Resource Transfers to Local Governments: Political Manipulation and Voting Patterns in West Bengal *

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Abstract

This paper examines how electoral competition in parliamentary constituencies affects allocation of resources to local governments and subsequent impacts on voter behavior. We examine the consequences of treating the 2007 redistricting of electoral boundaries in rural West Bengal as a shock to political competition between the Left Front (LF) and Trinamool Congress (TMC) in the parliamentary constituency that a village is located in. 21 villages out of a sample of 89 villages were redistricted by a non-partisan Election Commission to a different constituency. Using electoral victory margins in the previous 2004 election as a measure of political competition, we find that resources transferred by LF-controlled district governments to LF-dominated village governments for citizen benefit programs increased significantly if moved to an electoral constituency where the LF was in a weaker competitive position. These changes in benefit flows help predict corresponding changes in vote shares, consistent with the view that resource transfers to GPs were motivated by electoral considerations. Stronger changes were exhibited for recurring private benefits (mainly employment program (NREGA) funds) compared to one-time private benefits and local public goods (water, housing, roads, BPL cards). The evidence is consistent with models of electoral opportunism based on pork-barrel politics and/or clientelistic relational contracts between parties and voters, particularly the latter.

JEL Classification: H40, H75, H76, O10, P48

1 Introduction

The literature on decentralization and service delivery in LDCs has largely focused on problems of political accountability of local government leaders, owing to possible 'capture' of these leaders by local elites. Numerous studies have shown how intra-jurisdictional allocations exhibit significant anti-poor biases in areas with high socio-economic inequality, illiteracy and remoteness.[1] In contrast, relatively little attention has been devoted to problems of accountability of elected officials at higher levels of the government, particularly with regard to how they allocate resources to local governments. Political motives of elected officials at higher levels of governments to manipulate intergovernmental transfers could conceivably result in significant distortions in allocations *across* communities.

In the context of the Indian state of West Bengal, for instance, Bardhan and Mookherjee (2006a) found no evidence that pro-poor targeting declined *within* villages that experienced larger increases in landlessness, land inequality or proportion of low caste communities between 1978 and 1998. But over the same period, these villages experienced larger declines in fiscal and program grants from higher level governments. A 10% shift in cultivable land from small to big landowners, or a rise in the proportion of scheduled castes and tribes among the poor by 5% was associated with a decline in per capita allotment of fiscal grants by approximately 25%. Rising landlessness by 2.5% was associated with an 18% decline in fiscal grants. The corresponding effects on intra-village targeting were comparatively negligible. These findings suggest that allocation of grants to local governments in West Bengal exhibited anti-poor biases, owing possibly to political discretion exercised by higher level officials. They have potentially significant implications for the design of decentralization, and highlight the importance of instituting formula-bound intergovernmental transfers that remove scope for such political discretion. In Bolivia and South Africa, the use of such formula bound transfers resulted in significant improvements in targeting by reducing inequality between wealthy, well-connected areas and the rest of the country (see Faguet (2004, 2006), Wittenberg (2006)).

There are very few studies of the *process* by which resources percolate down through multiple tiers of local governments, in the absence of formula-bound transfers. Part of the reason is that data on inter-governmental transfers are typically difficult to obtain. Moreover, we have limited understanding of the political incentives of higher

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[1]For recent overviews of the literature, see Mansuri and Rao (2013) and Mookherjee (2015)).

level elected officials and how these influence decisions they make regarding transfers to lower level governments. Do officials allocate more benefits to 'swing' constituencies where they experience greater political competition? Which kinds of benefits tend to be particularly subject to such manipulation: short-term recurring benefits (such as work on local employment generation programs, subsidized loans or agricultural inputs), or more long-term one-time benefits (such as provision of land titles, identification cards, houses, toilets, drinking water or roads)? Does the provision of benefits influence how recipients vote? Do voters respond more to recurring or one-term benefits? Are upper level politicians more inclined to manipulate the types of benefits that are more effective in generating votes? To what extent are the results consistent with alternative political economy models, such as those based on citizen candidates (Besley and Coate (1997)), electoral opportunism either without (Dixit and Londregan (1995), Grossman and Helpman (1996)) or with clientelism (Wantchekon (2003), Stokes (2005), Bardhan and Mookherjee (2012), Finan and Schechter (2012), Robinson and Verdier (2013), Khemani (2014) or Sarkar (2014))?

In this paper we study these issues in the context of West Bengal: specifically, whether changes in political competition at a higher level (elections to the national Parliament) resulted in changes in benefits received by households in village councils (*gram panchayats (GPs)*) located at the bottom-most tier of the Indian government system. Indian local governments are organized into three tiers: districts, blocks and GPs. Each district corresponds roughly to 2-3 Parliamentary constituencies, 20 blocks and 200 GPs, with each GP distributing benefits to residents of 10-15 villages. We examine how the 2007 redrawing of electoral constituency boundaries by the state Delimitation Commission differentially affected flows of various government-disbursed benefits between GPs that were and were not reallocated across different Parliamentary constituencies.

An obvious challenge with a causal interpretation of the evidence is that GPs chosen for redistricting are not randomly chosen, and are likely to have specific demographic characteristics (such as population growth rates since the previous redistricting exercise that were either well above-average or below-average). Owing to this, we focus on GPs that ended up being redistricted in specific ways (depending on political alignment at different vertical layers, and differences in political competitiveness between origin and destination) and compare them with GPs that were redistricted in other ways, besides non-redistricted GPs. This requires the assumption that the redistricting was not subject to political manipulation by contesting parties. The Indian Constitution imposes

many restrictions on the process in order to ensure this. Appointed by the Central Election Commission at the federal level, the state Delimitation Commission followed a transparent process to determine the redrawing of constituency boundaries on the basis of changes in population between 1971 and 2001. Iyer and Reddy (2013) who studied the 2007 Delimitation process in two other Indian states, concluded that "for most part the redistricting was politically neutral". We find no evidence of any significant correlation between redistricting (whether a given local government jurisdiction was redistricted, or the nature of the redistricting) with variables representing the most likely determinants of political manipulation incentives (which party controlled the GP or district level government, seat reservation status for low caste candidates, or whether incumbents were appointed as advisors to the Delimitation Commission). We shall therefore interpret the evidence on the assumption that redistricting was not subject to political manipulation, and then check for the possibility of alternative explanations based on violations of this assumption.

We draw on data from a household panel involving surveys of household heads in 2004 and 2011 in a random sample of 89 villages located within 59 GPs in rural West Bengal. Respondents listed benefits received from local governments since the early 1990s. Each survey was followed by a straw poll in which respondents cast a secret ballot marked with symbols representing major contesting parties in the local constituency. These polls were carried out within a few months following a major election (the 2004 Parliamentary election, and the 2011 State Assembly elections, respectively). Using this dataset, we study how changes in per capita benefits received in GPs before and after 2007 differed between GPs redistricted into Parliamentary constituencies of differing political alignments and winning margins in the previous election, and how this was correlated with subsequent changes in poll responses.

Since the late 1990s, political competition in West Bengal has involved a contest between two leading parties: the Left Front (LF) and the Trinamool Congress (TMC), where the former has been steadily losing vote share and seats. Our results show that when the LF dominated both the GP and district level government (the *Zilla Parishad (ZP)*), and the GP was redistricted into a parliamentary constituency where the LF was in a weaker competitive position (measured by vote share differences in the previous election), per capita benefits received by their residents increased significantly compared to GPs that were not redistricted, or those that were redistricted in different ways. This result is robust with respect to controls for village fixed effects, pre-reform political reservation status, and whether the concerned MP was a member of the ad-

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visory committee to the Redistricting Commission. They are also robust with respect to controls for pre-reform trends, and do not appear in a placebo test which shifts the reform date to 2005. The difference-in-difference estimates are precisely estimated and quantitatively significant. Changes in recurring benefits such as employment in MN-REGA were 1.7 times the standard deviation higher in treated areas, while those for one-time benefits were approximately 0.8 times standard deviation higher.

We show these results are consistent with a theoretical model of top-down hierarchical allocation of benefit programs from the district government down through to GPs, with elected Members of Parliament (MP) in electoral constituencies intervening in-between to manipulate transfers to increase their re-election chances. In the model, the party controlling the District ZP allocates its program budgets between different electoral constituencies within their district; these are then allocated by the concerned MP across different GPs and villages, and at the last stage the party controlling the local GP allocates it across residents. The explanation for the observed effects of redistricting is the following: when both top layers of government (ZP, MP) are controlled by the same party, they operate in a coordinated fashion to discriminate more heavily in favor of GPs controlled by their own party that happen to be located in constituencies where it is in a weaker competitive position. Other forms of redistricting where the different layers of government are not similarly aligned will not generate similar increases: e.g., if the MP belongs to the TMC while the ZP is controlled by the LF, the latter will not be able to direct as much resources to Left-controlled GPs in more competitive constituencies owing to the intervention of the opposition MP (in the fund flow between the ZP and GPs) who will seek to favor TMC controlled GPs within his constituency. Or if a Left-dominated GP is redistricted from a Left-controlled constituency to a TMC-controlled constituency, the benefits allocated ought to decrease owing both to lack of political alignment between the ZP and the MP (which lowers the allocation to the constituency when it is controlled by the rival party), and between the MP and the GP (which lowers the allocation to the latter within the constituency).

The model also predicts that the direction of change will be similar across diverse benefit programs. Empirically we examine changes separately for delivery of recurring and one-time benefit programs, and verify that they respond in a similar direction to redistricting. The model also predicts programs exhibiting larger changes ought to be those which are also more effective in generating votes at the local GP level. To test this, we subsequently examine how changes in benefit flows resulting from the redistricting treatment (i.e., of Left-dominated GPs within Left-controlled ZP and MP areas

to constituencies where the LF was in a weaker competitive position) helped predict corresponding changes in poll support expressed for the LF. Since the treatment might have affected incentives for the competing party organizations to alter their efforts to raise support for their respective parties, we focus on differences *within* villages between households that were respectively more and less likely to experience a change in receipt of benefits as a result of the treatment. We therefore instrument benefits distributed at the household level by the redistricting treatment interacted with household characteristics and the scale of benefit programs at the district level. The underlying identification assumption is that the treatment did not change political support differentially across different household groups, after controlling for their effect on benefit distribution. Confining attention first to the 2011 poll results and households in Left-dominated GPs, we obtain a large positive and significant IV estimate of the effects of recurring benefits on votes, and a negative (but statistically significant) effect of one-time benefits on votes. We then examine changes in poll responses between the two rounds by the same set of households, and how they varied with changes in benefits they received three years prior to each survey date that were predicted by changes in the instruments. This specification yields a positive effect of recurring benefits significant at the 10% level, and a negligible, insignificant effect of one-time benefits.

The results can therefore be interpreted as showing that recurring benefits were more effective in increasing voter support, and were subject to greater manipulation. While the results on transfers to the GP are consistent with various theories of electoral competition, those concerning the impacts on poll responses are not consistent with citizen candidate models in which voting patterns are driven by ideological affinity of voters with candidates. Bardhan and Mookherjee (2010) find similar lack of support of ideology based models in the context of implementation of land reforms by West Bengal local governments, and evidence in favor of electoral opportunism motives. The effectiveness of recurring benefits in generating votes, both in absolute terms and relative to one-time benefits, is consistent with models of electoral opportunism with strategic forward-looking voters based either on clientelism or standard pork-barrel motives. Our estimates suggest one-time benefits were not effective in generating votes, implying West Bengal voters did not display much gratitude to past patrons (contrary to the findings of Finan and Schechter (2012) for Paraguay). Our results are consistent with Bhanu and Mukhopadhyay (2014) in Rajasthan, a different state in India, which shows the UPA (when controlling the district level government) increased NREGA employment fund transfers to blocks where the UPA's vote share had been declining recently,

and that these transfers helped the UPA recover its vote share subsequently. They also echo findings of Zimmerman (2015) at the all-India level, wherein votes declined progressively for incumbent politicians in areas with low NREGA implementation quality, unlike incumbents in areas with high implementation quality.

Section 2 describes the institutional context and data. Section 3 provides the theoretical model. Section 4 presents the main results concerning effects of the redistricting on inter-GP benefit allocations. Section 4 then proceeds to examine related changes in polling patterns.

2 Context and Data

India is a federal State with legislative, administrative and executive powers divided between the centre and states. Each state has a hierarchy of administrative governments and elected bodies. District level governments (Zilla Parishads (ZP)) allocate funds to Block Development Offices which then allocate funds to the GPs within the block. The elected GP bodies then decide the allocation of resources and benefits across and within villages in their jurisdiction. Each district has one ZP, and includes between two and three parliamentary constituencies represented by one MP each. Each MP is an ex-officio member of the district ZP. Each ZP covers approximately 20 blocks and 200 GPs; each GP includes 10-15 villages; each village includes 200-400 households.

Our data on benefits comes from two rounds of a household survey in West Bengal carried out in 2004 and 2011. The sample was randomly selected (stratified by landownership) in 2004 from 89 villages in 59 GPs spread through all districts of West Bengal, excluding Kolkata and Darjeeling. Approximately 25 households were surveyed in each village, being selected on the basis of a random sampling design stratified by landholding. Further details of the sampling procedure are provided in Bardhan and Mookherjee (2006a) and Bardhan *et al* (2014). Table 2 provides a summary of the demographic characteristics for the 2402 households in the sample. Figure 1 provides details of the hierarchy of villages, GPs and ZPs in our sample classified by the political party controlling (in the sense of having a majority of seats) each level. 13 out of 18 ZPs were controlled by the Left prior to 2011. Within each ZPs, GPs can be controlled either by the Left or TMC, resulting in variations in vertical political alignment.

Every thirty years boundaries of electoral constituencies are redrawn based on past changes in population, so as to equalize population sizes of constituencies. This was

done in all Indian states following the 2001 Census, based on changes in Census population figures between 1981 and 2001. The National Election Commission set up a three member Redistricting Commission for each state, comprising a retired Chief Justice, a member of the National Election Commission, and the State Election Commissioner. An advisory committee comprised of 5 MPs and 5 state assembly representatives representing different political parties provided input into the process. The state Redistricting Commission was required to follow various rules concerning the redistricting process, besides holding public hearings and addressing complaints. Iyer and Reddy (2013) studied the outcomes of redistricting in two other states and found the mandated rules were followed, and that the outcomes were 'politically neutral' with few exceptions (which arose with regard to redrawing boundaries of constituencies of incumbents on the advisory committee). 21 out of 89 villages in our sample were redistricted. The bottom layer of Figure 1 gives the breakdown of redistricted villages in our sample across jursidictions classified by political control of the ZPs and GPs, and whether the redistricting was to a parliamentary constituency where the Left was 'weaker' in the sense of earning lower vote share in the previous (2003) parliamentary election.

Reliable data concerning benefit program allotments across blocks, GPs, villages or distribution across households within villages are not available in the public domain. We therefore rely on household surveys provide details of receipt of various benefit programs administered by the GP by the household, including the year they were received. We classify benefits into two categories: one-time and recurring. One-time benefits can be provided only once to each household, and generate long term benefits. These include road and drinking water access in the hamlet where the household resides, provision of housing, private toilets, land titles, registration and below-poverty-line (BPL) cards which entitle holders to receive subsidized food, fuel and other government benefits. The recurring benefits on the other hand generate only short-term benefits, such as subsidized agricultural inputs, credit or employment in local public works (in schemes such as MNREGA). Table 2 provides summary statistics provides details of the distribution of benefits. In the period 2003-2011, 62% of the households received at least one benefit. The largest source of benefits since 2007 is the MNREGA employment scheme which is a recurring benefit. A large proportion of households also benefitted from Roads as well as BPL cards in 2003-2011. These numbers did not change much from the previous period 1993-2002.

There are currently two main political parties in West Bengal: the Left Front coalition led by Communist Party of India (Marxist) and the Trinamool Congress (TMC).

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The Left party dominated village, district and state governments from 1977-2011, and lost its majority to the TMC in 2011. Between the 2006 and 2011 state legislature elections, the Left Front's vote share share dropped from 50% to 41% while the TMC share rose from 24% to 35%. At the end of each household head survey in each round (2003 and 2011), the respondent participated in a straw poll, selecting one political party symbol from among various competing parties in the state that they expressed support for in a secret ballot exercise. Table 3 provides descriptive statistics for 2004 and 2011 poll shares of the Left Front across land and caste categories in the sample. The Left Front's loss of popularity was especially pronounced among its traditional support groups (landless and marginal landowners, scheduled castes and tribes (SC/STs), and less educated heads).

Table 4 provides linear probability regressions of the likelihood that any given village was redistricted, and of redistricting into constituencies where the Left was in a weaker position. Political control at the ZP or GP level exercises no significant effect on the likelihood of redistricting. Neither does the political SC/ST reservation status of the MP seat, or whether the incumbent MP was a member of the advisory committee to the state Redistricting Commission, play significant roles. The only significant determinants of likelihood of redistricting were demographic variables: the proportion of household members who had out-migrated (OVER WHAT PERIOD?) and the proportion of SC/ST households. Column 2 confines attention to redistricted villages and examines determinants of the likelihood that they were redistricted into constituencies where the Left was weaker. Column 3 restricts the sample to villages in Left dominated ZPs, and examines likelihood of the joint event (corresponding to our main treatment variable in the analysis to follow) that the village was in a Left-dominated GP and redistricted into a constituency where the Left was weaker.[2] No specific political or demographic variable affected these likelihoods significantly; they were jointly insignificant in column 3. We therefore fail to find evidence of any political manipulation of the redistricting process

3   Theory

The district government (denoted Z) allocates a given per capita benefit allotment of b_k for programs $k = 1, \ldots, K$ across different electoral constituencies $C_i, i = 1, \ldots, I$ under

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[2]It turns out all instances of redistricting of this sort was across constituencies with an incumbent from the LF party, so we do not include this in the definition of the event.

its jurisdiction. These constituencies have equal populations; C_i is controlled either by the L party ($I_i = 1$) or by the T party ($I_i = -1$) as a result of a majority vote in the past parliamentary election. Each constituency C_i is comprised of villages $v \in C_i$, where village v is controlled either by the L party ($I_v = 1$) or by the T party ($I_v = -1$) as a result of a majority vote in the past panchayat election. These villages may have differing populations; n_v denotes the population proportion of village $v \in C_i$. Let η_i denote $\sum_{v' \in C_i} n_{v'} I_{v'}$, which is positive (resp. negative) if the L (resp. T) party has above-average control of villages in the constituency. To simplify the theory we assume that C_i is controlled by the L party if it has above-average control of villages in the constituency, i.e., that $I_i = 1$ if and only if $\eta_i > 0$. It is of course possible that different parties control upper and lower level governments in the same constituency. In such situations, budget constraints of upper level governments may not bind as they would resist transferring resources to lower level governments, an issue we seek to abstract from.

The district government selects an allocation b_{ki} of the kth benefit program for constituency C_i, satisfying the budget constraint $\frac{1}{I} \sum_{i=1}^{I} b_{ki} = b_k$, as constituencies have equal populations. Given the allocated program $b_{ki}, k = 1, \ldots, K$, the politician controlling constituency C_i selects an allocation b_{kv} across villages in its jurisdiction, satisfying the budget constraint $\sum_{v \in C_i} n_v b_{kv} = b_{ki}, k = 1, \ldots, K$.

A village government then allocates benefits across resident households. Benefits distributed have implications for how residents vote in the next election, as predicted by pork-barrel or clientelism models. Whichever party is in power in the village government will allocate benefits to maximize its vote share. The resulting vote share of party L in village $v \in C_i$ will be

$$\sigma_v = \frac{1}{2} + \theta_i + I_v \sum_k \nu_k b_{kv} \tag{1}$$

where ν_k denotes the vote-generating effectiveness of benefit k, and θ_i is a constituency-specific shock. If the village is controlled by the LF, benefits distributed will allow LF to increase its vote share, while if controlled by the TMC will cause LF to lose vote share at the same rate.

3.1 Underlying Voting Model

The benefits-vote relationship (1) could emerge from simple probabilistic voting versions of either pork-barrel or clientelistic models. Consider for instance a model with two party competition in the spirit of Dixit-Londregan (1995) or Grossman-Helpman (1996):

residents in village v are divided into groups $g = 1, \ldots, G$ where the demographic share of group g is μ_g, group g residents place value β_{kg} on benefit k. Each resident either receives one unit of any benefit or none. Each party $p = L, T$ selects a policy π_{kg}^p which is the fraction of group g residents that receive benefit k, satisfying the budget constraint $\sum_g \mu_g \pi_{kg}^p = b_{kv}$. Given such a pair of policies, a member of group g with loyalty $\tilde{\theta}$ towards the L party which is the current incumbent ($I_v = 1$) will vote for L (or express support for L in the poll) if

$$\theta + \sum_k \beta_{kg}(1 + \alpha)\pi_{kg}^L > \sum_k \beta_{kg}\pi_{kg}^T \tag{2}$$

where $\alpha > 0$ is an incumbency advantage on account of credibility of the benefit policy π_{kg}^L being currently implemented by the L party, as against the promise of π_{kg}^T by the other party should it come to power in future. If $\tilde{\theta}$ is uniformly distributed with density $\frac{1}{f_g}$ with mean θ_i where f_g is small, the vote share of the L party will be $\sum_g \mu_g f_g \sum_k \beta_{kg}\{(1 + \alpha)\pi_{kg}^L - \pi_{kg}^T\}$. Both parties will then converge to the same policy π_{kg}^* which maximizes $\sum_g \mu_g f_g \beta_g \pi_{kg}$ subject to the budget constraint $\sum_g \mu_g \pi_{kg} = b_{kv}$. Assuming that benefit allocations are small in the sense that $b_{ki} < \mu_g$ for all g, the common policy chosen will allocate all the benefits to group g^* which has the highest $f_g \beta_{kg}$ across all groups, i.e., $\pi_{kg}^* = \frac{b_{kv}}{\mu_g^*}$ for group g^* and 0 for all other groups. Then the equilibrium vote share of the L party will satisfy (1) with $\nu_k \equiv \alpha f_{g^*} \beta_{kg^*}$.

The parameter of vote-generating effectiveness ν_k is then the product of incumbency advantage α, 'swing' factor f_{g^*} of the targeted group, and marginal value of benefit k to this group. With forward-looking self-interested voters, β_{kg} will be zero for one-time benefits already received by members of this group, and positive for recurring benefits. This will imply recurring benefits will be more effective in generating future votes, and will generate stronger political incentives for manipulation by higher level governments. However to the extent that voters are also motivated by feelings of gratitude or reciprocity towards parties for benefits received in the past, one-time benefits may also generate some payoff in terms of future votes.

Clientelistic models (e.g., Stokes (2005), Bardhan-Mookherjee (2012), Sarkar (2014)) would generate similar predictions as well. The main difference would be that eligibility for benefits would be restricted by an incumbent party to those it believes has voted for them in the past. To this end, party p would monitor voting and be able to detect how any specific resident of group g voted with a given probability τ^p. A resident would evaluate future (post-election) expected utility $\gamma \sum_k \beta_{kg}\pi_{kg}^L + (1-\gamma)(1-\tau^T) \sum_k \pi_{kg}^T$ upon voting for L, where γ denotes the voter's belief that L will win the next election. Voting

for T will instead generate future expected utility of $\gamma(1-\tau^L)\sum_k \beta_{kg}\pi_{kg}^L + (1-\gamma)\sum_k \pi_{kg}^T$. Hence the voter with loyalty $\tilde{\theta}$ to the L party will vote L if $\tilde{\theta} + \gamma\tau^L \sum_k \beta_{kg}\pi_{kg}^L > (1-\gamma)\tau^T \sum_k \beta_{kg}\pi_{kg}^T$. Both parties will again converge to the policy π_{kg}^* depicted above, and the equilibrium vote share will follow (1) with $\nu_k \equiv [\gamma\tau^L - (1-\gamma)\tau^T]f_{g^*}\beta_{kg^*}$. The only difference from the previous model is that ν_k now depends also on residents' beliefs about who will win the next election, besides respective monitoring intensities by the two parties. This model is more complicated as residents' beliefs could be endogenous, so closing the model would require additionally an assumption of rational voter expectations. We can employ this model if these beliefs are instead taken to be exogenous, which may be reasonable if a relatively small fraction of villages are redistricted so that aggregate electoral prospects of either party at the parliamentary constituency are unaffected.

3.2 Inter-Village Benefit Allocation within a Constituency

The probability that L wins constituency C_i equals $p(\sigma_i)$, a smooth monotone increasing function of its aggregate vote share $\sigma_i \equiv \sum_{v\in C_i} n_v \sigma_v$. The function p equals $\frac{1}{2}$ at $\sigma_i = \frac{1}{2}$, is concave above $\frac{1}{2}$ and convex below. We additionally assume $p''' \leq 0$. These conditions are satisfied by the following 'quadratic' function:

$$
\begin{aligned}
p(\sigma) &= (\frac{1}{2} - \frac{k_1}{2} + \frac{k_2}{4}) + (k_1 - k_2)\sigma + k_2\sigma^2 && \text{if } \sigma < \tfrac{1}{2} \\
&= (\frac{1}{2} - \frac{k_1}{2} - \frac{k_2}{4}) + (k_1 + k_2)\sigma - k_2\sigma^2 && \text{if } \sigma > \tfrac{1}{2}
\end{aligned}
$$

where $1 > k_1 > k_2 > 0$. The function p smooths the winning likelihood, owing to possible randomness in turnout or vote counting errors.

We assume the objective of the party controlling C_i is to select an inter-village allocation $b_{kv}, k = 1, \ldots, K$ to maximize

$$
I_i R p(\sum_{v\in C_i} n_v \sigma_v) - \frac{d}{2}\sum_{v\in C_i}\sum_k (b_{kv} - b_{ki})^2 \tag{3}
$$

subject to the budget constraint $\sum_{v\in C_i} n_v b_{kv} = b_{ki}, k = 1, \ldots, K$, where village vote shares σ_v depend on the inter-village allocation as depicted by (1), and R denotes exogenous political rents. The first term in (3) represents the objective of enhancing re-election prospects, which motivates it to bias inter-village allocations in favor of villages where benefit programs are likely to generate most votes for the C_i incumbent. The ability of the incumbent to distort the allocation is restricted by the second term,

which imposes a cost proportional to the variance of the inter-village allocation. This can be thought of the cost in handling complaints of unfair treatment from village level representativeness, media watchdogs or auditors appointed by upper level governments.

Proposition 1. *The optimal inter-village allocation within electoral constituency C_i satisfies*

$$b_{kv}^* = b_{ki} + \frac{R}{d} \nu_k p_i'(\sigma_i^*) I_i [I_v - \eta_i] \tag{4}$$

where σ_i^* denotes the resulting equilibrium vote share of the L party:

$$\sigma_i^* = \frac{1}{2} + \theta_i + \sum_{v \in C_i} I_v \sum_k \nu_k b_{kv}^* \tag{5}$$

where it may be recalled η_i denotes $\sum_{v' \in C_i} n_{v'} I_{v'}$, the 'average' control of party L of the constituency.

The inter-village allocation of benefit k within constituency C_i is biased in favor of village v by an extent that depends on: (a) ν_k: how effective the benefit is in generating votes; (b) p_i': how competitive the constituency is; (c) I_v, I_i: which party controls the village v government and whether it is aligned with the party that controls C_i. If both C_i and v are controlled by the L party, the term $I_i[I_v - \eta_i]$ equals $(1 - \eta_i) > 0$, so the bias is positive. If they are both controlled by the T party, this term equals $(1 + \eta_i)$ and is again positive. If they are controlled by different parties, the term is negative. This shows that more competitive constituencies will seek to bias inter-village allocations more, particularly those benefit programs which are more effective in generating votes.

3.3 Inter-Constituency Allocations and Overall Impacts

If the district level government is controlled by the L party, we assume its objective is to maximize

$$R \sum_i p(\sigma_i^*) - \frac{d}{2} \sum_i \sum_k (b_{ki} - b_i)^2 \tag{6}$$

an expression representing a rent-seeking motive traded off against the cost of biasing inter-constituency allocations. If it is controlled by the T party, the objective is instead to minimize $R \sum_i p(\sigma_i^*) + \frac{d}{2} \sum_i \sum_k (b_{ki} - b_i)^2$.

The optimal allocation decided by each constituency implies that if Z is controlled by the L party:

$$\frac{\partial \sigma_i^*}{\partial b_{ki}} = \frac{\eta_i \nu_k}{1 - p_i''(\sigma_i^*) R \nu_k^2 s_i^2} \tag{7}$$

where s_i^2 denotes the variance of I_v within C_i. As we have assumed $\eta_i > 0$ if C_i is controlled by party L, this ensures that allocating more benefit to C_i will increase the vote share of L; conversely if it is controlled by party T a higher benefit allocated to C_i will result in a reduction in the vote share of L.

Note also that expression (7) is increasing in ν_k if

$$1 > -p_i''(\sigma_i^*) R \nu_k^2 s_i^2 \tag{8}$$

which we shall assume from now on. It amounts to a restriction on the curvature of the p function: in the quadratic case, it amounts to assuming that the curvature k_2 is smaller than $\frac{1}{R\nu_k^2 s_i^2}$ for all i, k. Also note that in the quadratic case, the derivative (7) is constant: constituency level vote shares are linear in benefits allocated. In what follows we denote the derivative (7) by γ_{ik}.

Proposition 2. [3]

(a) *Suppose Z is controlled by the L party. Then the optimal inter-constituency allocation satisfies*

$$b_{ki}^* = b_k + \frac{R}{d}[p_i' \gamma_{ik} - \frac{1}{I} \sum_j p_j' \gamma_{jk}] \tag{9}$$

resulting in the inter-village allocation

$$
\begin{aligned}
b_{kv}^* &= b_k + \frac{R}{d}[p_i' \gamma_{ik} - \frac{1}{I} \sum_j p_j' \gamma_{jk}] \\
&+ \frac{R}{d} \nu_k p_i'(\sigma_i^*) I_i [I_v - \eta_i].
\end{aligned}
\tag{10}
$$

(b) *Suppose Z, C_i, C_j are all controlled by the L party. If village v is redistricted from C_j to C_i where it is less popular ($\theta_i < \theta_j$) but has the same control ($\eta_i = \eta_j$), its budget allocation b_{kv}^* will increase for every benefit program k. Given assumption (8), the increase will be larger for benefit programs k with higher ν_k.*

---

[3]The proof of (a) is straightforward, following from first order conditions of Z's maximization problem. For (b) we first show that $\sigma_i^* < \sigma_j^*$. Otherwise we have $\sigma_i^* \geq \sigma_j^*$, implying $p'(\sigma_i^*) \leq p'(\sigma_j^*)$ and $p''(\sigma_i^*) \leq p''(\sigma_j^*)$. Since $\eta_i = \eta_j$ we must have $s_i^2 = s_j^2$. It then follows that $p'(\sigma_i^*)\gamma_{ik} \leq p'(\sigma_j^*)\gamma_{jk}$ for every k. (9) then implies that $b_{ki}^* \leq b_{kj}^*$ for each k. Hence (4) implies that $b_{kv}^* \leq b_{kv'}^*$ for each k if $v \in C_i, v' \in C_j$. Then (1) implies that $\sigma_i^* < \sigma_j^*$ since $\theta_i < \theta_j$, and we have a contradiction. Given that $\sigma_i^* < \sigma_j^*$, similar arguments used above with the corresponding inequalities reversed imply that $b_{kv}^* > b_{kv'}^*$ for each k if $v \in C_i, v' \in C_j$.

Part (b) is the main result of interest. Redistricting one L-dominated village from an L-dominated electoral constituency to another where L is in a weaker competitive situation results in an increased allocation of every benefit program. The intuitive reason is that the party controlling the district will want to discriminate more heavily in favor of constituencies and villages within that it also controls, relative to those that it does not.[4] Specifically, the deviation of the village level budgetary allocation (10) from the district average is the sum of two components: (a) an 'inter-constituency' component which is proportional to the variation of $p_i' \gamma_{ik}$ from its mean in the constituency, and (b) an 'intra-constituency' component $p_i' I_i [I_v - \eta_i]$ which depends on competitiveness and political alignment between constituency and the village government. The first component is higher in a constituency where the L party is in a weaker competitive position. The second is also higher, as the village and constituency are controlled by the same party, and the constituency is more competitive.

The model also yields testable predictions for how the budgetary effects of redistricting will change for different political constellations of redistricting, and how these are related to corresponding effects on voting patterns:

P1. As described in Proposition 2: If Z is controlled by L, redistricting a L-dominated village from an L-dominated electoral constituency to another where L is in a weaker competitive situation results in an increased allocation. *Moreover, the increase will be larger than for redistricting with alternative political alignments at various layers.* For instance:

   (a) If Z is controlled by L, redistricting a T-dominated village from an L-dominated electoral constituency to another where L is in a weaker competitive situation will result in a change in benefits which is smaller in case P1 above; it is ambiguous whether benefits will increase or not. The reason is that while the inter-community component is higher in C_i where L is weaker, the intra-community component will be lower in C_i owing to lack of political alignment between the party in power at the constituency and at the village level (the L-party will discriminate more severely within C_i against T-dominated villages).

   (b) If If Z is controlled by T, redistricting a T-dominated village from a T-

---

[4]The result requires the L party to have similar control in the two constituencies. It may not hold if it has less control over the constituency where it is weaker, since benefits allocated to that constituency will be less effective in generating votes for the L party.

dominated electoral constituency to another where L is in a weaker competitive situation results in a decreased allocation. This is simply the converse of P1, and follows the same logic.

(c) If Z is controlled by T, redistricting a L-dominated village from a T-dominated electoral constituency to another where L is in a weaker competitive situation will result in a change in benefits which is larger compared to case P3; it is ambiguous whether benefits will decrease or not. This is the converse to P2.

(d) If Z is controlled by L, redistricting a L-dominated village from an L-dominated electoral constituency to a T-dominated constituency results in a decreased allocation. This is because both inter-constituency and intra-constituency components will decline, owing to lack of political alignment (between Z and the constituency, and between the constituency and the village government, respectively.

P3. *In all cases, the direction of change should be the same for all benefit programs.*

P4. *Benefit programs that change by larger magnitudes will be the ones that are more effective in increasing votes.* Of particular interest is the question whether recurring benefit programs are more responsive to redistricting shocks and more effective in generating votes.

4 Empirical Results: Effects of Redistricting on Inter-Village Benefit Allocations

Our principal treatment variable corresponds to prediction P1 above: the event that the ZP and GP are both controlled by the LF party, and the village is redistricted to a constituency where the LF had a lower winning margin in 2003. As mentioned previously, our sample has the feature that all such redistricting events involved transfers across constituencies where the incumbent was also from the LF, so including that in the definition is redundant. The prediction is that such redistrictings will involve an increase in benefits allocated relative to non-redistricted villages, or relative to those villages where redistricting occurred without complete political alignment at different layers.

Let B_{vt} denote either total recurring or one-time per-capita benefits received by sample residents in village v in year t. We express this in standardized units (divide each village-year observation by the sample mean and divide by the standard deviation), and use the following regression specification:

$$
\begin{aligned}
B_{vt} \ = \ & \alpha_0 + \alpha_1 Post * LeftWeaker_v * LeftZP_v * LeftGP_v \\
+ \ & \alpha_2 Post * LeftWeaker_v * LeftZP_v \\
+ \ & \alpha_3 Post * LeftWeaker_v \\
+ \ & \sum_j \gamma_j Post * I_{vj} + F_v + \tau_t + \epsilon_{vt}
\end{aligned}
$$

where:

Post=1 for years 2008-2011, and 0 for earlier years

$LeftWeaker_v = 1$ if village v was redistricted into a constituency where LF had a lower vote share in 2003

I_{vj} refers to village controls which include lower order interactions between variables defining the treatment; whether constituency was reserved for SC/ST in 2003; whether incumbent MP was member of advisory committee to Delimitation Commission

F_v, τ_t are village and year dummies respectively

Coefficient α_3 represents differential changes in benefit allocation in villages redistricted to constituencies where the LF was weaker, compared to villages that were not redistricted. Coefficient α_2 is the extent to which this difference was higher in Left ZP villages compared to TMC ZP villages. Coefficient α_1 is the additional effect within Left ZP villages for those in GPs that were politically aligned with the ZP. Our main prediction is that α_1 is positive, while the other coefficients have ambiguous signs.

The results are shown for aggregate recurring and one-time benefits in Table 5 for the entire 1993-2011 period which pools data from both survey rounds, both with and without pre-trend linear-time-trend controls. We see significant estimates of α_1 of 3.52 and 2.3 standard deviation for recurring and one-time benefits in the absence of pre-reform trend controls, and 3.27 and 2.23 respectively with the trend controls. Estimates of α_2, α_3 are smaller, negative and statistically insignificant.

Table 6 shows corresponding results restricting to data from the last survey round, covering benefit allocations between 2004 and 2011. Here we obtain larger estimates of α_1, while the estimates of other treatment variables continue to be negative and insignificant.

Figure 2 shows time-plots of benefits per village for the different treatment categories and remaining villages. There is no apparent difference in pre-reform trends. Big spikes are observed in the primary treatment villages for recurring benefits in 2009 and 2010, and for one-time benefits in 2010. The lack of any major difference between different treatment and control groups in 2011 is consistent with the fact that the crucial state assembly elections were held in the first half of that year. The spikes following 2008 in the primary treatment villages were larger than those observed prior to the previous state assembly election in 2006, particularly in the case of recurring benefits. Table 7 carries out a placebo test of the specification in Table 5, shifting the redistricting date to 2005. Now the estimates of α_1 are substantially smaller and no longer significant.

Table 8 examines treatment impacts on different kinds of informal benefits that household heads reported receiving from GP members: help with their current employment or business, intervention in disputes within and across households, and help in personal emergencies. The estimate of α_1 here is positive and significant for GP help with dispute resolution, and is not significant for the other two categories. There is a significant negative estimate of α_2, corresponding to TMC dominated GPs within Left ZPs. This is consistent with our model, as the help would primarily be provided by the GP members who were dominated by TMC members: the latter would have a lower incentive to help citizens if the village was redistricted to a constituency where the TMC was in a stronger competitive position. The contrasting large and positive effect in GPs controlled by the LF indicates that in contrast they increased their effort substantially.

5 Poll Results

We now turn to the second step: analyzing the effect of different kinds of benefits on voting. We seek to estimate a regression corresponding to equation (1) in the model. To do this, we need to avoid problems with endogeneity of benefit distribution. One obvious problem of reverse causality is that more benefits could be delivered to villages with more Left-supporters. To get around this, we utilize the village panel and exploit benefit variations generated by the primary treatment variable above associated with

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redistricting ($Post*LeftGP*LeftZP*LeftWeaker$). The problem with this would be existence of possible direct effects of the treatment on the Left's popularity, besides those operating through their impacts on benefits. For instance, the change in competitive position resulting from the redistricting could affect efforts of the two contesting parties to mobilize voters via direct contact, election rallies or advertising. We saw evidence of such efforts in the data on help provided by the GP in household dispute resolution. Other mobilization efforts are difficult to observe. Hence the exclusion restriction would be violated if we were to use the treatment as an instrument for benefits.

To deal with this problem, we focus on within-village variations across households in benefits and poll responses. This would wash out the effects of village-wide unobservable impacts of the treatment on popularity of the Left that do not operate through benefit distribution. For survey year t we postulate the following regression for households located in villages in a LF dominated GP:

$$L_{ivt} = \sum_k \nu_k \bar{b}_{ivkt} + \rho_1 T_{vt} + \rho_2 HC_i + \epsilon_{ivt} \tag{11}$$

where:

L_{ivt} is 1 if household i in village v expressed support to LF in t and 0 otherwise;

$\bar{b}_{ivkt}$ denotes number of benefits of type k received by i in village v, averaged across three years prior to t;

T_{vt} is the treatment dummy, whose effect represents non-benefit determinants of Left's popularity in treated villages;

HC_i denotes a vector of household characteristics

We restrict the sample to LF dominated villages because these include the treatment group. The specification (11) does not apply to villages where the TMC dominated the GP, since benefits distributed would be likely to lower the relative popularity of the LF rather than increase it, so they would generate coefficients distinct from those in (11). The redistricting went into effect at roughly the same time as the GP elections in early 2008, so would have been unlikely to affect the outcomes of these elections. There were 46 villages in our sample in this category.

Benefits of type k received by household i in year t are given by

$$\begin{aligned} \bar{b}_{ivkt} &= \tau_{1k} T_{vt} * S_{vt} * HC_i + \tau_{2k} T_{vt} + \tau_{3k} S_{vt} * HC_i \\ &\quad + \tau_{4k} S_{vt} + \tau_{5k} HC_i + \tau_{6k} + \eta_{iv} \end{aligned} \tag{12}$$

where S_{vt} denotes the per capita benefit (aggregated across recurring and one-time programs) distributed in year t in the district in which v is located.

Given the identification assumption that the treatment does not differentially affect non-benefit-based popularity across different household groups within the same village, we can use $T_v * S_{vt} * HC_i$ as an instrument for household benefits of either kind. We first focus on the 2011 survey cross-section, and villages that were in Left-dominated GPs since 2008. Table 9 shows the first-stage results for recurring and one-time benefits in the first two columns: the F-stat indicates the instruments are not weak. The IV estimates are shown in Column 3: we see recurring benefits had a strong positive impact on popularity, while one-time benefits had a negative impact (but estimated less precisely, significant at the 10% level).

Table 10 presents corresponding results with a more demanding household fixed effects specification. We restrict attention to the 42 villages in in our sample in Left-dominated GPs for three years prior to both survey dates, and specify the change between 2004 and 2011 of the party that household i expressed support for:

$$\Delta L_{iv} = \sum_k \nu_k \Delta \bar{b}_{ivk} + \rho_1 T_v + + \Delta \epsilon_{ivt} \tag{13}$$

where Δ denotes difference between the two survey rounds, and T_v is a dummy for villages that were treated. The change in average benefits received by a household (for three years prior to the survey year) between the two survey years is then:

$$\begin{aligned} \Delta \bar{b}_{ivk} &= \tau_k T_v * \Delta S_{vk} * HC_i + \gamma_k \Delta S_{vk} * HC_i \\ &\quad + \psi_{1k} T_v + \psi_{2k} \Delta S_{kv} + \psi_{6k} + \eta_{iv} \end{aligned} \tag{14}$$

The first-stage F-stats continue to be strong. The IV regression now provides a smaller and positive estimate of the effect of recurring benefits, which is significant at 10%; the effect of one-time benefits is close to zero and insignificant.

6   Concluding Comments

The use of non-experimental data typically raises concerns about identification assumptions underlying any inferences made. One way to gauge the seriousness of these concerns is to consider alternative explanations for the statistical results and examine whether there is compelling evidence in their favor. Our first result, concerning the impact of redistricting of villages in Left-dominated areas to constituencies where it was

in a weaker position, could raise doubts about whether the redistricting process was itself politically manipulated. It is possible that the Left managed to ensure placement of Left-dominated villages in constituencies where it was weaker, so placement was not exogenous. Yet such a hypothesis would have to admit an alternative form of partisan political manipulation by incumbents. It is undeniable that the villages which were redistricted in this fashion experienced substantially larger increases in benefit flows, particularly recurring benefits such as funds for the MNREGA program. So the manipulation was not restricted to directing the redistricting suitably, but accompanying them with corresponding increases in benefits, which must have been motivated by their perceived effectiveness in increasing support for the Left Front.

Our second set of results concerning possible causal impact of benefits distributed on popularity of the incumbent party with voters are based on the stronger identification assumption, that distribution of benefits represent the only (or main) instrument to political parties for targeting specific household groups when trying to generate increased support. Further work is needed to gauge the plausibility of this assumption.

Conditional on our identification assumptions, our results provide evidence that benefit flows to local village governments in West Bengal were manipulated by the Left Front party for partisan purposes. The magnitude of these changes for the particular treatment group we highlighted were surprisingly large and provide an upper bound to the extent of such manipulation. Our evidence also indicates that recurring benefit programs were manipulated to a greater degree, for the reason that they were more effective than one-time programs in generating votes. This is a form of political distortion of the sort emphasized by theories of clientelism in particular, though it is also consistent with more standard models of distributive politics. The next step needed would be to try to go one step further and try to distinguish between these two sets of theories.

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Figure 1: Government Hierarchy and Redistricting in Our Sample
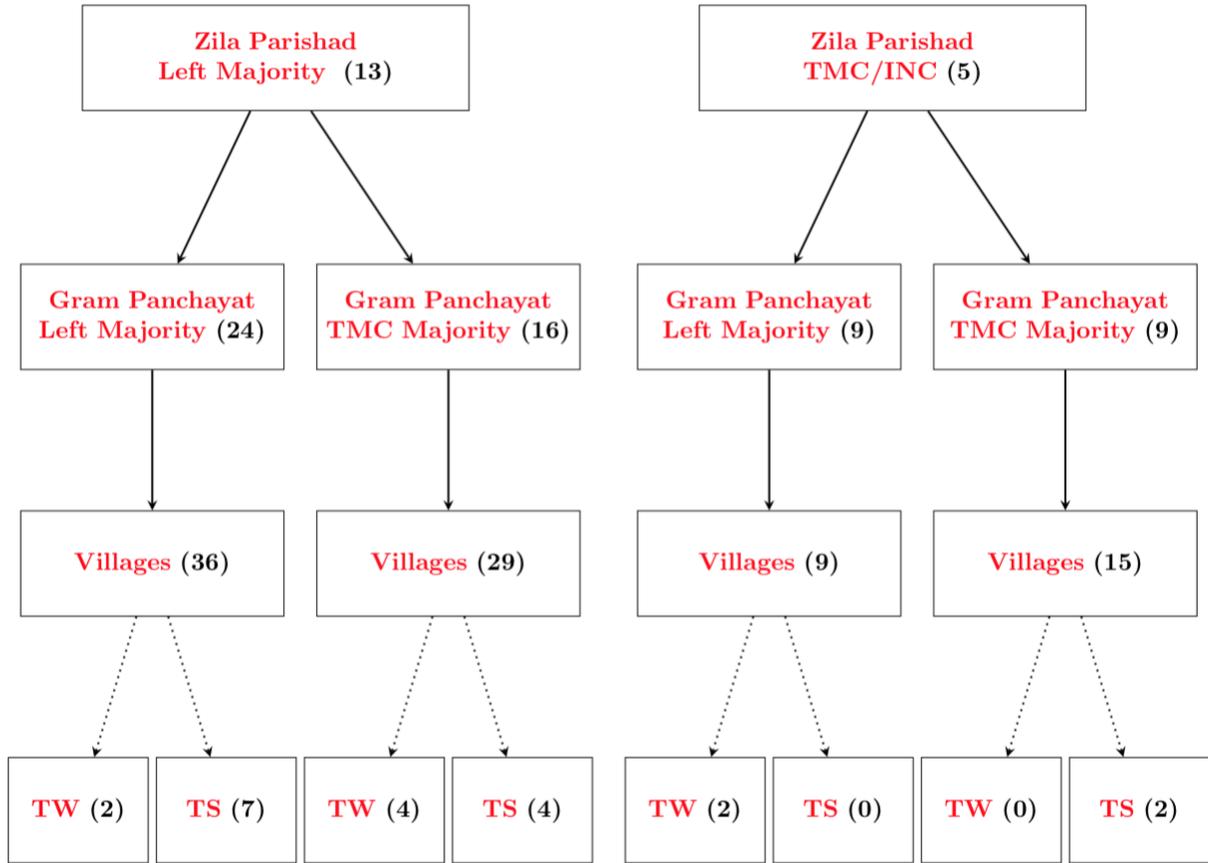
TW: Treatment - Left Weaker;   TS: Treatment - Left Stronger

The figures in parenthesis denote the number of each jurisdiction in our sample.

Table 1: Summary Statistics: Demographics

Agri Land Owned 2004	No. of Households	Age House-hold Head (HoH)	% HoH Males	Max Education Years of Schooling	% SC/ST	% HoH Agri Occu-pation
Landless	1214	45	88	6.6	37.4	26
0-1.5 Acres	658	48	88	7.8	38.9	65
1.5 - 2.5 Acres	95	56	92	10.8	22.4	82
2.5-5 Acres	258	58	93	11.1	27.1	72
5-10 Acres	148	60	89	12.5	26.1	66
> 10 Acres	29	59	100	13.9	30.9	72
All	2402	49	89	8.0	35.4	47

Table 2: Summary Statistics: GP Disbursed Benefits Received by Households

	(1993 - 03)	(2004-11)
	% HoH Reporting	% HoH Reporting
Any Benefit	61.5	62.5
Recurring Benefits		
Credit	4.7	2.1
Minikit	5.4	10.5
MNREGA	NA	33.9
MPLAD	n.a.	0.2
Conflict Resolution	n.a.	14.52
One-time Benefits		
BPL Cards	17.7	18.1
House or Toilet	4.6	10.2
Drinking Water	7.6	12.5
Road	27.1	24.8
Old Age Pension	n.a.	3.15
Widow Pension	n.a.	1.8

[1] MNREGA scheme began in 2004, hence Not Applicable (NA) prior to 2003.

[3] n.a. means "Not Available". Questions regarding these schemes were not asked in the 2004 survey.

Table 3: Election Results and Poll Responses

Panel [a] Official Election Results*

	2006	2011
Party Vote Shares (%)		
TMC	24	35
Left Front	50	42
INC	16	12
Others	11	12
Voter Turnout (%)	84	86

Panel [b] Results from Poll Responses

	2004	2011
Party Poll Shares (%)		
TMC	11	45
Left Front	58	34
INC	19	12
Others	5	2
Didn't Respond	7	7

* The official election results are reported only for constituencies in which survey was conducted.

Table 4: Predicting Redistricting

	(1) Redistricted	(2) Left Weaker	(3) Left Weaker*Left GP
Left GP and Left ZP	-0.05	-0.09	
	(0.26)	(0.54)	
Left Dominated GP	0.09	0.61	
	(0.22)	(0.90)	
Left Dominated ZP	-0.17	-0.03	
	(0.19)	(0.51)	
MP Member of Delimitation Commission	-0.11	0.24	-0.02
	(0.18)	(1.02)	(0.04)
Constituency Reserved for SC/ST in 2004	-0.12	-0.61	-0.05
	(0.16)	(0.61)	(0.05)
Proportion of SC/ST HHs	-0.42*	-4.83	-0.09
	(0.23)	(8.49)	(0.09)
Proportion of HH with Out-migration	-0.52***	-0.17	-0.20
	(0.17)	(1.11)	(0.19)
Proportion of Hindu HHs	0.24	0.36	-0.07
	(0.23)	(0.71)	(0.08)
Average HoH Education Level	-0.02	-0.16	0.01
	(0.03)	(0.15)	(0.01)
Proportion Below Poverty Line	-0.05	1.08	-0.21
	(0.32)	(0.68)	(0.20)
Proportion Landless in 2004	-0.01	0.29	-0.07
	(0.58)	(1.37)	(0.18)
Observations	89	21	67
Adjusted R^2	0.031	-0.189	-0.002
Mean Dependent Variable	0.24	0.38	0.03
Joint Significance Test: F-statistic	8.55	17.51	0.69
(p-values)	(0.00)	(0.00)	(0.69)

* $p<0.10$, ** $p<0.05$, *** $p<0.01$ Robust standard errors in parentheses, clustered at district level.

[1] Left Weaker is a dummy that includes two cases: [a] village was in TMC constituency and moved to a less competitive TMC constituency [b] village was in Left constituency and moved to a more competitive Left constituency.

[2] Sample in Column (2) consists only of redistricted villages. In column (3) sample consists of Left ZP villages.

Table 5: Effect of Treatment on Per Capita Village Benefits Distributed (1994-2011)

	(1) Recurring	(2) Recurring	(3) One-Time	(4) One-Time
Post*Left Weaker* Left ZP* Left GP	1.18***	1.71***	0.84***	0.84***
	(0.24)	(0.25)	(0.30)	(0.30)
Post*Left Weaker* Left ZP	-0.03	-0.03	-0.02	-0.02
	(0.49)	(0.49)	(0.35)	(0.35)
Post*Left Weaker	-0.19	-0.19	0.04	0.04
	(0.44)	(0.44)	(0.31)	(0.31)
Observations	1456	1456	1456	1456
Adjusted R^2	0.125	0.125	0.220	0.220
Mean Annual per HH Benefits	0.042	0.042	0.109	0.109
SD Annual per HH Benefits	0.097	0.097	0.176	0.176
Pre-treatment Trend	NO	YES	NO	YES

* p<0.10, ** p<0.05, *** p<0.01 Robust standard errors in parentheses, clustered at GP level.

[1] Observations at the village-year level, 1994-2011.

[2] The dependent variable is standardized measure of annual per HH benefits for each village.

[3] All specifications include other interactions; whether constituency was reserved in 2004 or not; whether MP was part of delimitation committee; village and year fixed effects.

[4] Recurring benefits include: MPLAD, MNREGA, IRDP, Minikits.

[5] One-time benefits include: Ration Card, House, Toilet, Drinking Water, Irrigation, Road Access.

Table 6: Effect of Treatment on Per Capita Village Benefits Distributed (2004-2011)

	(1) Recurring	(2) One-Time
Post*Left Weaker* Left ZP* Left GP	3.57***	2.61***
	(0.58)	(0.42)
Post*Left Weaker* Left ZP	0.44	0.08
	(0.82)	(0.57)
Post*Left Weaker	0.03	-0.31
	(0.75)	(0.55)
Observations	691	691
Adjusted R^2	0.079	0.221
Mean Dependent Variable	0.41	0.13
Pre-treatment Trend	YES	YES

* p<0.10, ** p<0.05, *** p<0.01 Robust standard errors in parentheses, clustered at GP level.

[1] Observations are village-years during 2004-2011.

[2] The post period is 2008-2011.

[3] The dependent variable is standardized measure of annual per HH benefits for each village.

[4] All specifications include other interactions; whether constituency was reserved in 2004 or not, and whether MP was part of delimitation committee; village and year fixed effects.

[5] Recurring benefits include: MPLAD, MNREGA, IRDP, Minikits.

[6] One-time benefits include: Ration Card, House, Toilet, Drinking Water, Irrigation, Road.

Table 7: Placebo Test For Post-2003 Treatment Impact on Benefits (2000-2006)

	(1)	(2)
	Recurring	One-Time
Placebo Post*Treatment Hurt Left* Left ZP* Left GP	0.11	-1.91***
	(0.87)	(0.43)
Placebo Post*Treatment Hurt Left* Left ZP	-0.10	0.02
	(1.42)	(0.56)
Placebo Post*Treatment Hurt Left	-0.89	1.39***
	(1.17)	(0.42)
Observations	696	696
Adjusted R^2	0.270	0.310
Mean Dependent Variable	0.38	0.36
Year Fixed Effects	YES	YES
Village Fixed Effects	YES	YES

* $p<0.10$, ** $p<0.05$, *** $p<0.01$ Robust standard errors in parentheses, clustered at GP level.

[1] Observations are village-years in 2000-2006.

[2] The dependent variable is standardized measure of annual per HH benefits for each village.

[3] All specifications include other interactions; whether constituency was reserved in 2004 or not; and whether MP was part of delimitation committee.

[4] Recurring benefits include: MPLAD, MNREGA, IRDP, Minikits.

[5] One-time benefits include: Ration Card, House, Toilet, Drinking Water, Irrigation, Road.

[6] Placebo post period is 2004-2006.

Table 8: Effect of Treatment on GP Help Provided (1994-2011)

	(1)	(2)	(3)
	Employment	HH Conflict Resolution	Emergencies
Post* Left Weaker* Left ZP* Left GP	-0.01	2.87***	-0.24
	(0.29)	(0.87)	(0.30)
Post*Left Weaker* Left ZP	-1.26	-1.65***	0.23
	(0.94)	(0.43)	(0.40)
Post*Left Weaker	0.56	0.50	0.26
	(0.92)	(0.31)	(0.32)
Number of Households	2248	1787	2248
Adjusted R^2	0.122	0.180	0.173
Mean Dependent Variable	0.91	1.03	1.25
Year Fixed Effects	YES	YES	YES
Village Fixed Effects	YES	YES	YES

* $p<0.10$, ** $p<0.05$, *** $p<0.01$ Robust standard errors in parentheses, clustered at GP level.

[1] Observations: Household-years covering 1994-2011.

[2] The dependent variable is standardized measure of GP help per household in a year.

[3] All specifications include other interactions as well as pre-treatment village trends.

Table 9: Effect of Recurring and Onetime Benefits on 2011 Poll Responses in Left GPs

	(1)	(2)	(3)
	First Stage	First Stage	IV
	HH Recurring	HH Onetime	Voted Left
TREAT*PerCap Benefits* SC/ST	-0.33***	-0.06	
	(0.05)	(0.10)	
TREAT*PerCap Benefits* Landless	0.17***	-0.13*	
	(0.05)	(0.07)	
TREAT*PerCap Benefits* No Educ	0.02	0.04	
	(0.11)	(0.17)	
HH Recurring Benefits			4.12**
			(1.67)
HH Onetime Benefits			-1.18*
			(0.71)
TREAT	0.04**	0.10*	0.02
	(0.02)	(0.06)	(0.18)
Observations	1337	1337	1337
Adjusted R^2	0.148	0.310	-0.728
F-statistic	57.06	33.73	

* $p<0.10$, ** $p<0.05$, *** $p<0.01$ Robust standard errors in parentheses, clustered at village level.

[1] Dependent Variable is indicated at the top of each column.

[2] Voted Left in 2011 takes value 1 if HH voted for left in 2011 straw polls.

[3] TREAT denotes Redistricted-To-Left Weaker* Left ZP* Left GP.

[4] No Educ is a dummy that takes value 1 if the head of household has no education.

[5] HH Recurring is per HH annual recurring benefits in period 2008-2011.

[6] HH Onetime is per HH annual recurring benefits in period 2008-2011.

[7] Treatment dummy and HH characteristics included in Second Stage.

[8] PerCap Total Benefits, HH characteristics* PerCap Benefits, Treatment Dummy, HH characteristics are also used as instruments in First Stage.

Table 10: Effect of Change in Benefits on Change in Poll Responses between 2004, 2011 (Left GPs)

	(1) First Stage Ch.Recurring	(2) First Stage Ch.Onetime	(3) IV: Ch. Left Support
TREAT * Change PerCap Benefits * No Educ.	-0.01	-0.09	
	(0.02)	(0.14)	
TREAT * Change PerCap Benefits * Landless	0.02	0.03	
	(0.03)	(0.04)	
TREAT * Change PerCap Benefits * SC/ST	0.08***	-0.09***	
	(0.01)	(0.02)	
Ch. HH Recurring			1.60*
			(0.89)
Ch. HH Onetime			0.08
			(0.13)
TREAT	0.09***	-0.06	-0.10
	(0.03)	(0.15)	(0.11)
Observations	1192	1192	1192
Adjusted R^2	0.000	0.229	-0.433
F-statistic	41.93	85.50	

* p<0.10, ** p<0.05, *** p<0.01 Robust standard errors in parentheses, clustered at village level.

[1] Dependent Variable is indicated at the top of each column.

[2] Change in Vote for Left is difference between 2011 and 2004 dummies that takes value 1 if HH voted

for left in 2011 and 2004 straw polls respectively.

[3] TREAT refers to Left Weaker* Left ZP* Left GP.

[4] No Educ is a dummy that takes value 1 if the head of household has no education.

[5] Change Recurring is change in 3-prior-year average recurring benefits between 2004 and 2011.

[6] Change Onetime is change in 3-prior-year average onetime benefits between 2004 and 2011.

[7] Change PerCap Benefits is change in 3-prior-year average of per capita benefits (recurring plus one-time) at the dist

[8] Treatment dummy and HH characteristics included in the Second Stage.

[8] Change PerCap Benefits, HH characteristics* Change PerCap Benefits, HH Characteristics,

TREAT are also used as instruments in First Stage.