 1978 or 1983).

Data concerning the extent of land reforms legally implemented was directly collected from the local block land records office (BLRO) which contained documents of all land transfers (*pattas*) and registration of sharecroppers by village. The date on the documents revealed the exact timing of the recordings, enabling us to construct a panel data set covering the period 1971–98. This includes the entire Left Front regime until 1998 spanning four successive sets of local governments, as well as the preceding five year period of Congress rule at the state level.

The government’s land records record only the land transfers rather than the entire landownership distribution at any given point of time. It is the obvious measure of the effort of the government to implement the reforms. But these changes need to be assessed relative to the existing land distribution, and the latter can only be assessed by survey methods. Efforts to use government land records to construct the landownership distribution within each village did not succeed, owing to the difficulty of consolidating land titles by households.

We therefore conducted an ‘indirect survey’ whereby three or four village elders provided details of each household on each voter list concerning land owned, leased or cultivated (area, irrigation status, mode of acquisition for owned land, *barga* registration status for

⁹Calcutta 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. We therefore end up with data for 15 districts.

tenants), caste, occupation and literacy status. This provided a complete description of landownership, occupation and literacy distributions for 1998 and either 1978 or 1983. The information provided was cross-checked across different elders. This was the only practical method of constructing the landownership distribution by households within the village and its change over the past two decades, within the timeframe and budget of the surveys. The alternative of asking each household concerning their landholdings would have been more expensive, time consuming and subject to the reluctance of households in remote villages from disclosing their principal assets to outsiders. Our method exploits the fact that landholdings of different households is well known within the village and especially to village residents of long standing. Moreover, our investigators did not perceive any reluctance by elders to disclose ownership patterns in the village.

Changes in the land distribution provided by the surveys between 1978 and 1998 also represents an alternative measure of the extent of land reform. The principal shortcoming of this is that it only provides a single cross-section, and is based on recall of the village elders concerning the land distribution in 1978. Besides not being subject to any recall biases, the government land records provide data concerning the timing of the land reforms. Consequently we shall use the data from the government land records as the measure of land reform implementation effort.

Moreover, measurement error issues aside, the survey and land records represent two different dimensions of the land reform program. Whereas the land records represent the formal aspect of the titling and registration programs, the survey represents the informal dimension which includes lands appropriated by force or by squatters, as well as gaps in delivery of formal land titles to the actual recipients. Other differences stem from the possibility that recipients of land titles or *barga* registration may have left the village or changed their status within the village (via sales, quits or termination). The survey data represents the actual outcome in terms of altered allocation of use rights within the village, while the BLRO data represents the change in legal titles and registration which matters in the case of intended sales, transfers or access to formal credit channels. Ultimately we focus on the land records data because our primary focus is on understanding determinants of political will of the government, rather than the resulting outcome for actual land relations

within the village.

4 Descriptive Statistics

We now present descriptive statistics concerning the land reforms for the state as a whole. The Appendix provides further details concerning district level averages and the comparison between the survey and government land records data.

4.1 Extent of Land Reform: State Averages

With regard to vesting of lands, our data suggests that between 13–17% of operational land area had been secured by the government by 1998. This is consistent with the estimate reported by Appu (1992). However most of this (70–75%) was vested 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 much greater with regard to distribution of *pattas*: approximately 60–70% of all *patta* land in 1998 was distributed after 1978. Most of the distributed land was cultivable (ranging between 70 and 90%). We shall therefore focus on *patta* distribution rather than vesting operations when examining the land distribution program.

The BLRO records indicate 3.7% of cultivable land was distributed in the form of *pattas* on average in districts outside North Bengal, but over 20% for North Bengal.¹⁰ The proportion of households receiving *pattas* was 13.8% outside north Bengal, and 18.5% in north Bengal. *Patta* holders constituted about 30% of households not owning any cultivable non-*patta* land in 1998, approximately consistent with the statistics quoted by Lieten (1992). The land distribution program was therefore more significant in terms of the number of households that benefited from the program, rather than the actual land area distributed. One in six households received a *patta*, and one out of every three households not owning any other land. But most recipients received plots below 1 acre in size, well below average

¹⁰The survey estimates are generally considerably lower, for reasons described at the end of the previous Section.

holding sizes in the village.

The *patta* program was also small in comparison to the changes in the distribution of landownership that took place during this period. While the Gini coefficient of owned cultivable land changed little in most places, this masked important changes in the distribution. Table 4 shows a substantial increase in landlessness: the proportion of landless households rose from 48 to 52%. Table 5 shows that the proportion of non-*patta* land in marginal holdings (below 2.5 acres) rose from 28 to 45%, with an equal and opposite decline in the proportion in medium and large holdings above 5 acres (from 45 to 27%). These are corroborated by similar changes in the distribution of operational holdings in the state Agricultural Censuses between 1980 and 1995, indicated in Table 5A. These changes occurred through land sales or subdivision and fragmentation of landholdings resulting from splitting of households. Outside North Bengal this ‘market’ process was almost five times as large as the redistribution achieved by the *patta* program.

The proportion of operational land under tenancy is estimated by the survey to lie between 2.5 – 5% in 1998, up from between 2.5 – 3% in 1978 (see Table 6). The increase in tenancy may be the result of increased landlessness (itself induced by growth in the number of households through natural reasons, subdivision of families and in-migration of refugees from Bangladesh). According to the survey approximately 2.5 – 3% of operational land was registered in 1998. In contrast the BLRO records indicate a much higher proportion — between 6-8%. Table 7 shows that the *barga* registration estimates are also considerably lower in the survey compared with the BLRO data. The survey estimates the proportion of households registered under the program to be less than 2% in 1998, while the BLRO data indicates this to be in the 4–6% range. The survey estimate of proportion of *barga* land registered is around 60%, and of *bargadars* is around 45% (the latter somewhat lower than the state-wide registration rate average of 60%).

Nevertheless, irrespective of which source is used, the proportion of households benefiting from the land distribution program was substantially larger than from the *barga* program. For the state as a whole, the proportion of households receiving *pattas* was 8 and 15% according to survey and BLRO estimates, with corresponding proportions for regis-

tered *bargadars* of 1.7 and 4.7% according to the two sources respectively. From a political standpoint, therefore, the *patta* program was far more significant.

Regarding timing of the reforms, the bulk occurred in the first two local government administrations spanning the ten year period between 1978 and 1988. This is shown in Tables 8 and 10. Tables 9 and 11 show that a significant fraction of villages in the sample witnessed no reforms at all — over one quarter over the entire twenty year period. Only 4–6 villages out of 89 witnessed some reforms in every single administration. This indicates the need to incorporate endogenous censoring in the regressions to be estimated.

In summary, irrespective of the data source used, the scale of either program was not large in proportion to operational land area or households (below 9% in either case), or in proportion to the changes in landownership distribution taking place at this time through market sales and intrafamily transfers. They were however significant in relation to the size of the target population — more than a quarter of landless households received land titles, and more than half of all tenants were registered.

Tables 12 and 13 show that the Left Front dominated local governments generally, with the exception of a few districts such as Malda, Murshidabad, Dinajpur and 24 Parganas. They won an absolute majority in most GPs outside these four districts, with a mean and median Left shares of 67% and 74% respectively. Their share fluctuated over time, with a slight downward trend overall. This corresponded to fluctuations in the fortunes of the party generally in the state. The tables show that the Left's share of GP seats tended to co-vary with their vote shares relative to the Congress in elections to the state assembly and national parliament, both across districts and over time.

4.2 Correlations with Left Control of GPs and Land Distribution

Tables 14 and 15 present regressions of different measures of land reforms implemented with respect to the Left share of GP seats. The different measures are *pattaland*: proportion of cultivable land in the village distributed in the form of *pattas*; *pattadar*: proportion of households who received *pattas*; *bargaland*: proportion of cultivable land registered under

the *barga* program; and *bargadar*: proportion of households registered in this program.¹¹ Owing to the significant censoring in the data, we report results of tobit regressions. The cross-section tobits aggregate across 1978–98, while the panel tobits aggregate within each five year period spanning a single GP administration, and use dummies for districts as well as for the four time blocks.¹²¹³

In no case do we see a significant monotonically increasing relationship with Left control of the GP. In the *pattadar* regression, the panel estimates show a sharp and statistically significant inverted-U, with the turning point located near 50%, well below the median Left share in the sample. In all other cases the relationship is statistically insignificant, but generally tends to take an inverted-U form.

These results could be consistent with the ideology hypothesis if the Left share tended to be higher in villages where less land reform were needed, e.g., where the land distribution was more equal to start with. Accordingly, Tables 16 and 17 present corresponding tobit results which control for village characteristics including demographic weight of different landowning size classes, land shares and illiteracy rates of non-big (which aggregates landless, marginal and small landowners) and big landowners. These size classes are defined by ownership of cultivable non-*patta* land, with marginal, small, medium and large categories defined by 0-2.5, 2.5-5, 5-12.5 and 12.5- acres respectively. They additionally control for population density and proportion of low caste households.¹⁴ The cross-section *patta* regres-

¹¹We do not use the *barga* registration rate owing to the significant underreporting of tenancy in the household survey, which artificially inflates the registration rate. For almost forty villages no land was reported as under tenancy in 1978, while significant numbers of bargadars were recorded in the 1970s in those villages. The registration rate cannot be computed for these villages. We therefore express the scale of the *barga* program relative to the total cultivable area and number of households in the village instead.

¹²We 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.

¹³Election 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.

¹⁴Village demographics, land distribution and illiteracy rates are interpolated for different time blocks based on their respective rates of growth between the two survey years.

sions also control for the extent of land vested in the village by 1978, and the cross-section *barga* regressions control for the extent of unregistered *barga* land or households in 1978. We see that virtually the same patterns are repeated — absence of a monotone increasing relationship with Left share of GP seats, an inverted-U pattern, which is statistically significant in the *pattadar* regression. The implied relationship of *pattadar* with the Left share from the panel regression is plotted in Figure 1, along with a scatterplot of the original data (after the relevant fixed effects and time dummies have been filtered out).

The inverted-U pattern is difficult to reconcile with the hypothesis that Leftist redistributive ideology was the principal factor behind the reforms. The data suggests that in the vast majority of villages where the Left was dominant, an increase in its dominance was if anything associated with less reform. Explanations in terms of unobserved characteristics of villages or of voter preferences cannot be ruled out, given the absence of clearly identified exogenous sources of variation in the Left share. But the possibility that a decline in competitive pressure can cause a politically dominant party to become more susceptible to moral hazard or special interest capture is a possible explanation. In the next section we describe models corresponding to these hypotheses.

5 Theory

5.1 Probabilistic Voting

Consider any village v with total voter population normalized to unity, where voters belong to different landowning classes $c = ll, mg, sm, md, b$ 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 $U_c(\pi)$.

There are two parties denoted L and R. Let the policy of a party p candidate or elected official be denoted π_p . These represent either the policy platform of the candidate prior

to the election, which the candidate is committed to in the event of being elected. Or they represent the policy actually carried out by the candidate while currently in office. The actual interpretation and timing of actions varies from model to model and will be explained in due course.

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, the rest are *impressionable*.¹⁵ Aware voters respond to policy differences while impressionable voters respond to election campaigns.

Both category of voters also have intrinsic loyalties to the candidates or the parties they represent, which are subject to temporal district-specific swings, based on events at the district, state or national level which are exogenous to any given village. They could also be subject to either pro- or anti-incumbent bias in the village, depending on policies followed by these parties in the village in the past. At any election year t these loyalties have a given distribution which is taken as given by the parties in question. Within village v , relative voter loyalty to the party L candidate is 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 $U_c(\pi_L) + \epsilon > U_c(\pi_R)$. An impressionable voter with relative loyalty ϵ to the Left party votes for that party as long as $h[M_L - M_R] + \epsilon > 0$.

The resulting vote share of the Left party is

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

Denote by $\chi \equiv h \sum_{c'} \alpha_{c'} \tau_{c'} \frac{(1 - \beta_{c'})}{f_{c'}}$ a parameter which represents the value of electoral campaigns, and is proportional to the fraction of impressionable voters. Then the vote share expression can be simplified to

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

¹⁵Grossman and Helpman refer to them as ‘informed’ and ‘uninformed’ in their 1996 article, and as ‘strategic’ and ‘impressionable’ in their 2001 book.

5.2 Party Objectives: The Ideology-cum-Competition Model

We now discuss the objectives of the political parties. This is where different versions of the model differ. Parties care about winning or losing the election (the opportunistic or rent-seeking motive), the policies actually chosen (the ideological motive), and the costs of their election campaigns.

Consider first a model which abstracts from special interest groups external to the parties. Assume that parties fund their own campaigns and mobilize voters using their own party functionaries. Let θ_i be the constant unit cost to party i of mounting a campaign. This cost will depend (apart from the party's organization and money raising skills) on the ease or difficulty of mobilizing relevant voter groups in the village, which in turn can depend on the distribution of relevant assets across different groups of voters, such as land and literacy.

Policies and election campaigns influence vote shares in the manner described by (2). In turn this determines the probability ϕ_L of the Left party winning the election, according to $\phi_L = \phi(V_L)$, a strictly increasing function. Party i earns (exogenous) rents E_i from occupying office. In addition parties could have intrinsic preferences over policy choices. These preferences could be ideologically determined in part, though this is not essential to the theory. What is important is a form of political moral hazard: implementing land reforms usually involves substantial administrative effort on the part of elected officials (to identify surplus lands, issue notices, follow cases through the courts, identify suitable beneficiaries, and arrange for the land titles to be created and distributed). These effort costs are typically not known or ignored by voters.

The policy preferences of party i are represented by

$$\sum_c \alpha_c w_c^i U_c(\pi) - e(\pi) \tag{3}$$

where w_c^i denotes the welfare weight assigned to class c on the basis of party ideology, and e denotes the cost of effort associated with implementation of the policy. The Left party may assign greater weight to classes owning less land, with the opposite true for the Right

party:

$$\begin{aligned} w_{ll}^L &> w_{mg}^L &> w_s^L &> w_m^L &> 0 = w_b^L \\ w_{ll}^R &= 0 < w_{mg}^R &< w_s^R &< w_m^R &< w_b^R \end{aligned}$$

However, as will become obvious below, differences in welfare weights across parties are not essential to the theory.

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

$$\begin{aligned} O_i(\pi_i, M_i; \pi_j, M_j) &= \phi_i \left[\sum_c \alpha_c w_c^i U_c(\pi_i) - e(\pi_i) + E_i \right] \\ &\quad + (1 - \phi_i) \sum_c \alpha_c w_c^i U_c(\pi_j) - \theta_i M_i. \end{aligned} \quad (4)$$

This formulation presumes that parties commit to policy platforms in advance of the election. It has to be modified slightly if we reinterpret the model as one where they cannot commit but are motivated by concern for reelection prospects.¹⁶

This model reduces to a Downsian theory in the case where parties have no ideological objectives or policy preferences, so are purely opportunistic. In that case each party will select a policy to maximize its vote share. Expression (2) shows that both parties will select the same policy π which maximizes $\sum_c \alpha_c \gamma_c U_c(\pi)$. The implicit welfare weight on a class c voter is given by

$$\gamma_c = \frac{\tau_c \beta_c}{f_c} \quad (5)$$

The polar opposite version is where policies are predicted entirely by party ideology. One interpretation of such a version is that parties cannot commit to the policies they will implement in advance of the election. Moreover while in office they ignore the consequences of current policies on their future vote shares. Electoral opportunism then plays no part in determining policy choices, which are chosen to maximize their respective ideological objective functions. Then policies will diverge across officials of distinct parties, whence

¹⁶The main difference is that ϕ_i has to be interpreted as the (discounted) effect on reelection probability resulting from current policy choices, so the cost e of implementing policy will not be premultiplied by ϕ_i .

party composition of elected GPs will matter: land reform effort will be higher for Left party officials.

The hybrid version of the model accommodates the possibility of coexistence of both opportunistic and ideological objectives. 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.¹⁷ As a reading of Lindbeck-Weibull (1993) and Dixit-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 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 maximize¹⁸*

$$\sum_c \alpha_c \mu_c^i U_c(\pi) - \phi_i^* e(\pi) \quad (6)$$

where the welfare weights are given by

$$\mu_c^i = w_c^i \phi_i^* + \frac{\theta_i \tau_c \beta_c}{\chi f_c} \quad (7)$$

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

¹⁷It is well known that the Left parties have been subject to internal debate concerning the need to strike a balance between its traditional ideology and opportunism (see, e.g., Franda (1971), Chatterjee (1984), Nossiter (1988) and Lietai (1992, pp.128-133)). 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 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. Lietai provides some of the internal critiques of the Left Front government's performance from those disillusioned with its compromise with traditional ideology.

¹⁸In the case where opportunism is driven by re-election prospects, the only modification will be that ϕ_i^* will not premultiply e .

Proof of Proposition 1: 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 $D_i \equiv \sum_c \alpha_c w_c^i \{U_c(\pi_i^*) - U_c(\pi_j^*)\} - e(\pi_i^*) + E_i$ 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

$$\begin{aligned} & \frac{\phi'_i D_i}{\sum_c \alpha_c \tau_c} \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} \frac{\partial U_c}{\partial \pi_i} \\ & + \phi \left[\sum_c \alpha_c w_c^i \frac{\partial U_c}{\partial \pi_i} - e'(\pi_i) \right] = 0 \end{aligned} \quad (8)$$

Using the property that $\phi'_i D_i = \frac{\theta_i}{\chi}$, the first order condition for the policy choice can be written as

$$\sum_c \alpha_c \left[w_c^i \phi_i^* + \frac{\theta_i \tau_c \beta_c}{\chi f_c} \right] \frac{\partial U_c}{\partial \pi_i} = \phi_i^* e'(\pi_i) \quad (9)$$

from which the result follows.

The implicit welfare weights (7) reflect a compromise between the party's own ideology (the first term on the right hand side) and electoral opportunism (the second term). The relative weight on ideology is higher when the party expects to win with a higher probability. Hence a shift in voter loyalty in favor of a party causes it to shift closer to its own ideologically favored policy choice π_i^I (which maximizes $\sum_c \alpha_c \mu_c^i U_c$), away from the Downsian equilibrium policy choice π^D (which maximizes $\sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} U_c$). The same is true when its campaign cost θ_i falls, or the value χ of campaigns rises. The implications for effects of shifting voter loyalties or land distribution thus depends on how the ideological and opportunistic motives compare.

Treating the extent of land reform effort as a one dimensional variable, the assumption concerning respective ideologies of the two parties implies that the Left party is ideologically more committed to land reform than the Right party ($\pi_L^I > \pi_R^I$). Moreover, the ideologically desired level of land reform for the Right party will be less than in the Downsian equilibrium, for two reasons. The first is that its own ideology weights the payoff of the big landowners disproportionately relative to the poor. The second reason reflects the policy moral hazard problem: the Downsian policy maximizes the average payoff of informed voters without incorporating the cost e of policy implementation incurred by party officials. It follows

from this that a shift in voter loyalties in favor of the Left will cause the Right party to give more weight to the Downsian policy, i.e., carry out more land reform.

For the Left party the relation of their own intrinsic preferences with the Downsian level of land reform is ambiguous. The ideological effect may motivate it to carry out more land reform than the average aware voter desires, whereas the moral hazard effect can motivate it to carry out less.

Consider first the case where $\pi_L^I < \pi^D$: the Left party seeks to carry out less land reform than desired by the average informed voter, owing to the dominance of the moral hazard effect over the ideological effect. Call this Case 1 from now on. In this case *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.* Recall that 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. The reason is that with the win probability of the Left party approaching 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 . This is illustrated in Figure 2. In Case 1, therefore, the effect of higher proportion of seats in the GP secured by the Left on the extent of land reform implemented will be inverse-U shaped.

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 average informed voter ($\pi_L^I > \pi^D$). Then an increase in its win probability motivates the Left party to carry out *more* redistribution. The Right party also wishes to carry out 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 3. 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). So the Case 2 version of the model cannot

explain why land reforms implemented should decrease when the Left's share of seats in the GP increases.

5.3 The Interest Group Model

We now briefly explain another model also capable of explaining the facts, based on the influence of special interest groups external to parties (drawing on Baron (1994) and Grossman-Helpman (1996)). It differs from the preceding model by assuming that political parties are purely opportunistic, with no intrinsic policy preferences of their own.

The simplest version of the model has a single interest group acting on behalf of big landowners. Similar results obtain in the presence of multiple interest groups, if the big landowner interest group is the dominant one in terms of campaign contributions. The interest group can contribute (time or money) to the campaigns of either party, conditional on the policy they pursue. Let $C_i(\pi_i)$ denote its contribution to party $i = L, R$. The objective of interest group g is

$$\phi(V_L)U_b(\pi_L) + (1 - \phi(V_L))U_b(\pi_R) - \theta_g[C_L + C_R] \quad (10)$$

where θ_g denotes the contribution cost incurred by a representative member of the interest group. This depends on the cohesiveness of the interest group and how well it succeeds in overcoming free-riding among its members, besides their average wealth. If big landowners are fewer in number and own a larger fraction of the land in the village, one would expect θ_g to be lower.

Party i being purely opportunistic seeks to maximize its vote share, implying that (given the contribution strategy of the interest group) its objective is effectively to maximize

$$\sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} U_c(\pi_i) + \chi C_i(\pi_i). \quad (11)$$

In the absence of any contribution the party would select the Downsian policy π_i^D . It is willing to depart from this policy in exchange for campaign contributions as long as the following participation constraint is satisfied:

$$\sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} U_c(\pi_i) + \chi C_i(\pi_i) \geq \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} U_c(\pi_i^D). \quad (12)$$

If this participation constraint binds, the interest group pursues only an *influence* motive; otherwise it also pursues an *electoral* motive where it manipulates the win probabilities to favor one of the parties.

The simplest case is where the interest group pursues an influence motive only. With the participation constraint binding, the influence group effectively perceives the following contribution price of inducing policy π_i :

$$C_i(\pi_i) = \frac{1}{\chi} \sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} [U_c(\pi_i^D) - U_c(\pi_i)]. \quad (13)$$

In other words it has to compensate the part for the votes it loses owing to deviation of the policy from the vote maximizing policy.

The equilibrium policy is determined by maximizing the objective (10) of the interest group subject to this price function. We therefore obtain the following characterization of the equilibrium policy choices.

Proposition 2 *With a single interest group representing big landowners pursuing only an influence motive, the policy choice π_i^e of party i will maximize*

$$\sum_c \alpha_c \frac{\tau_c \beta_c}{f_c} U_c(\pi) + \frac{\chi}{\theta_g} \phi_i^D U_b(\pi) \quad (14)$$

where ϕ_i^D denotes the probability of party i winning in the Downsian equilibrium.

With only an influence motive operating, vote shares and winning probabilities are unchanged from the Downsian equilibrium, and depend on voter loyalties.¹⁹ Induced policy choices deviate from the Downsian equilibrium, to an extent that depends on χ , the value of campaigns in mobilizing voters, θ_g the cost of campaign contributions to the interest group, and ϕ_i^D the Downsian win probabilities. A party which commands the loyalties of most of the voters is in a strong competitive position and expects to win, whence the interest group is more willing to influence it. If voter loyalties become even more skewed in its favor, it becomes even more susceptible to ‘capture’. Accordingly, the model predicts that land

¹⁹If vote shares in this equilibrium are sufficiently asymmetric and the ϕ function is sufficiently flat at those vote shares, then it will not pay the interest group to pursue an electoral motive in addition.

reform effort of the dominant party will decline (while that of the minority party will rise). With the control of the dominant party rising as well, the expected level of land reform effort will fall.

6 Testing: Methodology and Results

We now describe the regression equations implied by the models described above. First, we need to accommodate the fact that our data is at the level of a GP, which covers ten to fifteen different candidate constituencies (*mouzas* or hamlets). The policy pursued by a GP reflects the control secured by either party over the governing council. The extent of land reform implemented by a GP is a weighted average of the equilibrium policies of the two parties, with the weight on the Left's policy increasing and concave in the fraction of GP seats secured by the Left:

$$\pi_{vt} = Q(LS_{vt})(\pi_{vt}^L - \pi_{vt}^R) + \pi_{vt}^R \quad (15)$$

Here $Q(l) \equiv al + bl^2, l \in [0, 1]$ is a quadratic monotone increasing function ($a > 0, b < 0, a + 2b > 0$) representing the extent of control of the *panchayat* secured by the Left.

Second, the Left share of GP seats will be increasing in the win probability of Left Front candidates in the village. These win probabilities will depend on the average voter loyalty in the village in favor of the Left party. This will depend partly on voter reaction to other policy issues and events at the district, state or national levels. It can also depend on village specific historical factors e.g., incumbency or past performance of the two parties, or characteristics that affect their mobilization strengths within the village. Using S_{vt} to denote a vector of demographic weights, land shares and illiteracy rates of different land classes, we obtain

$$LS_{vt} = \delta_0 + \delta_1 LD_{vt} + \delta_2 LS_{v,t-1} + \delta_3 LS_{v,t-1} * LR_{v,t-1} + \delta_4 S_{vt} + \eta_{vt}^L \quad (16)$$

where LD_{vt} denotes loyalty swings in favor of the Left Front at the district level. δ_2 captures the effect of incumbency and δ_3 evaluation of past land reform performance of the Left.

Next, the policy of the R party (as implied by Propositions 1 or 2) depends on determinants of the Downsian policy (demographic weights, illiteracy and land shares of different classes), and of the Left's win probability:

$$\pi_{vt}^R = \lambda_0 + \lambda_1 S_{vt} + \lambda_2 LD_{vt} + \eta_{vt}^R \quad (17)$$

For the sake of simplicity we only retain the district level loyalty variable, and do not include the incumbency variables. Both models predict that shifting voter loyalty in favor of the Left party will cause the R party to implement more land reform ($\lambda_4 > 0$).

Finally, both models predict the policy divergence between the two parties will depend on determinants of their relative winning probabilities:

$$\pi_{vt}^L - \pi_{vt}^R = \mu_0 + \mu_1 LD_{vt} + \mu_2 S_{vt} + \eta_{vt}^d \quad (18)$$

In the ideology-competition model the sign of μ_1 is negative in Case 1 and ambiguous in Case 2. Analogously, in the interest group model μ_1 is negative if the influence of big landowners as an interest group predominates.

Combining the above equations we obtain the following land reform regression

$$\begin{aligned} \pi_{vt} = \lambda_0 &+ \lambda_1 S_{vt} + \lambda_2 LD_{vt} + \\ &+ \mu_0 Q(LS_{vt}) + \mu_1 LD_{vt} * Q(LS_{vt}) + \mu_2 S_{vt} * Q(LS_{vt}) + \eta_{vt} \end{aligned} \quad (19)$$

The interaction effects between voter loyalty LD_{vt} and Left share LS_{vt} represent the interaction between ideology and competition missing in the pure Downsian and ideology models. Whether Case 1 or Case 2 of this model arises is then testable, by examining the signs of the estimated interaction effects. In the interest group model interpretation, these interaction effects represent the greater susceptibility of a dominant party to capture. The observable implications of the interest group model are the same as Case 1 of the ideology-competition model, so there is no basis for discriminating between them empirically.

Note that in the presence of significant interaction effects, the regressions reported earlier were misspecified. The interaction effects are correlated with the Left share variable, causing the estimated coefficient μ_0 of $Q(LS_{vt})$ to be biased. The sign of this bias depends on the

nature of the interaction effects. If Case 1 applies, the ideology-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 . The true effects of Left share would then be higher than estimated. Indeed, insofar as the regression excludes interactions of the Left share with other determinants of voter loyalty (such as incumbency or past performance) which are correlated with included variables, regression estimates of (μ_0 in 19) are still subject to bias. One merely expects the magnitude of the bias to be reduced owing to the incorporation of one source of interactions, while excluding many others.

6.1 Empirical Results

To estimate these regressions we need a measure of voter loyalty to the Left party. We use the difference between vote shares of the two parties in contiguous elections to the state legislative assembly, aggregated to the level of the district.²⁰ The latter elections involve an entirely different set of candidates and policy issues, but the same parties. Tables 12 and 13 have indicated earlier that these vote share differences are positively correlated with the Left share in GP seats.

Elections to the state legislature are typically held in a different year from panchayat elections. So we construct an index of relative loyalty applicable to years when GP elections were held, by weighting relative vote shares in the two nearest state assembly elections, using weights that depend on the time difference between the respective election years.²¹

Table 18 shows results of the regression (16) predicting proportions of GP seats won by Left party candidates. The first column shows cross-section least squares results, while the remaining two show the panel estimates. In the panel we use the Arellano-Bond (1991) estimator to avoid the bias that arises from a lagged dependent variable (incumbency) as a regressor. In both cross-section and panel the voter loyalty variable is positive and

²⁰Using vote share differences in contiguous elections to the national Parliament yielded comparable results. Since there are many more constituencies per district in the state assembly elections compared with the Parliamentary elections we use the state assembly data as a more precise indicator of voter sentiment.

²¹Specifically, the weight assigned was proportional to 0.9^t where t is the number of years between the two election years. Other weighting schemes yielded similar results.

significant, confirming the robustness of the voter loyalty effect across regions as well as over time. The incumbency effect is positive and significant, indicating a robust pro-incumbent bias. The last column indicates that past ‘performance’ of incumbents with regard to the land reforms had insignificant effects on the subsequent electoral success of the Left. Among village characteristics, the only one with a significant and robust effect is the land distribution: the Left was less successful when the big landowners owned a larger fraction of land in the village.²²

Since Table 18 provides justification for the use of our measure of district-level loyalty in favor of the Left party, we can proceed to estimate the interaction effects between loyalty swings and the effect of an increase in the Left share in GP seats. These estimates are presented in Tables 19 and 20.

The results of Table 19 for the *patta* program show a strong negative interaction effect, consistent with Case 1 of the hybrid ideology-competition model. Recall that the model imposes the restriction that the same quadratic in LS_{vt} applies in levels and in the interaction with voter loyalty, i.e., the associated turning points of the level and interaction effects are the same. The estimated turning points are remarkably close, providing further support for the model. In addition, the Left share terms themselves have now become highly significant in the *pattaland* regression, suggesting that their insignificance owed to the negative bias caused by the exclusion of the interaction effect. These results are reinforced when we use a semiparametric trimmed LAD estimator with village fixed effects proposed for censored data by Honore (1992), instead of a tobit with district fixed effects. The effects of the Left share and its interaction become substantially magnified upon controlling for intervillage heterogeneity.

In one respect, however, the results in Table 19 still appear inconsistent with the hybrid model. The quadratic $Q(LS)$ should be a monotone increasing relationship, reflecting effect of increasing control of the GP by the Left. Yet we continue to find an inverted-U relationship, with a turning point lying between 30 and 40%. This could be due to continued

²²We also found no evidence that social fragmentation (along occupational or caste lines), presence of teachers in the village (thought to be the source of grassroots electoral mobilization efforts of the Left) played any role in predicting Left success.

misspecification of the regression owing to omission of interactions of the Left share with other determinants of voter loyalties. In Case 1 an exogenous shock in any variable that increases Left success would also cause the divergence between land reform policies of the two parties to narrow and get reversed, generating an inverted-U pattern with respect to LS alone. However given the misspecification which seems unavoidable, a negative interaction between voter loyalty and the Left share is a better way to gauge the relevance of the model. The *patta* regressions yield clear evidence of such an interaction effect: the policy gap between elected Left and Congress officials narrowed as voter loyalties switched to the Left.

Other village characteristics are consistent with the view that these local governments constituted a functioning democracy in which competitive pressure induced policies to respond to voter demands for redistribution: the scale of the *patta program* was higher when there were (i) more landless, marginal and low caste households, (ii) fewer households owning more than five acres of non-*patta* land, and (iii) a smaller fraction of non-*patta* land was in small holdings below 5 acres. Higher land shares of big landowners was not associated with a significant reduction in the scale of the reforms. The effect of illiteracy among the poor is significant only in the trimmed LAD estimates. However, the possibility of reverse causality with respect to these village characteristics cannot be ruled out. The positive correlation with the demographic weights of the poor could be accounted for by endogenous migration patterns, whereby poor households migrated to regions more successful in carrying out land reforms, while medium and big landowners migrated out of such villages. Anticipation of the land reforms could also have affected the distribution of non-*patta* land, as large holdings could have been fragmented into medium or small sized units via market sales or household subdivision.

For the *barga* program on the other hand, Table 20 indicates that the estimated interaction effects are insignificant, as are the direct effect of the Left share variable. Only in the case of the village fixed effect trimmed LAD version of the *pattadar* regression do we find a significant effect of the Left share at 20% significance. In this case the signs of the interaction effects are as predicted by the theory. Overall, however, the results for the *barga* program appear to be consistent with a simple Downsian model in which both parties

exercised similar implementation efforts.

Table 21 additionally includes the Left share in the *zilla parishad*, the highest tier of the local government system operating at the district level. Left control at the higher level had an insignificant effect, again with the single exception of *pattadar* where it is significant at 20%. In all cases, the pattern is again inverse-U shaped, with a turning point well below either the median (88%) and mean (86%) of the Left share at the *zilla parishad* level.²³ So we see essentially the same phenomenon at the district level.²⁴ The effect of Left control at the village level seems to be more important, and the nature of those results are essentially unaffected.

6.2 Comparison with pre-1978 Land Reforms, and Pre-Election Year Effects

Figure 4 plots the yearly variation in fraction of households benefiting from land reform from 1974 onwards.²⁵ Two facts stand out from this figure. First, there was significant land reform in the years preceding 1978, comparable in magnitude to the reforms enacted in the years following 1978. Given the existence of delays in the legal system, one would expect significant lags between the initiation of land reforms and the actual distribution of *pattas* and recording of sharecroppers. So *pattas* distributed and *bargadars* registered in any given year are likely to reflect the efforts of the concerned administrations in previous years. The preceding regime characterized by a Congress administration and absence of elected local governments therefore implemented as much reform as the post-78 regime. Clearly this was a period of rising competitive pressure on the Congress administration arising from the increasing political strength of the Left parties during the 1970s.²⁶ But this suggests that competitive pressure rather than Leftist ideology or decentralization was the instrumental

²³The turning points for the *patta* regressions are 59 and 52% respectively. In the *barga* regression they are 75 and 69%.

²⁴Interaction effects with vote share differences at the assembly level were also insignificant.

²⁵The corresponding time pattern of land area distributed or registered is similar so is not presented here.

²⁶Both parties were concerned to restrict the influence of the ultraleft Naxalite party which had incited a violent conflict in the state in the late 60s.

factor in implementing the reforms.

Second, there were significant spikes in land reform activity in election and pre-election years, throughout the 1970s and 1980s when the bulk of the reforms were carried out. In the case of the *patta* program the spike is concentrated in the pre-election year, while for the *barga* program the spike occurs in the election year. While alternative explanations of this can be provided for each administration²⁷, it would be hard to believe that attempts to influence the outcome of elections just around the corner played no role at all.

Table 22 extends the results of Tables 19 and 20 by including the time block 1974–78 in addition to those following 1978. This Table presents the trimmed LAD estimates with village fixed effects.²⁸ Given the fact of a Congress administration at the state level and the absence of any elected *panchayats* before 1978, it is natural to associate the pre-78 period as one where the Left had no control over the implementation process. We therefore set the Left share variable to zero for this period, and extrapolate the value of village characteristics based on the rates of change observed between the two survey years.

Comparing with the trimmed LAD estimates in Tables 19 and 20, we find that the coefficient estimates with respect to the Left share do not change significantly upon inclusion of the pre-78 time block. Moreover, none of the dummies for the two Left Front administrations following 1978 are significant (relative to the control pre-78 period).

Finally, in order to estimate election and pre-election year effects, Table 23 reports results of trimmed LAD regressions run on the yearly data over the 1974-98 period, including interaction effects between Left share and Assembly vote share difference. This regression uses yearly values for all village characteristics and the vote share differences obtained via interpolation between years for which these data are available. We find a highly significant pre-election year spike in the *patta* regressions and an election year spike in the *barga* regressions. Other results concerning the significance of Left share and its interaction with voter loyalty are unchanged. Moreover, there is little evidence to support the view that the post-78 reforms were significantly higher than the pre-78 reforms.

²⁷For instance, the floods in 1978-79 slowed land reform activity in those years.

²⁸The estimates of the *pattaland* regression are not presented because those estimates did not converge.

7 Concluding Comments

In summary, we found evidence of a slackening of Left front effort to implement the *patta* program when their control over local governments increased, and that this was accentuated when voter loyalties in the district were reinforced in their favor. This suggests the role of electoral competitiveness in motivating land reform effort. In the case of the *barga* program, there was not much evidence that Left control mattered at all. Additional arguments in favor of the role of electoral competitiveness on the efforts of both parties are the significant election or pre-election year spikes in reform activity in the 1970s and 1980s, and the limited impact of the transition to Left Front rule in 1978.

These findings raise a puzzle: why did other Indian states characterized by competition between the Congress and other parties not enact land reforms on a comparable scale? Does successful land reform require competition between parties, at least one of whom has a strong redistributive ideology? This would require the Left to have a greater emphasis on redistribution and land reform in their ideology, compared with the Congress. Yet we found no evidence of a greater ideological emphasis on redistribution of the Left, as revealed by policy outcomes. For instance, the turning point in the relationship between Left share of GP seats and land distribution was achieved below 50%, whereas this ought to have exceeded 50% if the Left was ideologically more motivated in favor of the reforms.

Principal shortcomings of our analysis concern our limited ability to test or control for the endogeneity of Left electoral success in the land reform program. It is difficult to locate truly exogenous sources of variation in the electoral success of the Left. Nevertheless, we attempted to control for principal village level determinants of the electoral success of the Left. Some of these village characteristics may also be subject to endogeneity bias, e.g., owing to endogenous migration or land fragmentation. More detailed household surveys would throw light on the seriousness of these problems. They could also be valuable in understanding patterns of voting behavior of different classes.

In a companion paper we extend this study to other activities of local governments in West Bengal, including the allocation of subsidized credit, farm inputs and local infrastructure programs. In future we plan to study the impact of these reforms on the dynamics of

farm productivity.

References

- Arellano M. and S. Bond (1991), 'Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations', *Review of Economic Studies* 58, 277-297.
- Appu P.S. (1996), *Land Reforms in India*, Delhi: Vikas Publishing House.
- Bandyopadhyay D. (1986), 'Land Reforms in India: An Analysis,' *Economic and Political Weekly*, XXI, 25/26: A50-A56.
- Basu S.K. and S.K. Bhattacharya (1963), *Land Reforms in West Bengal: A Study on Implementation*, Calcutta: Oxford Book Company.
- Bergmann T. (1984), *Agrarian Reform in India, with Special Reference to Kerala, Karnataka, Andhra Pradesh and West Bengal*. New Delhi: Agricole.
- Case A. (2001), 'Election Goals and Income Redistribution: Recent Evidence From Albania,' *European Economic Review*, 45, 405-423.
- Chatterjee P. (1984), *Bengal 1920-47: The Land Question*, Calcutta: K.P. Bagchi.
- Cooper A. (1988), *Sharecropping and Sharecroppers' Struggles in Bengal*, Calcutta: K.P. Bagchi and Co.
- Dixit A. and J. Londregan (1998), "Ideology, Tactics and Efficiency in Redistributive Politics," *Quarterly Journal of Economics*, May 1998, 497-529.
- Downs A. (1957), *An Economic Theory of Democracy*, New York: HarperCollins.
- Franda M. (1971), *Radical Politics in West Bengal*, Cambridge, MA: MIT Press.
- Grossman G. and Elhanan Helpman, "Electoral Competition and Special Interest Politics," *Review of Economic Studies*, 63, 265-286, 1996.
- Honore B. (1992), 'Trimmed LAD and Least Squares Estimation of Truncated and Censored Regression Models with Fixed Effects,' *Econometrica*, 60, 533-565.

- Kohli A. (1987), *State of Poverty in India*, Cambridge: Cambridge University Press.
- Lieten G.K. (1992), *Continuity and Change in Rural West Bengal*, New Delhi: Sage Publications.
- Lindbeck A. and J. Weibull (1993), "A Model of Political Equilibrium in a Representative Democracy," *Journal of Public Economics*, 51, 195–209.
- Lipset S.M. (1960), *Political Man*. Baltimore: Johns Hopkins University Press.
- Nossiter T.J. (1988), *Marxist State Governments in India*, London: Pinter Publishers.
- Sengupta S. (1981), 'West Bengal Land Reforms and the Agrarian Scene,' *Economic and Political Weekly*, XVI, 25/26: A26-A75.
- Webster N. (1992), *Panchayati Raj and the Decentralisation of Development Planning in West Bengal*, Calcutta: K.P. Bagchi and Co.
- Wittman D. (1973), 'Parties as Utility Maximizers,' *American Political Science Review*, 67, 490–498.

TABLE 1 VESTED LAND: SAMPLE AVERAGES			
	Vested Land up to 1998 (BLRO) as % of all land in 1998 (survey)	Land above ceiling in 1978 (survey) % of all land in 1978 (survey)	% of Vested land post 1978 (BLRO)
Average village outside North Bengal	13.12	5.91	30.02
North Bengal village average	28.58	3.30	23.05
All villages average	17.81	5.03	25.56

TABLE 2 PATTA LAND: SAMPLE AVERAGES					
	(1)	(2)	(3)	(4)	(5)
Excluding NB villages	3.04	3.71	5.49	71.27	90
North Bengal village average	4.27	21.09	11.48	60.22	70
All villages average	3.41	9.02	6.94	63.38	82
(1) 1998 Patta land (survey) as % of 1998 operational land survey (2) 1998 Patta land (BLRO) as % of 1998 operational land survey (3) 1998 Patta land (survey) as % of 1998 cultivable land (WBER) (4) Post 1978 Patta land as % of total patta land up to 1998 (BLRO) (5) 1998 Patta cultivable as % of 1998 total patta land (Survey) *:West Bengal Economic Review, 2001, State Average Estimate					

TABLE 3 PATTADARS: SAMPLE AVERAGES							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Excluding NB villages	5.54	13.77	21.27	11.28	17.91	28.03	44.48
North Bengal village average	13.51	18.47	27.16	23.93	67.84	32.73	92.75
All villages average	8.12	15.29	22.61	15.77	29.65	29.69	55.83
(1) 1998 Pattadars (survey) as % of 1998 HH (survey) (2) 1998 Pattadars (BLRO) as % of 1998 HH (survey) (3) 1998 Pattadars (survey) as % of 1998 Rural Workers (WBER) (4) 1998 Pattadars (survey) as % of 1998 Landless (survey, ownership of non-patta land) (5) 1998 Pattadars (survey) as % of 1978/83 Landless (survey, ownership of non-patta land) (6) 1998 Pattadars (BLRO) as % of 1998 Landless (survey, ownership of non-patta land) (7) 1998 Pattadars (BLRO) as % of 1978 Landless (survey, ownership of non-patta land)							

TABLE 4: LANDOWNERSHIP INEQUALITY				
DISTRICT-WISE AVERAGES (SURVEY)				
District	Owned Cultivable Non-Patta Land			
	Gini Coefficient		% HH Landless	
	1978	1998	1978	1998
24 Parganas (n)	0.7614	0.7614	32.14	46.71
24 Parganas (s)	0.7952	0.7970	36.67	40.74
Bankura	0.7586	0.7769	23.61	12.10
Birbhum	0.7664	0.7736	44.54	45.09
Burdwan	0.7728	0.7773	58.14	63.39
Hooghly	0.7637	0.7573	68.02	73.46
Howrah	0.7620	0.7615	64.71	71.90
Midnapore	0.7651	0.7606	48.36	42.77
Murshidabad	0.7771	0.7814	31.20	41.54
Nadia	0.7664	0.7594	57.97	64.74
Purulia	0.7672	0.7627	12.69	15.21
WB not including NB	0.7724	0.7723	44.34	49.35
Coochbehar	0.8167	0.8140	44.63	50.21
Dinajpur	0.7583	0.7750	52.07	57.57
Jalpaiguri	0.7809	0.7825	71.28	62.91
Malda	0.7670	0.7623	55.80	62.03
North Bengal	0.7768	0.7732	54.34	56.43
West Bengal	0.7631	0.7728	47.69	51.65

**TABLE 5: OWNERSHIP DISTRIBUTION OF
CULTIVABLE NONPATTA LAND: ACRES (SURVEY)**

District	1978			1998		
	0-2.5	2.5-5	5+	0-2.5	2.5-5	5+
24 Parganas (n)	35	40	24	62	23	15
24 Parganas (s)	24	22	53	53	31	16
Bankura	23	33	42	42	37	20
Birbhum	13	14	71	20	19	60
Burdwan	33	29	36	37	26	36
Hooghly	36	32	31	52	28	19
Howrah	57	37	4	73	22	5
Midnapore	45	23	30	65	22	13
Murshidabad	36	33	29	51	26	23
Nadia	29	27	43	35	25	35
Purulia	17	29	52	39	36	25
WB excluding NB	28	28	44	45	28	27
Coochbehar	28	28	42	45	27	26
Dinajpur	29	32	38	35	38	27
Jalpaiguri	25	27	47	52	30	17
Malda	36	25	38	51	26	22
North Bengal	28	28	44	47	29	24
West Bengal	28	28	44	45	28	27

TABLE 5A: DISTRIBUTION OF OPERATIONAL HOLDINGS						
ACRES (Agric. Census)						
District	1980			1995		
	0-2.5	2.5 to 5	5+	0-2.5	2.5-5	5+
24 Parganas (n)	37	29	32	46	33	20
24 Parganas (s)	41	30	27	50	24	25
Bankura	23	35	40	31	32	35
Birbhum	21	32	45	36	34	29
Burdwan	2	39	57	35	31	33
Hooghly	39	34	25	51	29	19
Howrah	57	27	14	66	22	11
Midnapore	35	31	32	59	26	13
Murshidabad	32	35	32	44	32	22
Nadia	30	34	35	47	33	18
Purulia	24	33	42	36	34	29
WB excluding NB	29	33	37	44	30	24
Coochbehar	26	34	29	38	27	34
Dinajpur	22	27	50	39	30	30
Jalpaiguri	17	20	61	27	19	52
Malda	29	31	38	39	28	31
North Bengal	25	26	47	38	25	35
West Bengal	28	32	39	43	29	27

TABLE 6: BARGA LAND: SAMPLE AVERAGES							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Excluding NB villages	4.98	2.52	3.02	8.01	7.22	60.74	124.24
North Bengal villages	2.59	3.35	2.23	2.49	10.08	86.02	59.80
All villages	4.25	2.80	2.78	6.16	7.91	65.45	98.32

(1) 1998 Leased Land (Survey) as % of 1998 operational land
(2) 1978 Leased Land (Survey) as % of 1978 operational land
(3) 1998 Registered Barga Land (Survey) as % of 1998 operational land
(4) 1998 Registered Barga Land (BLRO) as % of 1998 operational land
(5) 1998 Leased Land (Survey) as % of 1998 operational area (WBER)
(6) 1998 Registered Barga Land (Survey) as % of 1998 leased area (survey)
(7) 1998 Registered Barga Land (Survey) as % of 1978 leased area (survey)

TABLE 7: BARGADARS: SAMPLE AVERAGES							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Excluding NB villages	2.61	1.85	5.36	13.58	45.64	31.78	61.20
North Bengal villages	3.68	1.58	3.42	13.28	82.61	70.73	63.33
All villages	2.94	1.77	4.73	13.51	52.44	43.38	64.49

(1) 1978 HH Leasing Land (survey) as % of 1978 HH (survey)
(2) 1998 Registered Bargadars (survey) as % of 1998 HH (survey)
(3) 1998 Registered Bargadars (BLRO) as % of 1998 HH (survey)
(4) 1998 Registered Bargadars as % of rural workers (WBER)
(5) 1998 Registered Bargadars (survey) as % of 1998 HH Leasing Land (survey)
(6) 1998 Registered Bargadars (survey) as % of 1978 HH Leasing Land (survey)
(7) State-wide Registration Rate Estimate for 1993

TABLE 8: TIME PROFILE OF PATTA DISTRIBUTION			
Time Block	No. of Villages distributing pattas	% households receiving pattas	% cultivable area distributed
1978-83	31	9.47	2.18
1983-88	37	5.65	1.31
1988-93	36	3.31	0.47
1993-98	19	1.27	0.15

Cultivable Area =Owned cultivable area (pre-patta) + pattaland area + bargaland area

TABLE 9: PATTA DISTRIBUTION FREQUENCY 1978-98 (BLRO DATA)	
Number of Time Blocks Pattas Distributed	Number of Villages
4	4
3	13
2	19
1	30
0	23

Time Block	No. of Villages registering	% area registered	% households registered
1978-83	52	8.76	3.42
1983-88	37	0.86	1.09
1988-93	25	0.22	0.48
1993-98	13	0.07	0.13

Number of Time Blocks registering bargas	Number of Villages
4	6
3	10
2	25
1	23
0	25

Time Block	Left Front % Seats in GP (sample)	Left front % vote in Assembly (all WB)	Congress % vote in Assembly (all WB)	Difference
1978-83	75	50	32	18
1983-88	62	53	41	12
1988-93	71	52	38	14
1993-98	68	50	36	14

TABLE 13: DISTRICT-WISE GP COMPOSITION AND VOTE SHARES IN STATE ASSEMBLY AND PARLIAMENTARY ELECTIONS						
District	Number of Villages in sample	Left Front % Seats in GP	Left Front % vote in Parliament	Congress % vote in Parliament	Left Front % vote in Assembly	Congress % vote in Assembly
24 Parg.(N)	6	54	51	35	51	38
24 Parg.(S)	8	54	50	34	50	38
Bankura	5	80	55	29	56	33
Birbhum	5	60	50	36	52	34
Barddhaman	9	78	51	33	56	34
Cooch-Behar	8	84	52	31	53	35
Hooghly	6	71	51	32	53	39
Howrah	4	75	50	37	50	41
Jalpaiguri	5	69	50	34	53	36
Malda	2	38	43	47	44	38
Midnapur	8	75	52	31	50	36
Murshidabad	6	46	49	39	45	37
Nadia	5	72	50	35	49	37
Dinajpur	4	53	48	40	46	37
Purulia	8	61	53	34	50	33
West Bengal	89	66	51	34	51	36

TABLE 14: VARIATION OF PATTI ACTIVITY				
WITH LEFT SHARE OF GP SEATS				
	PATTALAND		PATTADAR	
	Cross-Section	Panel	Cross-Section	Panel
% Left	.86 (1.04)	.013 (.174)	1.15 (1.33)	.374* (.210)
% Left Sq.	-.67 (.86)	.023 (.161)	-.79 (1.11)	-.338* (.194)
<i>n</i>	81	356	82	356
Turning Point	64	n.a.	73	55
pattaland: percent cultivable land distributed in pattas				
pattadar: percent households receiving pattas				
Tobit estimates, with district fixed effects and time dummies included in panel, not reported here.				
standard errors in parentheses; ***: significant at 1%, ** at 5%, * at 10%				

TABLE 15: VARIATION OF BARGA ACTIVITY				
WITH LEFT SHARE OF GP SEATS				
	BARGALAND		BARGADAR	
	Cross-Section	Panel	Cross-Section	Panel
% Left	2.95 (3.60)	.068 (.111)	-.04 (.62)	.057 (.084)
% Left Sq.	-1.95 (.2.98)	-.103 (.106)	.16 (.51)	-.106 (.080)
<i>n</i>	81	356	82	356
Turning Point	75	32	n.a.	27
bargaland: percent cultivable land registered				
bargadar: percent households registered				
Tobit estimates, with district fixed effects and time dummies included in panel, not reported here.				
standard errors in parentheses; ***: significant at 1%, ** at 5%, * at 10%				

TABLE 16: VARIATION OF PATT A ACTIVITY				
WITH LEFT SHARE OF GP SEATS, WITH VILLAGE CONTROLS				
	PATTALAND		PATTADAR	
	Cross-Section	Panel	Cross-Section	Panel
% Left	.41 (1.07)	.025 (.172)	2.41* (1.26)	.380* (.199)
% Left Sq.	-.53 (.88)	-.016 (.160)	-1.89* (1.03)	-.379** (.186)
<i>n</i>	81	356	82	356
Turning Point	38	76	64	50
Controls include percent households low caste, landless, marginal, small, medium; land shares and illiteracy rates of nonbig and big				
Tobit estimates, district fixed effects and time dummies included in panel				
Cross-sections control also for percent land vested in 1978; population density in 1978				
standard errors in parentheses; ***: significant at 1%, ** at 5%, * at 10%				

TABLE 17: VARIATION OF BARGA ACTIVITY				
WITH LEFT SHARE OF GP SEATS, WITH VILLAGE CONTROLS				
	BARGALAND		BARGADAR	
	Cross-Section	Panel	Cross-Section	Panel
% Left	.93 (2.87)	.077 (.111)	.16 (.52)	.038 (.082)
% Left Sq.	-.51 (3.14)	-.130 (.107)	-.04 (.42)	-.097 (.079)
<i>n</i>	81	356	82	356
Turning Point	91	30	200	20
Controls include percent households low caste, landless, marginal, small, medium; land shares and illiteracy rates of nonbig and big				
Tobit estimates, with district fixed effects and time dummies included in panel, not reported here.				
Cross-sections control also for percent unregistered barga land/households in 1978; population density in 1978				
standard errors in parentheses; ***: significant at 1%, ** at 5%, * at 10%				

TABLE 18: LEFT SHARE IN GP SEATS REGRESSIONS				
	Cross-Section (OLS)	Panel (Arellano-Bond)	Panel (Arellano-Bond)	Panel (Arellano-Bond)
n	81	400	236	236
R^2	0.44	.18		
Assembly Vote Share Difference	.019*** (0.003)	.011*** (.002)	.017* (.006)	.014* (.008)
Lagged LF vote% in GP (%Left*%HH New Pattadar) Lagged (%Left*%HH Newly Registered Barga) Lagged			457*** (.150)	.599** (.249)
% HH Landless	.100 (.133)	-.005 (.315)	-.285 (.713)	.992 (2.82)
% HH Marginal	-0.091 (.166)	-.141 (.356)	-.994 (.829)	.349 (3.408)
% HH Small	-0.295 (.215)	-.350? (.233)	.586 (.497)	1.391 (1.046)
% HH Medium	.912? (.555)	.208 (.664)	-.280 (1.337)	3.297 (9.377)
% Land Small	.095 (.152)	.016 (.244)	-.631 (.409)	-.398 (.780)
% Land Big	-.329** (.149)	-.123 (.200)	-1.079** (.437)	-1.087 (1.000)
Illiteracy NonBig	-.163* (.088)	.425*** (.137)	.235 (.378)	.305 (.578)
Illiteracy Big	0.177 (0.149)	0.128 (.502)	-.346 (.442)	-.599 (.632)
% Low Caste	.105* (.62)	-.409 (.379)	-.705 (.552)	-.189 (1.411)
No. Households	.000 (.000)	-61e-5*** (21e-5)	23e-5 (48e-5)	47e-5 (79e-5)
time dummies included, not reported here				
robust standard errors in parentheses; ***: significant at 1%, ** at 5%, * at 10%				

TABLE 19: PATTA REGRESSIONS			
INCLUDING INTERACTION EFFECTS, TIMEBLOCKS 1978–98			
	PATTALAND	PATTADAR	PATTADAR
	Tobit	Tobit	Trimmed LAD
	Distt F.E.	Distt F.E.	Village F.E.
n	356	356	352
% LF in GP	.430* (.225)	1.34* (.44)	3.251*** (.707)
% LF sq.	-.621*** (.235)	-1.792*** (.465)	-3.768*** (.617)
Assembly vote share diff (AVSD)	-.004 (.004)	-.013 (.009)	.010 (.020)
AVSD*LF in GP	-.023? (.016)	-.058* (.032)	-.205*** (.059)
AVSD*LF sq.	.035** (.015)	.088*** (.030)	.218*** (.047)
% Landless	.142** (.065)	.342*** (.121)	2.508** (1.012)
% Marginal	.231** (.097)	.789*** (.190)	5.396*** (1.255)
% Small	.011 (.156)	.185 (.306)	1.302 (1.361)
% Medium	-1.282*** (.399)	-2.268*** (.716)	-4.359? (2.730)
% Land Big	-.129 (.103)	-.103 (.199)	-.332 (.518)
% Land Small	-.366*** (.093)	-.787*** (.180)	-2.277*** (.662)
% Illiterate Non-Big	-.052 (.046)	-.108 (.093)	-1.562*** (.428)
% Illiterate Big	-.063 (.073)	.022 (.141)	-.131 (.536)
Turning Pt: % LF in GP	35	37	43
Turning Pt: AVSD*% LF in GP	33	32	47
***: significant at 1%; **:significant at 5%; * at 10%, ? at 20%			

TABLE 20: BARGA REGRESSIONS			
INCLUDING INTERACTION EFFECTS, TIMEBLOCKS 1978–98			
	BARGALAND	BARGADAR	BARGADAR
	Tobit	Tobit	Trimmed LAD
	Distt FE	Distt FE	Village FE
n	356	356	352
% LF in GP	-.055 (.237)	-0.040 (.179)	1.357? (.989)
% LF sq.	.021 (.243)	0.002 (.183)	-1.213? (.777)
Assembly vote share diff (AVSD)	.004 (.004)	.002 (.003)	.007 (.030)
AVSD*LF in GP	.011 (.016)	.006 (.012)	-.054 (.080)
AVSD*LF sq.	-.012 (.016)	-.007 (.012)	.040 (.060)
% Landless	.047 (.089)	.031 (.067)	2.327 (2.808)
% Marginal	.080 (.122)	.157* (.093)	2.798 (2.211)
% Small	-.078 (.184)	.101 (.136)	5.589? (4.053)
% Medium	.215 (.396)	-.142 (.305)	2.990 (1.394)
% Land Big	-.120 (.111)	-.032 (.085)	-.179 (.997)
% Land Small	-.030 (.097)	-.109 (.076)	-.158 (.936)
% Illiterate Non-Big	-.083* (.047)	-.023 (.036)	-.173 (.932)
% Illiterate Big	-.015 (.100)	-.012 (.069)	.908 (1.646)

***: significant at 1%; **: significant at 5%; * at 10%, ? at 20%

TABLE 21: TOBITS INCLUDING LEFT SHARE IN ZILLA PARISHADS				
TIMEBLOCKS 1978–98				
	PATTALAND	PATTADAR	BARGALAND	BARGADAR
	Tobit Distt. FE	Tobit Distt. FE	Tobit Distt. FE	Tobit Distt. FE
n	352	352	352	352
% LF in ZP	.252 (.235)	.630? (.457)	.255 (.247)	.074 (.187)
% LF in ZP sq.	-.213 (.222)	-.601? (.432)	-.010 (.018)	-.055 (.182)
% LF in GP	.294 (.270)	1.171** (.523)	-.147 (.279)	-.154 (.211)
% LF sq.	-.501** (.255)	-1.613*** (.499)	.086 (.263)	.081 (.200)
AVSD*LF in GP	-.019 (.021)	-.055? (.041)	.008 (.021)	.007 (.016)
AVSD*LF sq.	.032* (.018)	.084** (.035)	-.010 (.018)	-.008 (.014)
Village characteristics, dummies for districts, timeblocks included				
***: significant at 1%; **:significant at 5%; * at 10%				

TABLE 22: TRIMMED LAD REGRESSIONS, TIMEBLOCKS 1974–98

	PATTADAR	BARGALAND	BARGADAR
n	440	440	440
% LF in GP	3.498*** (.975)	1.930 (7.932)	1.736? (1.166)
% LF sq.	-4.060*** (1.035)	-1.995 (5.461)	-1.317? (.876)
AVSD*LF in GP	-.180*** (.064)	-.024 (.446)	-.079 (.095)
AVSD*LF sq.	.204*** (.063)	.011 (.310)	.043 (.073)
1979-83 dummy (1974-78=0)	.159 (.271)	-.259 (2.407)	-.186 (.178)
1983-88 dummy	-.143 (.232)	-.698 (2.393)	-.418 (.258)
Village fixed effects, demographics, land distribution, dummies for 1989-93, 94-98 included			
***: significant at 1%; **:significant at 5%; * at 10%, ? at 20%			

TABLE 23: TRIMMED LAD REGRESSIONS				
INCLUDING INTERACTION EFFECTS, YEARLY DATA 1974–98				
	PATTALAND	PATTADAR	BARGALAND	BARGADAR
n	2200	2200	2200	2200
Election Year Dummy	-.089** (.043)	-.146** (.068)	.410? (.269)	.174*** (.046)
Pre-election Year Dummy	.236*** (.092)	.118* (.068)	-.164* (.084)	-.016 (.014)
% LF in GP	.368 (.748)	1.517* (.876)	1.670? (1.286)	.287 (.319)
% LF sq.	-.620 (.704)	-1.813** (.823)	-2.244? (1.535)	-.478 (.306)
AVSD*LF in GP	-.013 (.036)	-.070? (.043)	-.052 (.091)	.007 (.015)
AVSD*LF sq.	.036 (.038)	.082* (.044)	.053 (.096)	-.004 (.019)
1979-83 dummy (1974-78=0)	.198? (.129)	-.054 (.144)	.225 (.242)	.033 (.105)
1983-88 dummy	-.123? (.080)	-.309 (.164)	-.248? (.174)	-.104 (.094)
Village characteristics, district dummies and dummies for 1989-93, 94-98 included				
***: significant at 1%; **:significant at 5%; * at 10%				

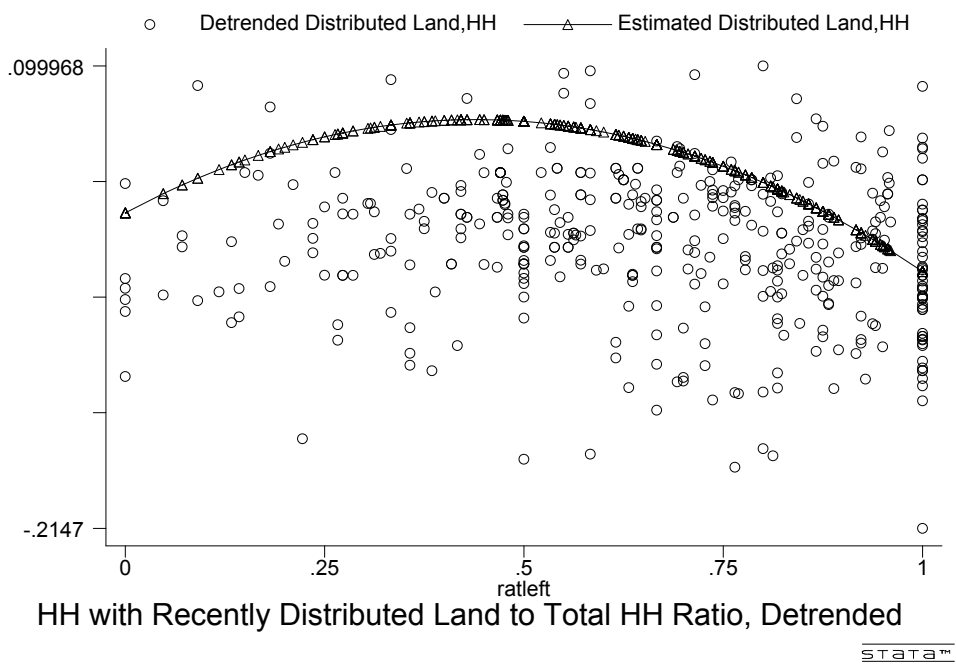


Figure 1: PATTADAR ESTIMATED AND ACTUAL VALUES VS. LEFT SHARE OF GP SEATS

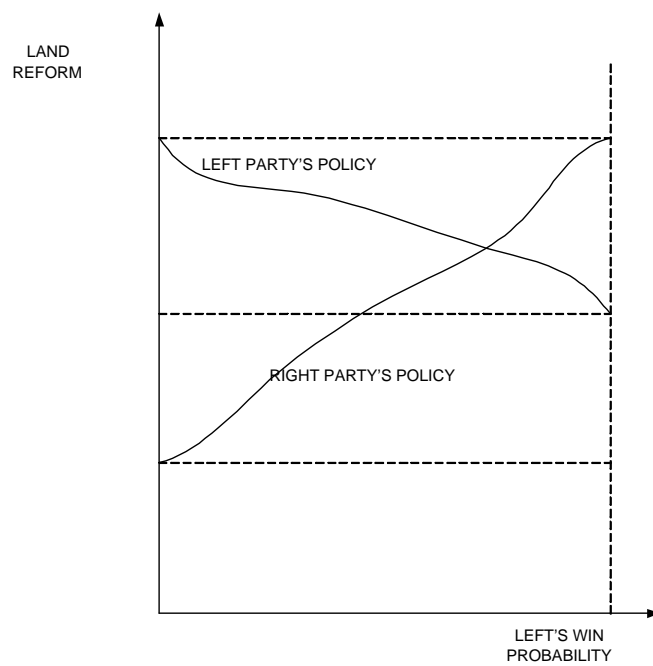


Figure 2: CASE 1: NEGATIVE INTERACTION BETWEEN COMPETITIVE ADVANTAGE AND LAND REFORM EFFORT OF LEFT PARTY

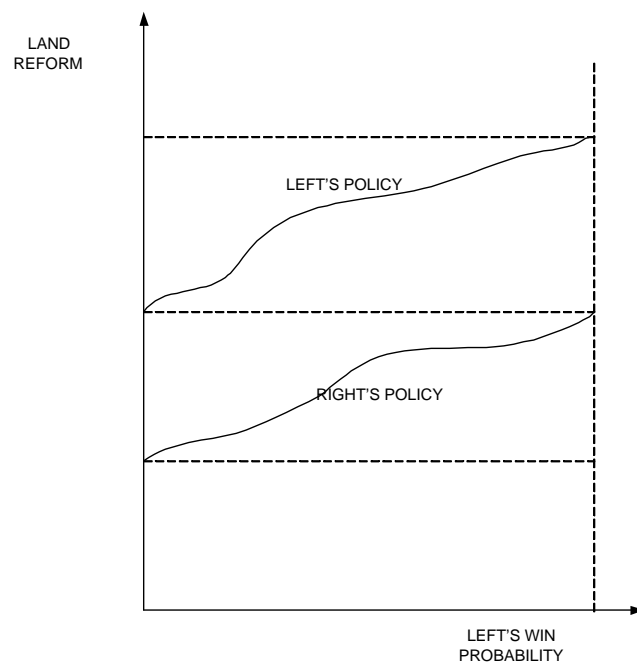


Figure 3: CASE 2: POSITIVE INTERACTION BETWEEN COMPETITIVE ADVANTAGE AND LAND REFORM EFFORT OF LEFT PARTY

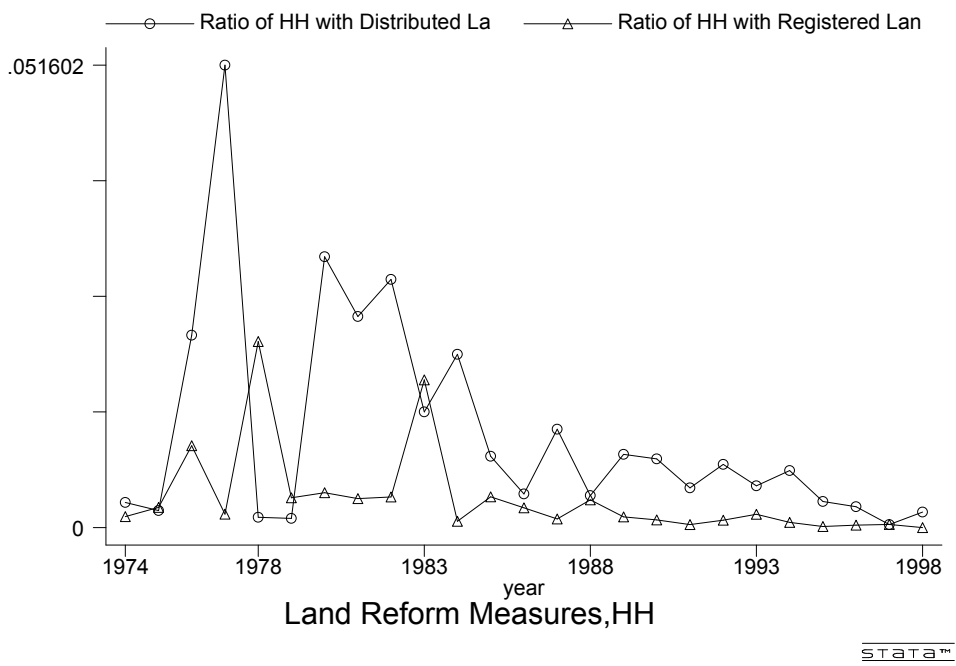


Figure 4: PERCENT HOUSEHOLDS RECEIVING PATTAS/REGISTERED 1974–98