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Is partisan alignment electorally rewarding? Evidence from village council elections in India

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Abstract

Do ruling parties positively discriminate in favour of their own constituencies in allocating public resources? If they do, do they gain electorally in engaging in such a practice? This paper tests whether partisan alignment exists in the allocation of funds for India's largest social protection programme, the National Rural Employment Guarantee Scheme (NREGS) in the state of West Bengal, and whether incumbent local governments (village councils) gain electorally in the practice of partisan alignment. Using a quasi-experimental research design, we find that the village council-level ruling party spends significantly more in its own party constituencies than in opponent constituencies. We also find strong evidence of electoral rewards in the practice of partisan alignment. However, we find that the results differ between the two main ruling political parties at the village council level in the state.

Keywords: National Rural Employment Guarantee Scheme, partisan alignment feedback effect, fuzzy regression, discontinuity design

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1. Introduction

An influential literature has highlighted the role of political incentives in the allocation of public resources from upper tier to lower tier governments (Case 2001, Stromberg 2002, Johansson 2003, Dahlberg and Johansson 2002, Banful 2011a and 2011b). A common finding in this literature is the presence of partisan alignment – upper tier governments allocate more funds to lower tier governments or to constituencies which they control (that is, which are aligned with the upper tier government) than to lower tier governments or to constituencies which are in the control of opposition parties (that is, which are unaligned with the upper tier government) in federal political systems (Dasgupta 2009, Dasgupta et al. 2004, Sole-Olle and Sorribas-Navarro 2008, Asher and Novosad 2015). The empirical evidence so far on the presence of partisan alignment has been mostly to do with intergovernmental transfers or grants, and there is limited evidence on whether partisan alignment is also evident for other public programmes where resources flow from upper tier to lower tier government or constituencies.[1] It is also not clear whether partisan alignment is indeed electorally rewarding – can allocating upper tier governments expect stronger political support from the lower tier governments or constituencies that they are targeting? A final unresolved issue in the literature is whether political parties differ in their practice of partisan alignment, depending on their ideology or policy preferences.

This paper examines whether ruling parties in local governments in the state of West Bengal in India discriminate in favour of their own constituencies in allocating funds for the National Rural Employment Guarantee Scheme (NREGS), a large national social protection programme. It then analyses the effect of partisan alignment in NREGS fund allocation, where it exists, on the vote share of the ruling party and the probability of re-election in the next local government elections. Since different political parties with very different ideologies were in power at the local government level in different parts of the state, we are also able to test for heterogeneous policy preferences in the practice of partisan alignment by ruling political parties at the local government level in West Bengal.

Theoretically, it is ambiguous whether political parties will target constituencies where voters clearly attached to the incumbent party or constituencies which are held by the opposition party in an effort to wrest control of these constituencies from the opposition party. Electoral competition models suggest that governments should allocate more resources to unaligned constituencies (Lindbeck and Weibull 1987, Dixit 1996, Dixit and Londegran 1996). On the other hand, if politicians are risk-

[1] A related literature in the political economy of redistribution has examined the role of political patronage and clientelist politics in explaining the allocation of public funds or the implementation of government programmes (Bardhan and Mookherjee, 2006, 2012; Caselli and Michaels, 2009). This literature finds that the public spending is allocated to certain social groups in the electorate based on political patronage and not solely on efficiency or equity considerations (Bardhan and Mookherjee, 2012; Gervasoni, 2010; Goldberg, et al. 2008).

averse or are motivated by clientelist concerns, they will allocate more funds to their core constituencies (Cox 2010, Cox and McCubbins 1986). Arulampalam et al. (2009) develop a model of redistributive politics where the upper tier government allocates more funds to lower tier governments that are both aligned and relatively more swing (that is, lower tier governments where the ruling party in the upper tier faces stronger political competition).

A similar ambiguity exists in the theoretical literature on whether the practice of partisan alignment will indeed be electorally rewarding for the incumbent political party. Since there is no formal way to contract for votes in an election with secret ballots, politicians and voters may be unable to credibly commit to an exchange where the politician offers additional public funds to voters in exchange for increased support at the ballot box (Robinson and Verdier 2003). Partisan alignment may be electorally rewarding if voters reciprocate, because they experience pleasure in increasing the material payoffs of the politicians who helped them (Finan and Schechter 2012). On the other hand, particularistic redistribution policies may not necessarily lead to positive electoral rewards if citizens have social preferences for certain political parties or candidates, independent of whether or not the incumbent party or politician in power has helped them (Kartik and McAfee 2007). A large empirical literature that has examined whether targeted government programmes increase pro-incumbent voting has found mixed evidence in support of positive electoral gains for incumbents when they engage in clientelistic exchanges with voters (Manacorda et al. 2011, Zucco 2011, De La O 2013, Labonne 2013).

An econometric challenge in identifying whether partisan alignment exists in the delivery of public programmes is that a positive association that may be observed, between the allocation of public funds to a constituency and whether the constituency is under the control of the incumbent party, could be due to certain characteristics of the politician (such as an innate preference to favour certain groups of voters) or the constituency (such as past support for the political party) that may lead the incumbent politician to allocate more resources to that constituency. To address this concern, we use a quasi-experimental design (Fuzzy Regression Discontinuity Design (FRDD)) as our principal estimation method to address whether partisan alignment occurs in NREGS implementation. A similar econometric challenge exists in identifying the effect of partisan alignment, wherever it occurs, as voters may prefer a particular party or candidate for reasons other than whether the NREGS was implemented well in the constituency. To identify the causal feedback effect of partisan alignment on vote share (or the likelihood of re-election) of the incumbent political party in the next election, we use an indirect least squares strategy, where we use the NREGS outcome that can be causally related to partisan alignment (which we obtain from the FRDD method) as our main explanatory variable.

To test for the presence of partisan alignment and its electoral rewards, we use a rich primary data set from 569 villages (or village council wards) over 49 village councils or gram panchayats (GPs) from three districts of West Bengal. This village-level panel data has three waves (2010, 2011 and 2012) preceded and followed by one

election year, i.e. 2008 and 2013, respectively. During our study period (2008 to 2013), there were two principal contesting parties in West Bengal with dissimilar political ideologies: a coalition of Leftist parties – the Left Front (LF), led by the Communist Party of India (Marxist) (CPIM) with an apparently stated commitment of democratic decentralisation and pro-worker policies (Bardhan and Mookherjee 2012), and a right-of-centre Trinamool Congress (TMC) with an apparently populist agenda of giving direct benefits to its supporters (Bhattacharya 2012, Mallik 2013). The fact that there were two political parties in different parts of the state running the village councils allows us to assess whether there were any heterogeneous policy preferences of these two parties in respect of delivering NREGS funds, and if there was such a heterogeneity, whether the electoral returns to the practice of partisan alignment differed across the two main political parties.

We find clear evidence of partisan alignment – after the 2008 panchayat elections, the ruling party at the GP level significantly spent more NREGS funds in all the following years in their own party constituencies than in the constituencies of their opponents. However, we find that the practice of partisan alignment differed between the two main political parties – while TMC-run GPs practised partisan alignment, CPIM-run GPs did not. We also find strong electoral returns to the practice of partisan alignment – GPs ruled by TMC after the 2008 panchayat election managed to secure a higher percentage of vote, as well as higher probability of re-election, in their own constituencies in the following 2013 panchayat election, while such an outcome was not observed for LF-run GPs.

The remainder of this paper is organised as follows. Section 2 discusses the political context of the NREGS in West Bengal. Section 3 discusses the data and descriptive statistics. Section 4 describes the empirical strategy. Section 5 presents the results. Section 6 discusses the possible explanations of our results on the difference in the alignment behaviour of the TMC and LF. Section 7 presents the conclusions.

2. Political context of the NREGS in West Bengal

In India's federal structure, significant political power is decentralised to gram panchayats, under a system of local government in rural India known as Panchayati Raj. While the idea of Panchayati Raj was embodied as an aspiration in the Indian constitution, implementation of the system of local government was devolved to Indian state governments (Crook and Sverrisson 2001). West Bengal passed its first Panchayat Act in 1973 and the first Panchayat election was held in 1978, much ahead of any other state in India.

Local government in rural India has three tiers. The district-level government is called the zilla parishad (ZP), the sub-district or block-level government is called the panchayat samity (PS) and the lowest tier of government, which is the village council, is called the gram panchayat (GP). A GP has a number of villages or wards, called gram sansad (GS), typically around 10-15 GS in GP. Elections to GPs take place every five years and are held at the ward or GS level to choose a ward

representative from each of the wards under the GP. There are 3,357 GPs and 45,552 GS/wards in West Bengal.

In the West Bengal case, GP elections are a multi-party election (during 2008-2013, seven political parties took part in the elections in our study area). However, the major contesting parties are mainly two in West Bengal – the Trinamul Congress (TMC) and the Left Front. Within a GP, a party which wins the majority of wards or GS forms the GP board and becomes the GP-level ruling party and runs the GP for five years. Around 25 poverty alleviation and public works programmes are implemented by the GP. Among these programmes, NREGS is the most important and endowed with the highest proportion of money. An average GP normally spends around 25-30 million INR (i.e. 250-300 thousand GBP) among which 85-90 percent allocation comes for NREGS.

The NREGS is India's main welfare programme for the rural poor and the largest workfare programme in the world, covering 11 percent of the world's population (Muralidharan et al. 2015). The act associated with the NREGS makes it a statutory obligation for the government to provide a minimum of 100 days of employment on demand to each rural household in India. The programme came into operation in February 2006 in the most backward 200 districts of India, including 10 districts from West Bengal. Subsequently, in the second phase of the programme, NREGS was scaled up to another 130 districts of India by 2007, including seven districts from West Bengal. In its third and final phase, the remaining 285 districts of India were included (with one district from West Bengal).

Under the programme, there are no eligibility requirements, as the manual nature of the work involved is expected to lead the poor into programme participation (Besley and Coate 1992). Participating households obtain job cards, which are issued by the local GP. Once issued with a job card, workers can apply at will to the local GP or block office. Officials are legally obligated to provide work on projects within five kilometres of a worker's home. The projects vary greatly, though road construction and irrigation earthworks predominate (Niehaus and Sukhtankar 2013). Administration of the projects is the responsibility of the GP.

Evolution of political institutions

From 1977 to 2011, a Left political coalition (the LF) led by the Communist Party of India (Marxist) (CPIM) was uninterruptedly in power, both at the state and the local levels of government, with clear majorities in the number of seats in the state assembly (Table 1).

Table 1: Yearly Left Front seat share in state assembly elections, 1977-2016

Year of assembly election	Percentage of seat won by Left Front
1977	60.20
1982	77.55
1987	82.31
1991	81.97
1996	69.05
2001	66.05
2006	79.93
2011	21.09
2016	10.88

Source: Official website of West Bengal State Assembly: http://wbassebmly.gov.in and official website of Election Commission of India: http://eci.nic.in/eci/eci.html

Until 1997, the Indian National Congress (Congress) was the major opponent political party in West Bengal, but from 1 January 1998 a fraction of the Congress party broke away and formed a new political party – the All India Trinamool Congress (TMC) led by Mamata Banerjee. Soon after its inception TMC had been able to establish itself as the main opponent of the LF in the state. The ideology of the TMC could be broadly classified as Right Populist (Mallik 2013, Bhattacharya 2009, 2012, Rana 2013).

At the local government level, there has been gradual erosion of support for the LF from the 1980s onwards, along with a sharp increase in the electoral success of the TMC in local government elections (Chatterjee 2009). Table 2 shows that the vote share of Left Front fell sharply in GP elections from 1978 to 2013.

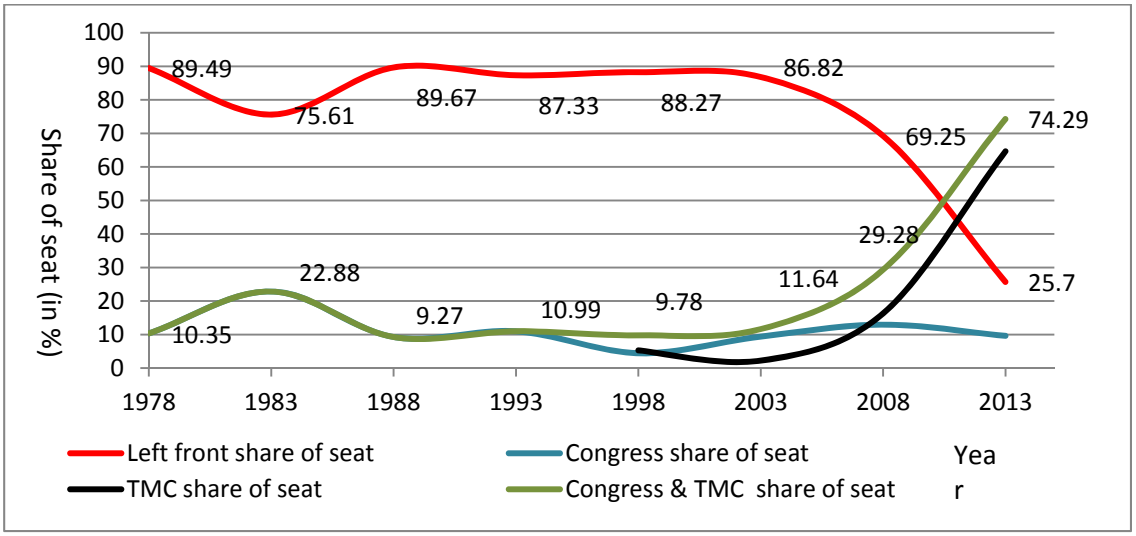
Table 2: GP-level vote share of Left Front in panchayat elections, 1978-2013

Year	GP-level vote share of the Left Front
1978	70.28
2003	65.75
2008	52.98
2013	32.01

Source: Authors' calculation from CPIM party documents and West Bengal State Election Commission Website.

Figure 1 shows seat share of major political parties (or party coalition) in zilla parishad elections over the years in West Bengal. It clearly shows that from 2003 onwards, the TMC started gaining in electoral success and by 2013 it became the ruling party in the district-level local governments as well. Figure 2 shows the winning party in each district in zilla parishad elections in 2003, 2008 and 2013. In 2003, most zilla parishads were ruled by the LF; however, by 2013, the LF had lost control of most of these district-level local governments to the TMC.

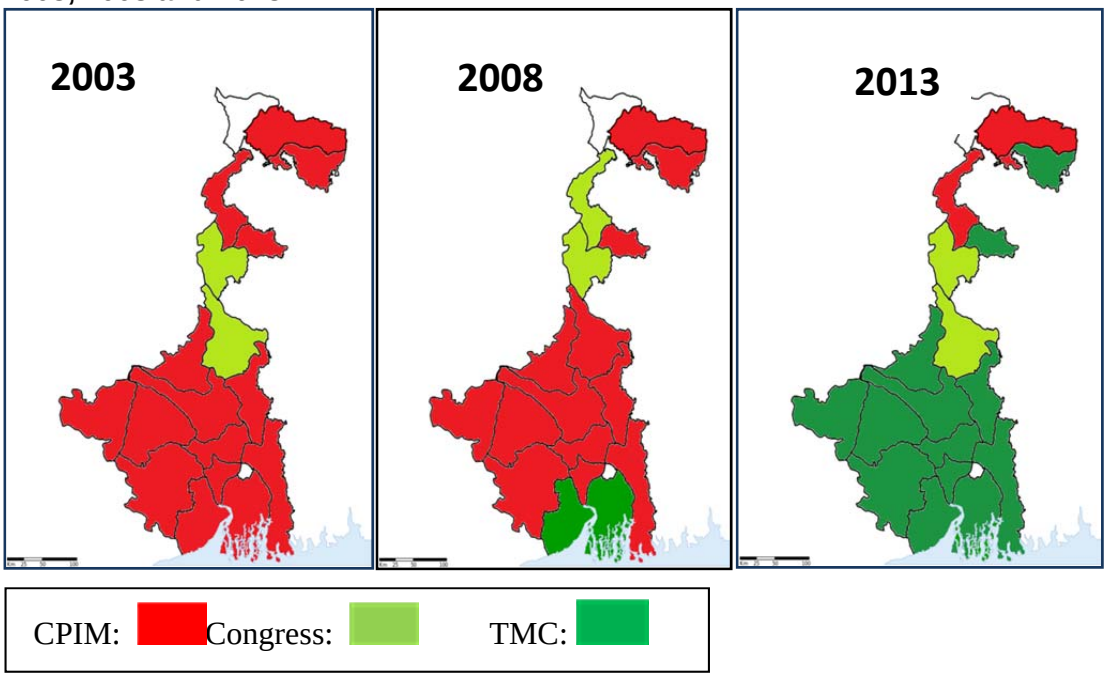
Figure 1: Seat share of major political parties in zilla parishad elections, 1978-2013



Source: Authors' calculation from: a) West Bengal State Election commission website;

b) Panchim Banga Saptam Panchayat Nirbachan-2008; and c) Porisankhan-o-Parjalochana, from Communist Party of India (Marxist) ,West Bengal State Committee, 2013.

Figure 2: District-wise ruling party position after local government elections in 2003, 2008 and 2013



Note: White sections in the maps above show the area where there was no district panchayat .

Source: Authors' calculation from West Bengal State Election commission website.

3. Data and summary statistics

Data

The unit of our study is the village (or GS, i.e. ward of the village council). Our sample consists of a three-wave (2010, 2011, 2012) panel of 569 villages from 49 different gram panchayats (i.e. the village councils) over three districts of West Bengal, namely South-24 Parganas (S-24Pgs), Purulia and Jalpaiguri. This panel data set contains village-wise yearly information on NREGS implementation during 2010-2012, GP election outcomes for the 2008 and 2013 elections for each village, socio-economic-demographic information for each village, and monthly and annual average rainfall for each village. From our primary survey we collected information on village-wise NREGS implementation and other public expenditure through GP at the village level. The two NREGS outcome variables we use in our empirical analysis are village-wise NREGS expenditures and average NREGS days worked per NREGS household in the village.

Village-wise election outcomes of the 2008 and 2013 elections were collected from the official website of the West Bengal State Election Commission. Village-wise socio-economic information was collected from the West Bengal Rural Household Survey-2011. Demographic information was collected from Census-2011, Government of India. Rainfall data (which we use as one of our controls) was collected from the precipitation data available from the Centre for Climate Research at the University of Delaware. The data include monthly precipitation values at 0.5 degree intervals in latitude and longitude. To match the data at the village/sansad level, the nearest latitude-longitude to each village was taken.

Table 3 provides a party-wise allocation of winning seats at village level in respect of our sample of 569 villages in two successive panchayat elections, 2008 and 2013. This clearly shows that even for our sample villages from three districts of West Bengal, there is a clear picture of a shift in election outcomes in favour of TMC from 2008 to 2013, in line with state-level trends. Table 4 shows the share of different parties in GP boards, where they were ruling parties for the 2008 and 2013 elections. From this table, we can see that out of our sample of 49 gram panchayats, in 2008 there were overall 30.61 percent of GPs where TMC was the ruling party and 57.1 percent GPs where Left Ally was the ruling party. In 2013, this changed dramatically, with the TMC appearing as the ruling party in 61.2 percent of GP boards, while only 24.5 percent of GP boards were ruled by the CPIM or an allied party of the LF.

Table 3: Party-wise village-level election results by seats won

Party	% of seats won in 2008	% of seats won in 2013
TMC	27.89	48.68
CPIM	48.51	29.88
Left Ally	7.62	4.92
Congress	11.42	6.50
SUCI	1.58	2.64
Independent	2.69	3.69
Other (JMM, BJP, etc.)	0.29	3.69
Total	100	100

Source: From West Bengal State Election Commission website for 569 study gram sansads.

Table 4: GP board allocation by ruling party

Year	District	% GP board by TMC	% GP board by CPIM and Left Ally	% GP board by congress	% GP board by other
2008	S-24pgs	45.45	45.45	4.55	4.55
	Purulia	31.25	50	12	6.25
	Jalpaiguri	0	90.91	9.09	0
	Overall	30.61	57.14	8.16	4.08
2013	S-24pgs	59.09	36.36	0	4.55
	Purulia	93.75	6.25	0	0
	Jalpaiguri	18.18	27.27	27.27	27.27
	Overall	61.22	24.49	6.12	8.16

Source: From West Bengal State Election Commission website for 49 GPs.

Tables 3 and 4 also show the representativeness of our sample with reference to the overall trend of the state. In Table 5 we observe a similar story, not in terms of winning village-level seats or ruling GPs, but rather in terms of actual vote share secured by different parties at village level between these two successive panchayat election years 2008 and 2013 in the context of 569 GS.

Table 5: Village-wise percentage of votes received by different parties

Year	District	% TMC Vote	% CPIM vote	% other Left vote	% Congress Vote	% SUCI vote	% Indep. Vote	% other vote
2008	S- 24pgs	30.69	45.86	7.83	4.537	3.16	4.66	0.464
	Purulia	23.72	44.85	5.345	10.69	0	6.760	3.3744
	Jalpaiguri	4.47	46.93	15.935	24.21	0	3.3544	1.695
	Overall	22.79	45.82	8.94	10.73	1.55	4.97	1.57
2013	S-24pgs	44.37	34.19	5.96	1.50	5.817	2.14	1.063
	Purulia	44.63	29.84	3.9	9.47	0.525	4.44	0.7038
	Jalpaiguri	21.15	20.62	6.71	21.76	0	10.77	12.41
	Overall	39.23	29.89	5.54	8.34	2.99	4.74	3.51

Source: From West Bengal State Election Commission website for 569 study gram sansads.

Summary statistics

In our study, we used data from two consecutive panchayat election years, 2008 and 2013. To see whether there is any significant degree of divergence in terms of summary statistics of the variables related to election outcomes, we present in Table 6 the village-level average values of the election-related variables over the two elections years over our sample of 569 villages.

Table 6: Summary statistics on election-related variables over 2008 and 2013 at village level

Category	Average value in 2008	Average value in 2013	t-statistics on the mean difference
Total voters in a village	1003.243	925.66	8.83***
Percentage of voters who cast a vote	85.8589	85.76464	0.3418
Percentage of votes received by the winning candidate	56.74265	51.0522	13.4066***
Percentage of votes received by nearest defeated candidate	35.0773	35.52725	-1.2415
Margin of victory	189.5647	126.3175	8.7037***
Winning margin as percentage of total vote cast	21.66535	15.5413	8.6436***
Percentage of vote that other defeated candidates received altogether.	8.172214	13.41469	-15.0694***

Source: Authors calculation from Election outcome data on sample 569 village from West Bengal State Election Commission website: http://www.wbsec.gov.in.

Table 6 shows that from 2008 to 2013, the average number of voters in each village decreased by around 78, but the percentage of voters who cast their vote remained almost the same. We also note that the vote share received by the winning candidate fell by 5.7 percentage points from 2008 to 2013, while the margin of victory as a percentage of total votes cast reduced by 6.1 percentage points in the same period. On the other hand, the percentage of vote received for all other defeated candidates (i.e. other than the second highest vote-receiving candidate) increased from 2008 to 2013. The increase in competitiveness of elections from 2008 to 2013 can be attributed to the fact that in 2008 the Congress party was in a coalition with TMC at the state level, but fought the local government elections separately in 2013.

In Table 7, we compare NREGS outcomes and village-level characteristics between the ruling party village (where the GP-level ruling party is the winning party) and the opponent party village (where the GP-level ruling party is not the winning party). Though the simple comparison of village level means seems to indicate that ruling party villages have better NREGS outcomes (these being average NREGS expenditures per village, average NREGS days annually in the village and NREGS

days worked per household in the village), the mean differences are statistically insignificant, suggesting that NREGS outcomes and, in particular, allocation of NREGS funds, do not differ between ruling party and opponent party villages within the same GP.[2] We also find no clear differences in village-level characteristics (such as proportion of BPL households, or proportion of village members who are females or from socially disadvantaged backgrounds) between ruling party and opponent party villages.

[2] In the Appendix, we report two similar tables, one of which captures the same information as Table 7, with the CPIM as the ruling party (Appendix-1) and another one with TMC as the ruling party (Appendix-2). Both Appendix -1 and 2 show that, irrespective of party affiliation, higher values of NREGS outcome variables were observed in ruling party villages.

Table 7: NREGS outcomes and village-level characteristics by ruling party and opponent party village

Variable	Avg. value in ruling party village (T=1)	Avg. value in opponent party village (T=0)	T-stats from t-test for mean difference.
NREGS expenditure	457512.8	422547.9	0.82
NREGS days generated annually	3780.465	3415.59	1.0323
NREGS days worked per NREGS household	32.11855	30.36	0.4821
NREGS wage	121.2386	122.825	1.2491
Average expenditure per schemes	143901.8	124960.5	1.7028*
No. of total job card	260.913	268.5875	0.7110
No. of active job card	154.1523	137.9208	1.4587
2008 ruling party vote share at village in 2008 election	57.58612	32.3459	21.129***
Total voters in 2008 election	1011.253	1007.204	0.1772
Percentage of voters who cast their vote in 2008	86.40609	88.63127	2.95**
Total monsoon rain annually (in millimetres)	1535.444	1581.955	0.8427
No. of households	371.5831	407.375	2.397**
Percentage of below poverty line (BPL) households	42.44	40.67	0.8716
Percentage of minority (Muslim, Christian) households	4.47	9.98	4.83***
Worker to non-worker ratio	0.6580254	0.6172715	4.2139***
Percentage of male village-member 2008	58.79	62.91	1.038
Percentage of female village-member 2008	41.21	37.09	1.038
Percentage of General Caste village-member 2008	45.78	43.75	0.5032
Percentage of Scheduled Caste village-member 2008	27.71	31.66	1.0726
Percentage of Scheduled village-member 2008	15.66	8.7	2.53**
Percentage of Other Backward Class village-member 2008	5.06	4.6	0.2724
Percentage of Minority Caste village-member 2008	5.78	11.29	2.5242**
Total voters in 2013	946.6434	917.3083	1.5652
Percentage of voters casted their vote in 2013	86.413	87.469	1.8689
2008 ruling party's vote share at village in 2013 election	42.22	35.33	3.99***

Source: Calculation from primary pooled survey data from 569 gram sansads for 2010-2012.

Do NREGS outcomes at village level differ by the party affiliation of the village level elected member? To examine this, we look at three cases: case 1, where we look at the average value of the NREGS outcome variables at the village level across different parties; case 2, where we look at only TMC-ruled GPs; and case 3, where we look at CPIM-ruled GPs. Table 8 summarises the results.

Table 8: Village-level variation of NREGS outcomes (annual values) by party affiliation

Party affiliation of winning member	Percentage of seat after 2008 election (In study villages)	Case-1		Case-2		Case-3	
		NREGS outcome (in pooled GP)		NREGS outcome (TMC as GP-level ruling party)		NREGS outcome (Left as GP-level ruling party)	
		NREGS expenditure (in INR)	Average days per hh worked	NREGS expenditure (in INR)	Average days per hh worked	NREGS expenditure (in INR)	Average days per hh worked
TMC	32.98	461,269.4	39.98	595,593.7	50.75	257,253.8	25.54
Left	52.37	403,762 (1.87)*	25.59 (3.89)***	316,900.8 (2.20)**	32.75 (1.52)	419,145.9 (2.91)**	27.72 (0.55)
Congress	9.92	659,454.3 (0.98)	38.76 (0.58)	924,633.7 (0.67)	106.16 (0.82)	601,747.4 (0.76)	20.48 (0.88)
Others	4.73	331,942.5 (0.37)	21.99 (0.38)	-	-	358,006.3 (0.48)	22.92 (0.77)
Overall	100	444701.2	31.47	567248.7	51.93	398,873.6 (3.49)**	25.39 (6.57)***

Source: Authors' calculation from primary survey.
Note: Values in brackets show the value of t-statistics of t-test for mean difference of that respective mean value and corresponding mean value in TMC village or TMC GP.

From Table 8, under case1 when we consider all the GPs in our sample, we can see that village-wise average NREGS expenditure and average NREGS days worked per NREGS household in TMC villages are higher compared to Left villages, and these differences are statistically significant. These values are also higher in Congress villages than in TMC villages, but these differences are not statistically significant. We find both NREGS outcomes have much higher values in TMC villages compared to Left villages when TMC is the ruling party at the GP level (case 2), and are statistically significant. In Congress villages when TMC is the ruling party, NREGS outcomes are also better, but the results are based on very few cases.[3] When the LF is the ruling party at the GP level, the average values of NREGS outcome variables are higher in Left villages compared to TMC villages, and these differences are statistically significant (case 3). However, in Congress villages under Left-ruled GPs, NREGS outcomes are better than in Left villages, but such differences are not statistically significant. Finally, when we compared the village-level values of NREGS outcomes between TMC-ruled GP and Left-ruled GP, we find annual average NREGS expenditure in a village under TMC GP is INR 567248.7 and that in Left-ruled GP is INR 398873.6; this difference is statistically significant. We obtain a similar set of results if we use as our measure of NREGA outcomes the average NREGS days worked by a representative NREGS household at the village level.

To summarise, Table 8 shows a general pattern that constituencies won by ruling parties tend to exhibit higher values of NREGS outcomes, as compared to opponent party constituencies and this trend holds across two major competing political parties in West Bengal. This does not necessarily allow us to infer the presence of partisan alignment in our data, since the cause of positive discrimination of NREGS funds towards ruling party villages may be explained by other village-level covariates other than the fact that the village is a ruling party village. In the next section, we propose a quasi-experimental method – fuzzy regression discontinuity design – to trace the causal effect of a village under the control of the ruling party observing better NREGS outcomes.

4. Empirical strategy

This study addresses two related questions. The first is whether ruling parties in village councils favour their own constituencies in terms of NREGS outcomes, as compared to opponent party constituencies. We call this the 'ruling party treatment effect' or 'alignment effect'. The second question is whether ruling parties increase their electoral performance in the next election by favouring their own constituencies over opponent constituencies. We call this the 'ruling party feedback effect'.

To address the first question, we use a regression discontinuity (RD) approach. This is the first stage of our econometric analysis. The RD strategy exploits the fact that a ruling party candidate's winning probability at the village level changes discontinuously at a particular threshold of the proportion of the ruling party's vote share at the village level. Villages where the ruling party wins by a large margin are likely to be different from villages where the ruling party loses by a wide margin. By narrowing our focus on the set of villages with close elections, it becomes more plausible that election outcomes are determined by idiosyncratic

[3] There were only a small number of cases where the Congress candidate was the winning candidate at the village level when TMC was the ruling party at the GP level.

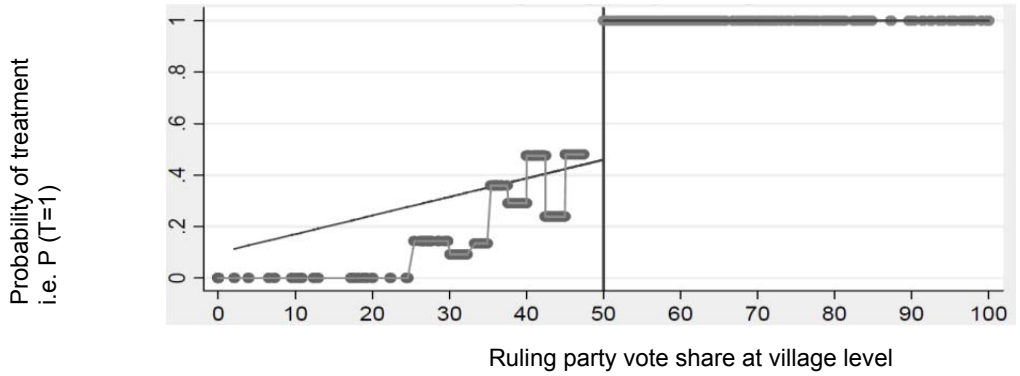
factors and not by systematic village-level characteristics that could also affect NREGS outcomes. To address the second question, we use an Indirect Least Squares approach that uses the predicted NREGS outcome we obtain from the first stage RD strategy as our core explanatory variable to test for feedback effects. This is the second stage of the econometric analysis. By using only that part of NREGS outcomes in a given village which is due to the ruling party treatment effect, we net out any other factor that may be responsible for allocation of NREGS funds to that village (such as an increase in demand for NREGS employment in the village). Our strategy allows us to isolate the effects of partisan alignment on the electoral performance of the ruling party in the next election from other confounding factors. We explain next in greater detail the estimation methods we followed in the first and second stages.

Estimation method for the first stage

We use a fuzzy RD design, as with many parties contesting elections in village councils in West Bengal in the period of our study, parties could win power even if they have not won more than 50 percent of the votes (which could be the case if only two political parties competed for power). This is clear from Figure 3, which graphically examines the relationship between the GP-level ruling party's vote share at village level and the ruling party's winning probability at the village level. On the horizontal axis, we plot the vote share of GP-level ruling party at the village level and in the vertical axis we plot the winning probability of GP-level ruling party at the village level, i.e. probability of T=1 i.e. P(T=1). Here T is a treatment dummy which is 1 if the GP-level ruling party is also a winning party at village level and 0 otherwise. By construction $0 \leq P(T=1) \leq 1$. Each point on the graph represents the mean value of y-variables (measured in the vertical axis) within a band of the ruling party's vote share at village level with a band width of 2.5.

We see that if a party obtains close to 25 percent vote share, P(T=1) (i.e. ruling party's winning probability at the village level) is above zero, and it increases as the ruling party's vote share increases. For instance, around the band of 40-42.5 percent (or 45-47.5 percent) of vote share of the ruling party, the probability of winning is around 0.5. Once the ruling party's vote share crosses 50 percent, the ruling party's winning probability at the village level is 1. The gradual increase in the probability of winning as vote share increases from 25 percent to 50 percent, followed by a sharp discontinuity when the vote share crosses 50 percent, justifies the use of a fuzzy design rather than a sharp design RD strategy.

Figure 3: Ruling party's vote share and winning/treatment probability at the village level



We now provide a formal exposition of the fuzzy regression discontinuity design (FRDD) that we use in the empirical analysis.

Identifying the treatment effect under imperfect compliance through the FRDD

The basic idea of RD design is that the probability of receiving a treatment (i.e. a village being a GP-level ruling party's village) is a discontinuous function of a continuous treatment determining variable (i.e. X= GP level ruling party's vote share at the village). However, treatment in our case does not change from 0 to 1 at the cut-off point (i.e. X=50). In our case treatment will be 1 for X>50 (perfect compliance) but for X<=50 treatment may not necessarily be 0 (imperfect compliance). In such a case, FRDD is appropriate because it allows for a smaller jump (less than one) in the probability of treatment at the cut-off. In case of a binary treatment, FRDD design may be seen as a Wald estimator (around the discontinuity c) and the treatment effect can be written as

$$\sigma_{FRD} = \frac{\lim_{\varepsilon \downarrow 0} E[Y \mid X = c + \varepsilon] - \lim_{\varepsilon \uparrow 0} E[Y \mid X = c + \varepsilon]}{\lim_{\varepsilon \downarrow 0} E[T \mid X = c + \varepsilon] - \lim_{\varepsilon \uparrow 0} E[T \mid X = c + \varepsilon]} \quad (1)$$

where, in our case, c is the cut-off point; X is the GP-level ruling party vote share at village; T is the treatment. In the following sub-section, we explain how we can estimate σ using Two Stage Least Square or IV estimation technique

Estimation strategies for the local treatment effect under FRDD

In this study, the outcome denoted by Y is the village-wise NREGS expenditure. T denotes a binary treatment variable, taking 1 if the village-level winning candidate belongs to the GP-level ruling party and 0 if he or she does not belong to the GP-level ruling party. After normalising 'X' into 'x', where x=(X-50), the cut-off is at x=0. Potential outcome can be written in the following structural form equation (Angrist and Pischke, 2009):

$$Y = f(x) + \sigma T + e \quad (2)$$

where σ denotes the local average treatment effect on Y. This is estimated in FRDD by extrapolating the compliance group (Imbens and Angrist, 1994), and:

$$Y = \begin{cases} Y_1 = f_1(x) + \sigma + e & \text{if T=1} \\ Y_0 = f_0(x) + e & \text{if T=0} \end{cases} \quad (3)$$

Where, Y_0 denotes the potential outcome, i.e. village-wise NREGS expenditure that is explained by X in $f_0(x)$ and other (observed and unobserved) covariates in the error term denoted by e. In other words, Y_0 is the village-wise NREGS expenditure in non-ruling party villages and Y_1 is the potential outcome, i.e. village-wise NREGS expenditure with treatment, i.e. village-wise NREGS expenditure in ruling party's villages, where σ is added with Y_0.

The conditional probability of treatment P(T=1|x) is expected to be discontinuous at the cut-off, x=0. Thus, it can be written in the following form:

$$P(T=1|x)=E(T|x)= \begin{cases} g_1(x) & \text{if } x>=0 \\ g_0(x) & \text{if } x<0 \end{cases} \quad (4)$$

where, $g_1(0) > g_0(0)$ indicates discontinuity in P(T=1|x) at x=0. Now E(T|x) can be written in the following functional form:

$$E(T|x)= g_0(x) + [\, g_1(x) - g_0(x) \,]Z = g_0(x) + \pi Z \quad (5)$$

Where, $g_1(x) - g_0(x)$ = π and Z is an instrumental variable for endogenous treatment variable T. Z determines the eligibility of a village to be a treated village (i.e. the ruling party's village) or a non-treated village (i.e. the non-ruling party's village). Thus, Z is constructed as follows

$$Z= \begin{cases} 1 \text{ if } x>0 \\ 0 \text{ if } x<=0 \end{cases}$$

Thus treatment equation for T can be written as

$$T= g_0(x) + \pi Z + \xi \quad (6)$$

Where, the coefficient of Z that is π will capture the jump in the probability of treatment at the cut-off.

In Equation 6, ξ denotes an error term that captures observed and unobserved factors plus measurement error in x influencing T. Equation (6) is a reduced form equation, while Equation (2) is a structural one. From Equation (2), the local average treatment effect (i.e.

the effect on Y of being a ruling party ward), σ, is not identified as E(T,e)≠0, which indicates that T is an endogenous variable.

The treatment effect 'σ' can be identified applying either indirect least squares (ILS) or two stage least squares (2SLS). Under ILS, we need to substitute Equation (6) into Equation (2). After doing this, we have the following reduced form equation of outcome variable Y:

$$\left.\begin{aligned} Y &= f(x) + \sigma\{g_0(x) + \pi Z + \xi\} + e \\ &= f(x) + \sigma g_0(x) + \sigma\pi Z + \sigma\xi + e \\ &= k(x) + \sigma\pi Z + \psi \end{aligned}\right\} \quad (7)$$

where $f(x) + \sigma g_0(x) = k(x)$ and $\sigma\xi + e = \psi$. Now we can estimate the local average treatment effect σ, dividing $\sigma\pi$, the co-efficient of Z in Equation (7), by π, the co-efficient of Z in equation (6). However, in this paper we followed 2SLS or IV regression**.**
We run IV or 2SLS regression as:

$$Y = f_0(x) + \sigma E(T|x) + e \quad (8)$$

where the coefficient at E(T|x), σ, is the local average treatment effect of compliers, and E(T|x) comes from Equation (6), which can be treated as the first stage regression of IV (or 2SLS).

Following Lee and Lemieux's (2009) suggestion, we estimate the parameter of interest σ using two different methods. The first one is based on a local linear regression around the discontinuity choosing the optimal bandwidth in a *cross-validation procedure* that we discuss in Appendix 3. The second method makes use of the full sample using a polynomial regression, in which the equivalent of the bandwidth choice is the choice of the correct order of the polynomial by using AI (Akaike Information) Criterion (see Appendix 4). In both cases, we estimate the treatment effect using 2SLS, which is numerically equivalent to computing the ratio (as illustrated in Equation 1) in the estimated jump (at the cut-off point) in outcome variable over the jump in the probability of treatment, provided that the same bandwidth or same polynomial order is used for both equations. This allows us to obtain directly the correct standard errors that are robust and clustered at the village level.

Our assignment variable X (which after normalisation is x=X-50), which shows the GP-level ruling party's vote share in each village, is constructed on the basis of the GP election results from 2008 election. The outcome variable(Y) is from the village-level pooled panel data on NREGS implementation from 2010 to 2012 and other village-level covariates are also from 2010 to 2012. In Online Appendix A2, we discuss in details all the identification issues related to the FRDD method and test for the validity of RD design.

Estimation method for the second stage

To estimate the effect of partisan alignment on the electoral performance of the ruling party in the subsequent election, we use an indirect least square estimation method. As we noted previously, σ captures the treatment effect in Equation 8. This allows us to derive the estimate of Y from Equation 8, where the predicted value of Y (say, Y_hat) for T=1 for each village will capture that part of Y which is explained by the ruling party treatment effect. In this case, Y-Y_hat will show the value of Y which is explained by other observed and unobserved factors. We use Y_hat as our main explanatory variable to estimate the 2008 ruling party's vote share in the 2013 election. The empirical specification to estimate the electoral gains to partisan alignment is the following.

$$V_{i\_2013} = \alpha_0 + \alpha_1 Y\_hat + \gamma K + d + \varepsilon_i \quad (9)$$

where V_{i_2013} is the 2008 ruling party's vote share in the 2013 panchayat election at village i, Y_hat is the predicted value of Y for T=1 from Equation 8 and K is the vector of other village-level characteristics that may explain election outcomes, 'd' is the district fixed effect and ε_i is the unobserved error. We use the percentage of winning margin to total votes cast in the 2008 election, the percentage of votes received by all other contesting candidates, excluding the total votes of first and the second placed candidates in the 2008 election as controls for the extent of political competition in the village. We also include the number of households, the percentage of below poverty line (BPL) households, the percentage of minority households, and the worker-to-non-worker ratio as village characteristics that may affect election outcomes (poorer households or households that belong to certain social groups may consistently vote for one party over another).

We are particularly interested to see the sign, magnitude and statistical significance of α_1. Equation 9 will be estimated by using the Ordinary Least Square (OLS) estimation technique.[4] As a robustness test, we will also use the probability of the 2008 ruling party getting re-elected in the 2013 election as an alternate left-hand side variable (where the dependent variable is 1 if the ruling party gets re-elected and 0 otherwise). In this case, we will use probit regression instead of OLS.

5. Results

In this section, we present the results of our first stage empirical analysis (the ruling party treatment effect), followed by the results of our second stage empirical analysis (the ruling party feedback effect).

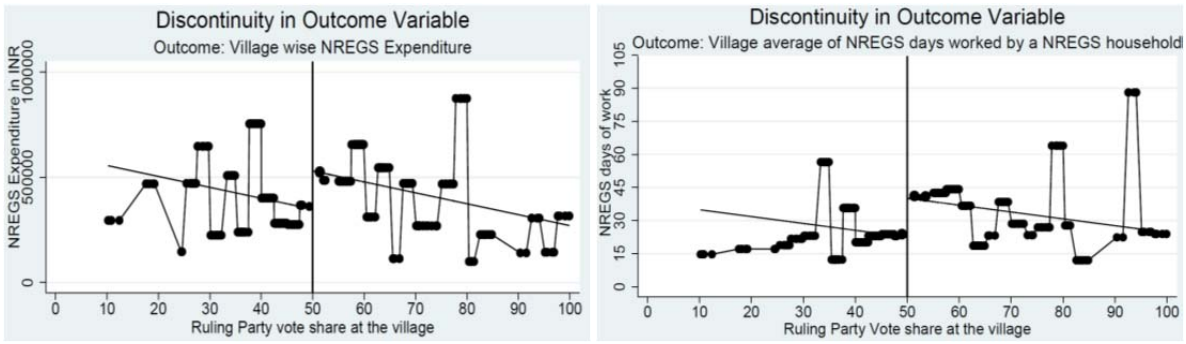
Results for ruling party treatment effect

We first present some graphical evidence of the presence of the ruling party treatment effect before presenting the main results from the FRDD estimation. First, in Figure 4, we look at the GP-level ruling party's vote share at each village and the value of NREGS outcome variables at each village, without specifying the ruling party. We can see from the figure that

[4]It should be noted that in Equation 9 we use Y_hat instead of Y to deal with the endogeneity associated with Y.

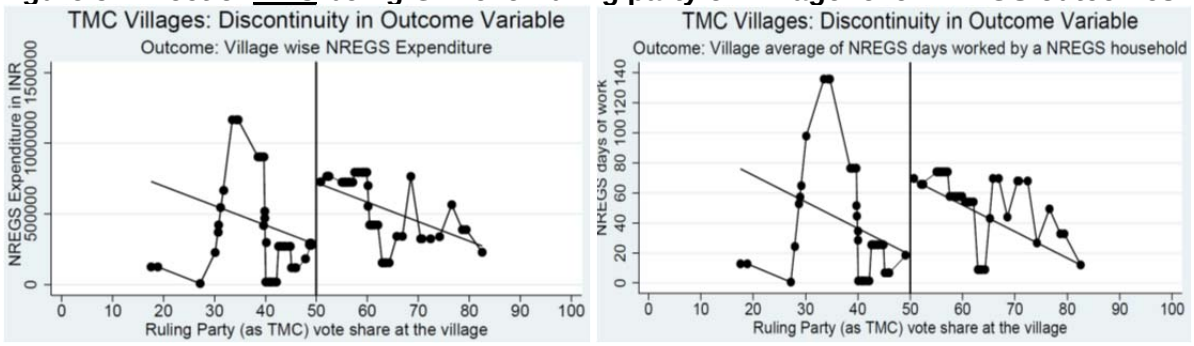
in respect of both the NREGS outcome variables, as the GP-level ruling party's village-level vote share crosses 50 percent, there is a positive discontinuous shift in the value of the outcome variables.

Figure 4: Effect of <u>any party</u> being GP-level ruling party on village-level NREGS outcomes



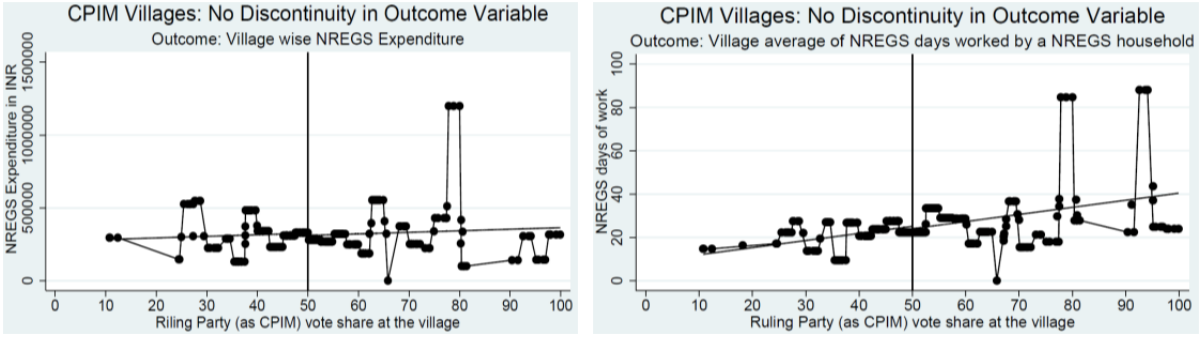
In Figure 5 we perform the same previous exercise, but this time only for TMC-ruled GPs. On the vertical axis we measure the village-level values of NREGS outcome variables, and on the horizontal axis, we plot TMC's vote share at the village level. From Figure 5, we see that as the TMC party's village-level vote share crosses 50 percent, there is a positive discontinuous jump in the values of outcome variables.

Figure 5: Effect of <u>TMC</u> being GP-level ruling party on village-level NREGS outcomes



In Figure 6, we do the same exercise with CPIM as the GP-level ruling. We do not see any discontinuity around the cut-off as we did in Figures 4 and 5.

Figure 6: Effect of <u>CPIM</u> being GP-level ruling party on village-level NREGS outcomes



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Results for the ruling party treatment effect

We start by presenting the estimated *treatment* effect, i.e. the effect of 'being a ruling party winning candidate at the village level' on NREGS outcomes – village-wise NREGS expenditure and average NREGS days of work by a household in the village – using local linear regression. In Appendix 3, we discuss the cross-validation procedure suggested by Imbens and Lemieux (2008) for choosing the optimal bandwidth. This procedure results in an optimal bandwidth that is calculated to be 5 on both sides of the discontinuity for estimating the treatment effect on the outcome variable. However, we also explore the sensitivity of the results to a range of bandwidth (as h) that goes from 5 to 10 around the discontinuity x =0 or X=50.

Tables 9 and 10 show the estimated treatment effect (i.e. $\hat{\sigma}$) on our two NREGS outcomes, respectively, at the village level, along with the estimated jump in the probability of treatment ($\hat{\pi}$) from the first stage of 2SLS or IV regression. For both Tables 9 and 10, the results are shown for three different samples. First, we present the results based on the whole sample covering all the GPs in the sample without specifying which party is the ruling party at the GP level. The second set of results is based on a sub-sample of GPs, where we only considered TMC-ruled GPs. The third set of results is based on a sub-sample of GPs where we only considered CPIM-ruled GPs. The last row of each table reports the first stage F-test on the excluded instrument (i.e. Z) – the dummy variable indicating the effect of the treatment.

Focusing on the results with optimal bandwidth (i.e. 5), we observe that the treatment effect is INR 38749.8 when we use the whole sample. In other words, if a village is a ruling party's winning village, that village receives INR 38749.8 more in terms of NREGS expenditure compared to a non-ruling party's village and this result is statistically significant at the 1 percent level. However, this treatment effect gets more pronounced when we run the results only within TMC GPs. It is evident from Table 9 that when TMC is the ruling party, they tend to spend INR 125253.6 more funds in their own village or constituency compared to the opponent's village and this result is also statistically significant at the 1 percent level. It is interesting to note that when we run our results only within CPIM GPs, the sign of the treatment effect is negative, which implies that when CPIM is the ruling party, they tend to spend less in their own villages. However, the treatment co-efficient is statistically insignificant.

It is also important to note that the treatment effect is robust to a change in bandwidth as the sign and significance remain almost identical across different bandwidths. In all these cases, there is a significant jump in the probability of treatment, which is evident from the first stage of the 2SLS or IV regression and captured in terms of $\hat{\pi}$. One important observation to make here is that in all these cases, the jump in the estimated probability of treatment is much less than 1 and rather this is around 0.50. This is essentially supports our fuzzy RD design and Figure 3.

Table10 shows similar results with a different outcome variable. Here we use 'average days of NREGS work availed by a household at the village level'. From the table we find that the direction of treatment remains exactly same as with Table 9. When we run the results with

the whole sample of GP, we obtain a small treatment effect, i.e. households in the ruling party's village receive 3.59 days more NREGS work than households in the non-ruling party's village. However, when we run the result in the TMC GPs, then we can see that households in the TMC villages receive 13.702 days more NREGS work than the households in the non-TMC villages within the same GP. Both these results are statistically significant and robust with the change in the bandwidth. The results for the CPIM GPs show that households in the CPIM villages get fewer days of work compared with non-CPIM villages within the same GP, but this negative treatment effect is also statistically insignificant.

Table 9: Treatment effect on village-wise expenditure (local linear regression)

	h=10	h=9	h=8	h=7	h=6	h=5
From whole sample of GP						
Jump in probability of treatment ($\hat{\pi}$)	0.426***	0.425***	0.436***	0.472***	0.449***	0.479***
	(6.56)	(7.31)	(7.67)	(3.06)	(4.84)	(9.50)
Treatment effect ($\hat{\sigma}$)	26394.42	32139.11	37265.5**	32605.9*	32989.57*	38749.8***
	(1.01)	(1.35)	(2.09)	(1.77)	(1.90)	(2.65)
N	573	553	517	490	474	457
F-test	42.97	53.39	58.83	71.89	75.75	90.19
From subsample with only TMC GPs (i.e. TMC is the ruling party)						
Jump in probability of treatment ($\hat{\pi}$)	0.562***	0.564***	0.513***	0.506***	0.518***	0.501***
	(6.25)	(6.23)	(5.07)	(4.75)	(4.71)	(4.12)
Treatment effect ($\hat{\sigma}$)	61935**	70328.21**	83093.85**	103427.3**	108499.1***	125253.6***
	(2.23)	(2.33)	(2.21)	(2.29)	(2.88)	(2.66)
N	156	150	144	138	132	121
F-test	39.08	38.84	25.73	22.53	22.21	16.93
From subsample with only Left GPs (i.e. Left is the ruling party)						
Jump in probability of treatment ($\hat{\pi}$)	0.421***	0.404***	0.436***	0.450***	0.321***	0.317***
	(9.28)	(8.01)	(6.84)	(6.24)	(4.28)	(3.96)
Treatment effect ($\hat{\sigma}$)	-16113.87	-27902.66	-17439.02	-20343.15	-21287.08	-21108.5
	(1.38)	(0.05)	(1.28)	(1.34)	(0.19)	(0.98)
N	356	342	320	300	264	246
F-test	86.14	64.14	46.74	38.98	18.31	15.68

Table-10: Treatment effect on village level days of NREGS work by per household (local linear regression)

	h=10	h=9	h=8	h=7	h=6	h=5
From whole sample						
Jump in probability of treatment ($\hat{\pi}$)	0.426***	0.425***	0.436***	0.472***	0.449***	0.479***
	(6.56)	(7.31)	(7.67)	(3.06)	(4.84)	(9.50)
Treatment Effect($\hat{\sigma}$)	2.507**	3.328***	4.017***	3.656**	3.636**	3.596**
	(2.30)	(2.84)	(2.75)	(2.49)	(2.21)	(2.04)
N	573	553	517	490	474	457
F-test	42.97	53.39	58.83	71.89	75.75	90.19
From subsample with only TMC GPs (i.e. TMC is the ruling party)						
Jump in probability of treatment ($\hat{\pi}$)	0.562***	0.564***	0.513***	0.506***	0.518***	0.501***
	(6.25)	(6.23)	(5.07)	(4.75)	(4.71)	(4.12)
Treatment effect($\hat{\sigma}$)	7.142***	7.988***	9.708***	12.370***	11.572**	13.702**
	(2.88)	(2.94)	(2.76)	(2.81)	(2.58)	(1.93)
N	156	150	144	138	132	121
F-test	39.08	38.84	25.73	22.53	22.21	16.93
From subsample with only Left GPs (i.e. Left is the ruling party)						
Jump in probability of treatment ($\hat{\pi}$)	0.421***	0.404***	0.436***	0.450***	0.321***	0.317***
	(9.28)	(8.01)	(6.84)	(6.24)	(4.28)	(3.96)
Treatment effect($\hat{\sigma}$)	-4.83	-2.97	-0.089	-1.98	-1.18	-0.54
	(0.51)	(0.32)	(0.01)	(0.17)	(0.44)	(0.03)
N	356	342	320	300	264	246
F-test	86.14	64.14	46.74	38.98	18.31	15.68

Note: Significance levels: * 10 percent level, ** 5 percent level, *** 1 percent level. In the above table, 'h' denotes bandwidth selection from 10 to 5 and this is in terms of x, i.e. X-50, where X is the ruling party's vote share at the village level. |t|-stat value is in the bracket. F-test shows the F-stat value from F-test on the excluded instrument from the first stage of 2SLS or IV.

To check the robustness of our results, we estimate the treatment effect on the village-level NREGS outcome using polynomial regression instead of local linear regression as above. The results and discussions from this polynomial regression, along with the results from the different identification tests for the validity of the FRDD design, are also presented in online Appendices A1, A2 and A3, respectively. We also check the sensitivity of the treatment effect with inclusion of all covariates with local linear regression (Appendix 5, Tables 5A and 5B)

Estimation results on ruling party feedback effect

We now present the results of the second stage of the empirical analysis, where we examine the feedback effect of partisan alignment (or its absence) on 2013 election outcomes. Before presenting the regression results, we refer to Appendix 6, Table 6A, where we present the descriptive statistics on the village- (or ward-) level vote share of two major parties – TMC and CPIM – after the 2008 and 2013 panchayat elections by GP-level ruling party and by ruling party treatment effect. It is interesting to note from Table 6A that after the 2008 elections, where TMC was the ruling party at the GP level and also the winning party at the village level within these GPs, the TMC improved their vote share from 55 percent in 2008 to 62.3 percent in 2013. On the other hand, after the 2008 elections, in which CPIM was the ruling party at the GP level and also the winning party at the village level within those GPs, the party suffered a fall in their vote share from 61.8 percent in 2008 to 34.9 percent in 2013. More interestingly, in the constituencies where the TMC was the losing party in 2008, the TMC improved their vote share from 12.5 percent in 2008 to 34 percent in 2013. One explanation of this could be that in these constituencies, as the CPIM did not engage in partisan alignment, voters did not support them to the same extent in 2013. On the other hand, although TMC was a losing party in 2008, in these constituencies, it increased its vote share in 2013 out of voters' dissatisfaction in CPIM villages under a CPIM GP. However, the increase in the vote share of the TMC could also be a reflection of the swing in votes in their favour across the state.

To disentangle the electoral effect of partisan alignment from an across-the-board improvement in TMC's electoral performance in 2013, we attempt to find out to what extent the gain in the vote share of TMC can be attributed to the treatment effect, following the methodology outlined in the previous section.

We know from the previous set of results that the treatment effect in TMC GPs is positive and significant and the treatment effect in CPIM GPs is negative but insignificant. In our formulation, *Y_hat* represents that part of Y which can be explained by the treatment effects only, and we assess whether it has any feedback on election outcomes in 2013.

Table 11: Feedback effect on ruling party's vote share in 2013 election

	Vote share of TMC	Vote share of TMC	Vote share of TMC	Vote share of CPIM	Vote share of CPIM	Vote share of CPIM
(Y_hat)*100000	2.1***	2.2***	1.5***	-1.1***	-1.1***	-0.92
	[3.28]	[3.98]	[2.92]	[-3.25]	[-3.17]	[-0.48]
Percentage of winning margin in 2008 elections		0.65***	0.58***		-0.07***	-0.033
		[6.86]	[5.68]		[-2.52]	[-1.03]
Percentage of vote of other defeated candidate in 2008 elections		0.232	0.023		-0.25***	-0.26***
		[0.81]	[0.08]		[-2.96]	[-2.93]
Total number of households		-0.027	-0.022*		0.002	0.001
		[-1.89]	[-1.87]		[0.19]	[0.22]
Percentage BPL households in village		0.48***	0.37***		0.045	0.024
		[3.67]	[3.62]		[0.59]	[0.55]
Percentage minority households in village		-0.32*	-0.251		-0.27*	-0.106
		[-1.69]	[-1.25]		[-1.72]	[-1.23]
Worker to non-worker ratio		-7.28*	-5.79*		2.78*	3.108
		[1.78]	[-1.91]		[1.89]	[0.35]
District fixed effects		No	Yes		No	Yes
Observations	329	329	329	673	673	673
R^2	0.0639	0.331	0.433	0.0374	0.0641	0.156
F	10.75	24.45	12.221	10.59	8.88	5.76

Note: Significance levels: * 10 percent level, ** 5 percent level, *** 1 percent level, t-ratios in brackets.

From Table 11, we see that TMC, as a ruling party after the 2008 election at the GP level, has realised a 1.5 percent increase in their vote share in their own villages in the 2013 election by spending INR 100,000 extra NREGS funds annually in their own constituencies compared to the opponent party constituency. However, the CPIM as the ruling party in the 2008 elections realised a fall in their vote share in their own constituencies in the 2013 elections, and once we control for district fixed effects, such a fall in the vote share becomes statistically insignificant. This means that the fall in CPIM vote share in their ruling villages in 2013 cannot be attributed to the ruling party treatment effect. This is expected, because for CPIM ruling villages we did not get any significant treatment effect earlier.

In Table 12 we obtain similar results in the case where the dependent variable is a dummy variable which takes 1 if party gets re-elected and 0 otherwise. Here regression results show the marginal effect of the probit regression. Before presenting the regression results, we refer to Appendix 6, Table 6B, where we show the re-election scenario by treatment and by party. From Appendix 6, Table 6B, we can infer that in 44.30 percent of the total constituencies, TMC candidates were re-elected in the 2013 election whereas CPIM candidates were re-elected only in 26.15 percent of the total constituencies in the 2013 election. However, when we look at the same re-election scenario within the treated villages, we can see that TMC were re-elected in 63.83 percent of seats within the treated village, whereas CPIM were re-elected in 22.10 percent of seats within the treated villages. This indicates that partisan alignment certainly makes some contribution towards increasing the probability of getting re-elected.

In Table 12 we present marginal effects of preferential spending of NREGS funds in ruling party's villages on the probability of getting re-elected. We can see that TMC realised an 11.4 percentage point increase in their probability of getting re-elected by spending INR 100,000 extra NREGS fund in their own villages. However, the CPIM realized an eight percentage point fall in the probability of getting re-elected, but the result is statistically insignificant when district fixed effects are included.

To summarise our main findings, we find that there is partisan alignment in the allocation of NREGS funds. This practice is more pronounced when the TMC is the ruling party and we find the TMC as ruling party spends around INR 125-50K more NREGS funds annually in its own villages compared to non-TMC villages. On the contrary, we did not find such a practice of partisan alignment when the CPIM is the ruling party. The CPIM as a ruling party spends less in its own party villages, but this result is statistically insignificant. We also find that due to the practice of partisan alignment, the TMC as a ruling party gained both in terms of the vote share and the higher probability of getting re-elected in the 2013 panchayat election in its own party villages, while CPIM as a ruling party could not gain electorally in a similar manner.

Table 12: Marginal effect on party's probability of getting re-elected in 2013 elections

Xs (explanatory variables)	dY/dX (marginal effect on probability of re-election in 2013 in TMC villages when T=1)	X-bar (average value of Xs in TMC villages when T==1)	dY/dX (marginal effect on probability of re-election in 2013 in CPIM villages when T=1)	X-bar (average value of Xs in CPIM villages when T=1)
(Y_hat)*100000	0.114**	(512345.33)* 100000	-.08001	(411326.78)* 100000
	[2.37]	-	[-0.71]	-
Percentage of winning margin in 2008 elections	0.176**	22.25	-.00489	24.78
	[2.33]	-	[-1.55]	-
Percentage of vote of other defeated candidate in 2008 elections	-.165**	6.65 -	-.0073*	6.33
	[-2.05]		[-1.66]	-
Total number of households	-.0003211	350.55	.000317*	375.132
	[-0.95]	-	[1.75]	-
Percentage BPL households in village	-.0005659	42.97	-.0015378	40.09
	[-0.19]	-	[-1.06]	-
Percentage minority households in village	.0008952	3.97	.0015921	5.42
	[0.16]	-	[0.57]	-
Worker to non-worker ratio	.1992362	0.625	-.3784496	0.666
	[0.24]	-	[-1.21]	-
District fixed effects	Yes		Yes	
Observations	329		673	
Pseudo R^2	0.1657		0.0705	
Prob>Chi2	0.0018		0.0000	

Note: Significance levels: * 10 percent level, ** 5 percent level, *** 1 percent level. t-ratios in brackets.

6. Why did the two incumbent parties behave differently in allocating NREGS funds?

A striking result that we have obtained is the differences between the two main political parties in the manner in which they practised partisan alignment. We find that the CPIM as an incumbent ruling party did not spend more NREGS funds in their own party villages than in opponent parties' villages, whereas TMC as an incumbent ruling party spent more NREGS fund in their own party villages compared to their opponent party villages. Why should there be differences between the two parties in practising partisan alignment, especially given our finding that there was a clear positive electoral return to doing so? In this section, we provide possible explanations of the heterogeneous treatment effects that we observe across the two main political parties.

Firstly, it is possible to argue that the different behaviour of the LF compared to the TMC may be related to an impending change in the political regime that the LF could foresee. During a period of regime transition, it may be argued that the incumbent may behave differently compared to a normal time, especially when the incumbent can foresee that regime change (Peng, 2003; Vergne, 2006; Snyder and Mahoney, 1999; Kitschelt, 1992; Gandhi, 2014). Regime transitions have an important impact on the capacities and functioning of the incumbents who try to defend them and similarly regime institutions also influence the strategies of the challengers or *entrants* who seek to transform them. As we have noted in Section 2, political parties had been expecting a regime change since 2009, which eventually occurred in the 2011 state assembly elections. For the LF, there was no strong electoral reward anticipated in practising partisan alignment during the period 2010-12, once it was clear that they would lose control of the state government in 2011.

A second explanation may have to do with the class interests and core ideology of the LF, and the social base of their support in the years that they formed the local and state governments in West Bengal. The LF, and the CPIM in particular, is historically a political party based on the middle and small peasantry class in West Bengal (Chakraborty, 2015). During its years in government, the CPIM's main focus was land reform and tenancy reform, whereby it protected the interests of the small and marginal farmers (ibid.), and secured their votes for regime survival (Bardhan et al. 2009, Bardhan and Mookherjee 2012) On the other hand, the NREGS is a programme which primarily targets agricultural labourers, who are mostly landless and who have historically not been the support base of CPIM. Thus, the lack of partisan alignment practised by the LF when it came to the NREGS may be seen as being more in line with ideology-based theories of political behaviour, where incumbent parties do not directly use public programmes under their control for clientelist purposes, even when it is in their short-term electoral interests (Lipset 1960, Besley and Coate 1997)

7. Conclusions

Whether incumbent parties practise partisan alignment – that is, discriminate in favour of their own constituencies instead of the opponent party's constituencies – has been a matter of theoretical and empirical debate. The literature on partisan alignment also does not provide an unambiguous answer on whether incumbent parties gain electorally when they do practise partisan alignment. In this paper, we test for the presence of partisan alignment as

well as the effect of such alignment on the future election success of the incumbent party in the context of village council- (i.e. gram panchayat) level ruling party in West Bengal panchayats in distributing the NREGS funds using a quasi-experimental research design. We find that after the 2008 panchayat elections, the ruling party at the GP level significantly spent more NREGS funds in the following years in their own party constituencies, i.e. their own party villages compared to opponent party's villages. However, looking closely at the two major political parties in West Bengal – the TMC and CPIM – we find TMC practised partisan alignment strongly in their villages where they were the ruling party after the 2008 election, while the CPIM did not engage in a similar type of behaviour.

We also investigate the feedback effect of partisan alignment of the 2008 ruling parties on the election outcome after the 2013 election. We find that this practice was rewarded in terms of the better election outcome in 2013 for the TMC. In contrast, the CPIM could not gain in terms of votes or likelihood of re-election in the following election, due mainly to their non-clientelistic behaviour. We suggest that the differences in behaviour between the two political parties can be attributed to the anticipation of regime change in the state, which provided little incentive for the CPIM in engage in the practice of partisan alignment, as well as the class background of the potential beneficiaries of the NREGS, who have historically not been the core supporters of the Left regime in West Bengal.

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Appendix 1: Summary statistics of village-level variable by ruling party village (when CPIM is the ruling party)

Variable (all values refer the average value at village level)	Values in ruling party village (K=1)	Values in not-ruling party village (K=0)	t-test for mean difference
NREGS expenditure (Y)	330148.4	302944.9	0.6495
NREGS days generated annually	2749.887	2365.5	1.0731
NREGS days worked by per NREGS HH (Y7)	24.8656	25.657	0.2344
NREGS days worked by per HH (y)	8.74	7.504	1.0729
NREGS wage	121.624	123.395	1.0721
Total schemes completed in a year (Y5)	2.788	2.7266	0.2065
Average expenditure per schemes (Y6)	126268.1	121001.5	0.4441
No. of new schemes completed (Y1)	2.2448	2.214815	0.1132
No. of existing schemes completed (Y2)	0.735	0.661	0.4983
No. of total job cards (Y3)	251.879	247.97	0.2582
No. of active job cards (Y4)	138.40	92.87	3.2771***
GP-level ruling party vote share at GS (X1)	58.5022	39.48648	12.915***
Total voters in 2008 election	974.9	983.187	0.2948
Percentage of voters who cast their vote in 2008	87.484	90.326	3.5651***
Total monsoon rain annually (in millimetre)	1414.14	1242.549	3.6178***
No. of households (as per RHS)	375.132	397.23	1.1490
No. of BPL households (as per RHS)	152.352	155.53	0.2343
No. of minority households (as per RHS)	20.2	58.93	5.3631***
Worker to non-worker ratio	0.66698	0.5826725	5.9496***
Percentage of male village members 2008	62.4	61.15	0.2425
Percentage of female village members 2008	37.6	38.85	0.2425
Percentage of General caste village members 2008	34.4	34.53	0.0263
Percentage of SC village members 2008	42.4	39.57	0.5422
Percentage of ST village members 2008	12.8	2.16	3.5630***
Percentage of OBC village members 2008	4	6.47	1.0841
Percentage of Minority caste village members 2008	6.4	17.26	3.4233***
Number of observations	250	139	

Appendix 2: Summary statistics of village-level variables by ruling party village (when TMC is the ruling party)

Variable (all values refer the average value at GS level)	Values in ruling party village (L=1)	Values in not-ruling party village (L=0)	t-stats from t-test for mean difference.
NREGS expenditure (Y)	595593.7	499220.7	0.8414
NREGS days generated annually	4803.382	3967.204	0.9406
NREGS days worked by per NREGS HH (Y7)	50.75019	54.777	0.3451
NREGS days worked by per HH (y)	15.33158	17.0314	0.4039
NREGS wage	120.6	122.56	0.7327
Total schemes completed in a year (Y5)	2.964912	3.2553	0.6190
Average expenditure per schemes (Y6)	167777.4	114349.4	2.0401***
No. of new schemes completed (Y1)	2.508772	2.5106	0.0039
No. of existing schemes completed (Y2)	0.5098039	0.9210	2.5645***
No. of total job cards (Y3)	246.6833	256.06	0.4927
No. of active job cards (Y4)	124.3898	109.48	0.9770
GP-level ruling party vote share at GS (X2)	57.80032	27.83477	14.0582***
Total voters in 2008 election	1073.217	1083.74	0.2065
Percentage of voters who cast their vote in 2008	85.25379	87.2757	09467
Total monsoon rain annually (in millimetres)	1301.06	1255.124	1.3164
No. of households (as per RHS)	350.5583	420.64	2.4049**
No. of BPL households (as per RHS)	151.7333	146.3	0.3229
No. of minority households (as per RHS)	12.575	32.42	2.9931**
Worker to non-worker ratio	0.6251478	0.6245263	0.0421
Percentage of male village members 2008	58.33	56	0.2790
Percentage of female village members 2008	41.67	44	0.2790
Percentage of General caste village members 2008	20.84	44	3.1480***
Percentage of SC village members 2008	60.83	48	1.5420
Percentage of ST village members 2008	6.66	2	1.2364
Percentage of OBC village members 2008	5	0	1.6126
Percentage of Minority caste village members 2008	6.67	6	0.1601
Number of observations	120	50	

Appendix 3: Cross validation procedure

The optimal bandwidth is chosen with a 'leave one out' procedure proposed by Imbens and Lemieus (2008). For each observation 'i' on the left of the cut-off point, we run a linear regression using only observation with value of X (i.e. the treatment determining assignment variable) on the left of $X_i(X_i - h \leq X < X_i)$, while for observation on the right of the cut-off point we use only those on the right of $X_i(X_i - h \leq X < X_i)$

Then we repeat this procedure for each 'i' in order to obtain the whole set of predicted value of Y that can be compared with the actual value of Y. In terms of formal expression, the cross-validation criterion is defined as the following expression

$$CV_Y(h) = \frac{1}{N}\sum_{i=1}^{N_h}\left\{Y_{(i)} - \hat{Y}[X_{(i)}]\right\}^2,$$

where $\hat{Y}[X_{(i)}]$ represents the predicted value of Y using the above described regression. The optimal bandwidth is that value of h that minimises the criterion function. In our case this optimal bandwidth is 5 in local linear regression. Following Imbens and Lemieus' (2008) suggestion, we used same bandwidth for both outcome and treatment equation and use the smallest bandwidth, which is 5, selected by the cross-validation procedure.

Appendix 4: Akaike information criterion

Our second estimation procedure is based on polynomial regression. Under this polynomial regression, the main problem is to choose the optimal order of polynomial of the assignment variable to capture the true functional form of the f(x) in Equation 2. Here we use Akaike information criterion (AIC), as defined below

$$AIC = N \ln(\hat{\eta})^2 + 2p,$$

Where $\hat{\eta}$ is the mean square error of the regression and p is the number of the parameters in the model. Based on AIC criterion, we use quartic form x i.e. polynomial of order 4 as the optimal order.

Appendix 5

Table 5A: Treatment effect on *village-wise NREGS expenditure*: with whole sample (local linear regression with all covariates at different band width)

	h=10	h=9	h=8	h=7	h=6	h=5
T(treatment effect)	30451.9**	34201.9**	27227.8*	31361.7*	36008.3*	40698.2**
	[2.23]	[2.38]	[1.82]	[1.80]	[1.94]	[2.00]
x (assignment var.)	-2122.2**	-2269.5**	-2616.8**	-3156.1**	-3516.4**	-4583.3**
	[-2.19]	[-2.19]	[-2.27]	[-2.11]	[-2.11]	[-2.39]
Z*x (interaction)	2000.174	1889.584	2777.16*	3330.78*	3272.37	3672.02*
	[1.46]	[1.30]	[1.68]	[1.77]	[1.61]	[1.73]
Total_voters_2008	24.6***	25.5***	27.4***	30.06***	25.3***	23.4***
	[2.91]	[3.00]	[3.25]	[3.39]	[2.87]	[2.73]
%_vote cast_2008	-14.312	-18.902	104.571	78.792	139.508	-218.936
	[-0.06]	[-0.08]	[0.44]	[0.30]	[0.52]	[-0.87]
%_margin_win2008	-328.021	-343.316	-257.602	-264.862	-232.248	184.404
	[-0.89]	[-0.92]	[-0.66]	[-0.50]	[-0.43]	[0.29]
%_vote_others_ defeatedcandidate2008	-899.02**	-904.27**	-1132.11**	-1258.44**	-1170.36*	-1708.36**
	[-2.17]	[-2.14]	[-2.51]	[-2.02]	[-1.86]	[-2.26]
Monsoon rain	-40.5***	-46.6***	-50.8***	-52.8***	-43.7***	-44.5***
	[-3.16]	[-3.63]	[-3.80]	[-3.86]	[-3.13]	[-3.03]
Average HH size	5.169	-6.654	-5.261	-4.608	-5.531	2.193
	[0.42]	[-0.57]	[-0.44]	[-0.37]	[-0.43]	[0.17]
pct_BPLhh	378.9***	390.0***	415.8***	420.3***	391.1***	421.9***
	[4.86]	[4.78]	[5.09]	[4.92]	[4.52]	[4.74]
pct_Minority_hh	-61.818	-65.403	-55.990	-23.078	-24.738	-28.393
	[-0.63]	[-0.67]	[-0.57]	[-0.21]	[-0.22]	[-0.25]
Worker to non-worker ratio	163637.8***	150541.2***	183791.5***	190298.8***	196755.3***	212840.8***
	[4.77]	[4.29]	[5.06]	[4.79]	[4.84]	[5.14]
sex_member_2008==male	1062.033	3306.529	5263.393	5855.626	6852.083	4389.197
	[0.26]	[0.82]	[1.28]	[1.33]	[1.54]	[0.97]
caste_member_2008==SC	-8201.63*	-7838.989	-5599.000	-6592.914	-6352.226	-5938.386
	[-1.73]	[-1.64]	[-1.20]	[-1.31]	[-1.24]	[-1.15]
caste_member_2008==ST	16634.42*	14943.420	20959.5**	20596.32*	23019.47*	27124.37*
	[1.67]	[1.46]	[1.98]	[1.70]	[1.71]	[1.91]
caste_member_2008==OBC	11225.206	10562.695	13722.923	16281.933	17281.309	23675.96*
	[1.12]	[1.06]	[1.25]	[1.42]	[1.47]	[1.84]
caste_member_2008==Muslim	-18748.0**	-18973.6**	-22803.2***	-24162.3***	-23252.8***	-25927.2***
	[-2.62]	[-2.66]	[-3.23]	[-3.29]	[-3.07]	[-3.29]
year== 2011	13155.1**	12665.7**	11585.1*	10950.8*	14262.1**	14678.5**
	[2.28]	[2.12]	[1.92]	[1.73]	[2.28]	[2.28]
year== 2012	-6983.160	-6179.342	-6912.327	-7262.633	-1424.847	-1441.184
	[-1.28]	[-1.14]	[-1.25]	[-1.30]	[-0.26]	[-0.26]
district==Purulia	-101856.5***	-118305***	-131594***	-136746.1***	-113964.7***	-113526.7***
	[-3.95]	[-4.69]	[-4.94]	[-5.02]	[-4.02]	[-3.75]
district==South 24 Parganas	-55679.8**	-67492.1***	-72369.3***	-72542.5***	-52208.6**	-43279.0*
	[-2.58]	[-3.18]	[-3.28]	[-3.13]	[-2.12]	[-1.65]
Observations	573	553	517	490	474	457
R^2	0.252	0.253	0.316	0.310	0.279	0.290
F	8.470	8.769	9.096	8.877	8.003	7.517

t statistics in brackets; * p<0.10, ** p<0.05, *** p<0.01

Table 5B: Treatment effect on *village-wise NREGS days per NREGS household*: with whole sample (local linear regression with all covariates at different band width)

	h=10	h=9	h=8	h=7	h=6	h=5
T(treatment effect)	3.5***	3.8***	4.2***	4.2***	4.3***	4.8***
	[2.92]	[3.11]	[2.98]	[2.71]	[2.63]	[2.66]
x(assignment var.)	-1.9***	-2.0**	-3.0***	-2.9**	-3.3**	-4.3**
	[-2.66]	[-2.54]	[-2.71]	[-2.30]	[-2.27]	[-2.55]
Z*x (interaction)	1.216	1.148	1.936	1.206	2.050	2.153
	[1.17]	[1.04]	[1.29]	[0.80]	[1.17]	[1.19]
Total_voters_2008	0.02*	0.02*	0.02**	0.03**	0.03**	0.03*
	[1.91]	[1.93]	[2.04]	[2.12]	[2.15]	[1.96]
%_vote casted_2008	-0.023	-0.033	0.142	0.127	0.144	-0.212
	[-0.11]	[-0.15]	[0.59]	[0.48]	[0.54]	[-0.87]
%_margin_win2008	0.037	0.034	0.257	0.554	0.435	0.887
	[0.11]	[0.10]	[0.60]	[1.02]	[0.79]	[1.46]
%_vote_others_defeatedcandidate2008	-0.8***	-0.8***	-1.2***	-1.4***	-1.5***	-1.9***
	[-2.74]	[-2.61]	[-3.19]	[-2.71]	[-2.79]	[-3.12]
Monsoon rain	-0.003	-0.004	-0.007	-0.006	-0.006	-0.007
	[-0.35]	[-0.59]	[-0.86]	[-0.72]	[-0.70]	[-0.74]
Average HH size	0.010	0.003	0.001	0.000	0.002	0.010
	[0.84]	[0.24]	[0.10]	[0.00]	[0.14]	[0.70]
pct_BPLhh	0.033	0.032	0.040	0.033	0.017	0.043
	[0.55]	[0.51]	[0.57]	[0.46]	[0.22]	[0.58]
pct_Minority_hh	-0.074	-0.071	-0.055	-0.051	-0.041	-0.044
	[-0.81]	[-0.76]	[-0.56]	[-0.46]	[-0.37]	[-0.38]
Worker to non-worker ratio	137.5***	133.8***	147.6***	154.7***	160.0***	175.1***
	[4.98]	[4.74]	[4.86]	[4.79]	[4.73]	[5.13]
sex_member_2008==male	-0.376	1.105	2.629	1.778	2.525	-0.124
	[-0.11]	[0.31]	[0.68]	[0.45]	[0.62]	[-0.03]
caste_member_2008==SC	-9.1**	-9.0**	-7.6*	-7.7*	-8.4*	-7.7*
	[-2.16]	[-2.12]	[-1.73]	[-1.69]	[-1.84]	[-1.68]
caste_member_2008==ST	-2.147	-1.183	2.685	3.221	9.374	13.677
	[-0.34]	[-0.18]	[0.32]	[0.34]	[0.86]	[1.18]
caste_member_2008== OBC	-7.745	-8.167	-6.837	-3.047	-2.471	0.663
	[-1.22]	[-1.25]	[-0.96]	[-0.42]	[-0.32]	[0.08]
caste_member_2008== Muslim	-17.4***	-17.5***	-21.0***	-20.6***	-19.6***	-22.0***
	[-3.09]	[-3.08]	[-3.77]	[-3.67]	[-3.38]	[-3.62]
year==2011	12.5**	13.3***	13.1**	13.5**	14.1**	14.3**
	[2.57]	[2.64]	[2.48]	[2.46]	[2.49]	[2.47]
year== 2012	4.670	6.044	5.422	5.846	7.199	7.045
	[1.16]	[1.50]	[1.31]	[1.39]	[1.62]	[1.54]
district==Purulia	6.983	2.932	-2.535	-5.450	-2.668	-1.376
	[0.43]	[0.18]	[-0.14]	[-0.30]	[-0.14]	[-0.06]
district==South 24 Parganas	39.9***	37.6***	34.7**	38.1**	42.7**	51.2**
	[2.91]	[2.65]	[2.25]	[2.31]	[2.32]	[2.53]
Observations	573	553	517	490	474	457
R^2	0.073	0.056	0.073	0.080	0.078	0.099
F	3.167	3.036	3.230	3.047	3.019	3.015

t statistics in brackets; * p<0.10, ** p<0.05, *** p<0.01

Appendix 6

Table 6A: Comparison of village-level vote share of TMC and CPIM in 2008 and 2009 election: by GP-level ruling party and by treatment village

	TMC GP				CPIM GP				Any GP				Any GP	
	T=1		T=0		T=1		T=0		T=1		T=0		Any T	
Ward-level vote share / Election	TMC	CPIM	TMC	CPIM	TMC	CPIM	TMC	CPIM	TMC	CPIM	TMC	CPIM	TMC	CPIM
2008	55.01	35.05	31.01	43.72	12.46	61.82	39.92	36.88	22.59	49.2	23.23	38.2	22.79	45.81
2013	62.98	29.15	33.18	34.18	34.04	34.90	41.54	32.97	39.80	29.9	37.95	29.8	39.22	29.89
t-test of mean difference	(2.14)**	(1.72)*	(0.77)	(1.08)	(3.82)***	(2.88)***	(1.46)	(0.79)	(2.1)**	(2.2)**	(1.49)	(1.1)	(1.66)*	(1.72)*
N	329	329	121	121	673	673	296	296	1174	1174	533	533	1707	1707

Note: T=1 implies the ward is a ruling party ward and T=0 implies the ward is not a ruling party ward.

Table 6B: Re-election scenario by treatment and by party

	sample where T=1, i.e. only in treated village		Sample with any T, i.e. any village	
	TMC village/ward in 2008	CPIM village/ward in 2008	TMC village/ward in 2008	CPIM village/ward in 2008
Share of constituencies where party gets re-elected in 2013	63.83	22.10	44.30	26.15
N	329	673	474	826

Online appendix: Robustness check and test for validity of RD design

Online appendix A1: Robustness check with local polynomial regression

As further robustness checks, Tables A1 and A2 report the estimated treatment effect on the village-level NREGS outcome using polynomial regression instead of the local linear regression, as reported in Tables 9 and 10. We present the results according to different polynomial orders 'k' and the bandwidth 'h'. We used Akaike information Criteria (AIC) (see Appendix 4) to choose the optimal order of polynomial, which is in this case is 4. However, in Tables A1 and A2 we also present the results with different polynomial order at different bandwidth to see the sensitivity of the results.

Table A1: Treatment effect on village-wise NREGS expenditure (local polynomial regression)

			From whole sample		
Polynomial order	h=20	h=15	h=12	h=10	h=8
k=2	27174.0**	28497.1**	26782.8**	41887.1**	38061.7**
	(2.09)	(2.20)	(2.00)	(2.77)	(2.07)
k=3	39481.7**	41730.7**	55100.4**	42007.1*	48353.4*
	(2.33)	(2.24)	(2.38)	(1.77)	(1.90)
k=4	45245.7**	44256.1**	49451.3**	42600.7*	48791.4*
	(2.26)	(2.24)	(2.24)	(1.76)	(1.84)
k=5	44686.1**	49664.7*	37750.12	49297.84	55937.02
	(1.99)	(1.89)	(1.29)	(1.58)	(1.11)
k=6	52883.1**	48989.6*	40935.45	49980.32	56569.54
	(1.98)	(1.89)	(1.46)	(1.54)	(1.11)
N	593	587	573	553	517
From sub sample with only TMC GPs (i.e. TMC is the ruling party)					
k=2	58720.8**	58720.8**	73735.0**	87102.4**	123324.4**
	(2.06)	(2.06)	(2.00)	(2.16)	(2.33)
k=3	118929**	118929**	163917.2**	165843.9**	167175.2*
	(2.06)	(2.06)	(2.08)	(1.99)	(1.66)
k=4	121185.4**	121185.4**	154574.6**	157143.9**	154655.3*
	(2.10)	(2.10)	(2.10)	(2.10)	(1.79)
k=5	180641.4*	180641.4*	199279.5	191242.4	180221.8
	(1.84)	(1.84)	(1.49)	(1.07)	(0.34)
k=6	162184.7*	162184.7*	144266.7	136617.4	151527
	(1.93)	(1.93)	(1.03)	(1.05)	(0.38)
N	156	156	150	144	138
From sub sample with only Left GPs (i.e. Left is the ruling party)					
k=2	-15738.1	-10059.08	-14300.93	-5351.552	-18022.71
	(1.37)	(0.97)	(1.35)	(0.48)	(1.28)
k=3	-6372.97	-16142.07	-8381.28	-27180.64	-19426.89
	(0.52)	(0.96)	(0.49)	(1.51)	(1.03)
k=4	-12576.41	-15969.35	-12534	-28076.39	-21378.16
	(0.80)	(1.01)	(0.78)	(1.49)	(1.07)
k=5	-19099.23	-21420.79	-38306.62	-17802.25	-13852.45
	(1.04)	(0.93)	(1.62)	(0.77)	(0.38)
k=6	-18464.43	-28369.41	-31372.82	-19347.71	-11562.85
	(0.89)	(1.29)	(1.40)	(0.80)	(0.31)
N	365	359	356	342	320

Table A2: Treatment effect on village-level days of NREGS work availed by per household (local polynomial regression)

		From whole sample			
Polynomial order	h=20	h=15	h=12	h=10	h=8
k=2	2.5**	2.5**	2.6**	3.7***	4.4***
	(2.41)	(2.47)	(2.41)	(3.01)	(2.82)
k=3	3.6***	4.1***	5.2***	4.5**	3.9*
	(2.64)	(2.66)	(2.68)	(2.26)	(1.86)
k=4	4.5***	4.4***	4.6***	4.6**	4.1*
	(2.70)	(2.69)	(2.54)	(2.27)	(1.87)
k=5	4.4**	4.8**	4.03	3.7	3.3
	(2.35)	(2.16)	(1.63)	(1.46)	(0.83)
k=6	5.2**	4.7**	3.6	3.9	3.3
	(2.29)	(2.17)	(1.60)	(1.46)	(0.83)
N	593	587	573	553	517
	From sub sample with only TMC GPs (i.e. TMC is the ruling party)				
k=2	7.2***	7.2***	9.5***	10.9***	15.9***
	(2.83)	(2.83)	(2.70)	(2.87)	(3.06)
k=3	15.1***	15.1***	20.0**	20.4**	19.25*
	(2.64)	(2.64)	(2.39)	(2.29)	(1.83)
k=4	15.3***	15.3***	19.2**	19.5**	17.7**
	(2.67)	(2.67)	(2.46)	(2.45)	(2.06)
k=5	22.2**	22.2**	25.0*	26	53.56
	(2.09)	(2.09)	(1.70)	(1.30)	(0.56)
k=6	20.3**	20.3**	18.93	17.59	41.87
	(2.24)	(2.24)	(1.31)	(1.38)	(0.68)
N	156	156	150	144	138
	From sub sample with only Left GPs (i.e. Left is the ruling party)				
k=2	-5.54	-2.25	-3.64	-4.14	-1.29
	(0.59)	(0.26)	(0.40)	(0.42)	(0.11)
k=3	-4.63	-7.18	-10.59	-1.31	-3.25
	(0.45)	(0.50)	(0.71)	(0.09)	(0.20)
k=4	-8.38	-4.16	-6.13	-2.06	-4.23
	-(0.61)	-(0.31)	-(0.45)	-(0.13)	-0.24)
k=5	2.83	5.07	-3.88	-0.83	-2.003
	-(0.18)	-(0.25)	-(0.20)	-(0.00)	-(0.06)
k=6	-5.67	-2.68	-3.98	-1.3	-1.85
	(0.32)	(.014)	(0.21)	(0.06)	(0.06)
N	365	359	356	342	320

Results in Tables A1 and A2 show that the pattern, sign and statistical significance of the treatment effect across different samples (i.e. whole sample of GPs, only TMC GPs and only CPIM GPs) remain largely the same. In fact, the results at the optimal polynomial order show a somewhat higher treatment effect than in the cases based on local regressions in Tables 9 and 10 in the paper. For example, TMC villages under TMC GP spend INR 154655.3 more NREGS funds, and households availed 17.69 days more NREGS work, compared to non-TMC villages in TMC GP. We also check the sensitivity of the treatment effect with the inclusion of all the covariates with local linear regression (see Appendix 5, Tables 5A and 5B) and results remain largely the same.

Online appendix A2: Discussion on identification issues and test for validity of RDD

The unique claim of the RD estimation strategy is that it generates estimates that are 'as credible as those from randomised experiments' (Lee and Card, 2008) under certain relatively weak assumptions. The most important assumption is that the conditional expectation of the potential outcomes (village-wise NREGS expenditure and days of work by the households) with respect to the assignment variable (i.e. X: GP-level ruling party's vote share at the ward/village) are smooth/continuous function at the cut-off i.e. X=50 (or x =0). This enables us to attribute any discontinuity in the outcome of interest at the threshold of cut-off only to the effect of treatment, which is in our case the ruling party effect.

With any identification assumption, the assumption of continuity of conditional expectation of outcome variable is directly untestable but, as in the common literature (Lee and Lemieux, 2009), we can perform some indirect tests and these are outlined below.

a) *Continuity of other covariates at the threshold*:
   We can test whether there is any discontinuity in predetermined characteristics or covariates for which we have data, but which are known not to have been affected by the treatment. We have already seen in Table 7 in the paper that the comparison of means of few predetermined covariates does not reject the null hypothesis of equal means. We therefore tested the assumption of zero effect on these predetermined covariates by using the same estimation strategy used for estimating the treatment effect on NREGS outcome variables at the village level. As with previous comparison of means, the results, reported in Table A3 in Online Appendix A3, do not reject the null of zero effect of the treatment on these covariates.

b) Imprecise control over assignment variable:
   Here we are interested to check whether politicians or political parties are able to influence the assignment variable (i.e. X: GP-level ruling party's vote share at the village level) and if so, what is the nature of this control. This is also an important assumption that should be checked when we assess whether a particular application should be analysed as RD design. If political parties have a great deal of control over the assignment variable, and if there is a perceived benefit to a treatment, particular party would certainly expect villages on one side of the threshold to be systematically different from those on the other side. In that case, even discontinuity of outcome at the threshold may not indicate the treatment effect. Lee and Lemieux (2009) suggest that, unless the individual (i.e. in our case the contesting political parties) has *precise* control over (rather than *manipulation of*) assignment variable, use of RDD is valid. In fact, in our context politicians or political parties have some manipulative powers to influence assignment variable, but certainly not precise control over the assignment variable (that is, they cannot directly

determine the vote share in their favour). We cannot test this directly, as we will only observe one observation on the assignment variable per village at a given point in time. However, an intuitive test of this 'imprecise control' assumption is whether the aggregate distribution of the assignment variable is discontinuous.

McCary (2008) proposes a simple two-step procedure for testing whether there is a discontinuity in the density of the assignment variable. In the first step, the assignment variable is partitioned into equally spaced bins and frequencies are computed within those bins. The second step considers the frequency counts as the dependent variable. Then we run the local linear or local polynomial regression for this frequency count, as we did for our NREGS outcome variables. We plot the expected value of this frequency count or density of assignment variable. Any discontinuity in this plot will fail to accept the validity of RD design in our contest. We plot this density based on a local polynomial regression in Figure A1 in Online Appendix A3 and that shows no discontinuity and hence holds the validity of RD design or assumption of local randomisation in our context. This test also indirectly checks whether both observed and unobserved covariates that affect NREGS outcome at the village level are continuous (McCary, 2008).

c) *Falsification or placebo test:*
A final set of robustness tests for the validity of our RD design (or the assumption of local randomisation) involves estimating the discontinuities in outcomes at the points where there should be no discontinuity in the treatment distribution. These results are reported in Table A4 in Online Appendix A3, which does not show any evidence for the presence of discontinuity of the treatment variable in the two subsamples on the either side of the cut-off values of X.

We present all the results for identification issues and test for validity of RD design in online Appendix A3 below.

Online appendix A3: Results of identification test for validity of FRDD

Here we are presenting the different tests that we perform to verify the validity of our regression discontinuity design, as outlined above.

a) *Continuity of other covariates at the threshold*:

Table A3: Checking discontinuity of covariates (or predetermined characteristics): Estimating treatment effect on covariates (local linear regression at different bandwidth with optimal polynomial order)

	From whole sample					
	h=10	h=9	h=8	h=7	h=6	h=5
Total voter_2008	266.137	287.1328	8931.428	3685.22	1967.7	105.041
	(0.38)	(0.33)	(0.06)	(0.28)	(0.43)	(0.09)
Pct_votecast_2008	39.96	39.86	386.5	32.22	32.47	38.76
	(1.02)	(0.84)	(0.06)	(0.19)	(0.33)	(0.58)
Pct_margin__win_2008	31.49	32.64	626.35	149.74	88	39.33
	(1.20)	(1.01)	(0.06)	(0.29)	(0.50)	(0.77)
Pct_vote_othersdefeated_2008	11.65	20.31	142.30	93.52	36.43	26.61
	(0.79)	(0.96)	(0.06)	(0.30)	(0.49)	(0.76)
Monsoon rain	2312.004	4960.662	59764.09	12021.91	7673.474	4914.31
	(0.95)	(1.01)	(0.06)	(0.28)	(0.47)	(0.72)
Average HH size	-736.53	-308.514	-8509.92	-1088.535	210.73	657.561
	(-1.09)	(-0.54)	(-0.06)	(-0.26)	(0.16)	(0.58)
Pct_BPL_hh	86.64	111.186	3070.15	610.58	320.93	297.77
	(0.91)	(0.83)	(0.06)	(0.28)	(0.47)	(0.75)
Percentage of Minority HH	-2.849	23.219	2334.463	282.034	175.36	45.09
	(-0.06)	(0.32)	(0.06)	(0.25)	(0.41)	(0.36)
Worker to non-worker ratio	-0.8319	-1.154	-18.286	-2.1128	-0.6408	0.0042
	(-1.00)	(-0.92)	(-0.06)	(-0.26)	(-0.31)	(0.00)
Member_sex_dummy_2	1.899	3.4008	72.62	19.63	12.45	8.45
	(1.01)	(1.01)	(0.06)	(0.29)	(0.50)	(0.81)
Member_caste_dummy2	0.65990	0.4556	-10.64	-9.027	-4.311	-3.75
	(0.50)	(0.29)	(-0.05)	(-0.27)	(-0.44)	(-0.69)
Member_caste_dummy3	-1.091	-0.3499	-39.049	-3.627	-4.305	-1.1305
	(-0.85)	(-0.28)	(-0.06)	(-0.27)	(-0.47)	(-0.50)
Member_caste_dummy4	0.4289	-0.0213	2.266	5.63	1.88	1.55
	(0.49)	(-0.02)	(0.05)	(0.28)	(0.44)	(0.63)
Member_caste_dummy5	-2.7128	-3.394	-43.21	-7.9008	-4.7238	-3.79
	(-1.31)	(-1.12)	(-0.06)	(-0.29)	(-0.51)	(-0.84)
Year_dummy2	-1.85	-5.83	4.66	2.92	4.69	-6.25
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(-0.00)
Year_dummy3	-1.85	-5.83	4.66	2.92	4.69	-6.25
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(-0.00)
District_dummy2	-1.732	-2.58	-22.39	-0.179	-1.42	-0.39
	(-0.89)	(-0.86)	(-0.05)	(-0.03)	(-0.28)	(-0.17)
District_dummy3	0.876	0.29	-2.77	-5.82	-2.73	-2.46
	(0.55)	(0.17)	(-0.05)	(-0.29)	(-0.45)	(-0.69)
N	573	553	517	490	474	457

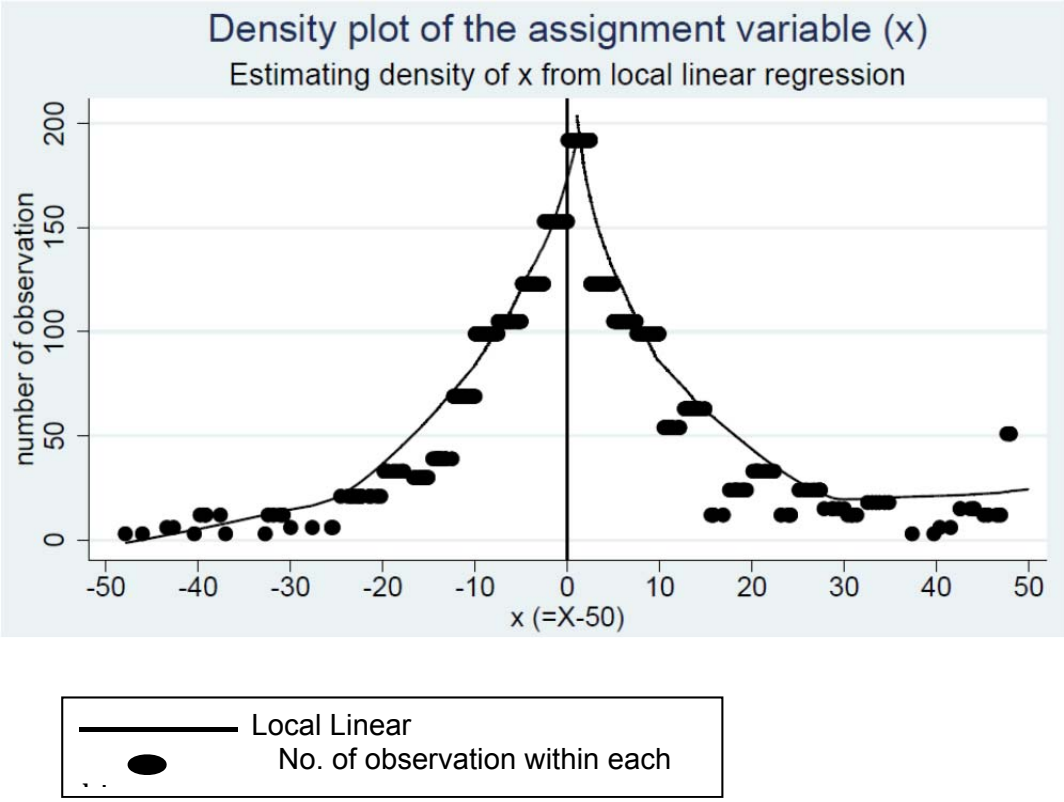
We test whether there is any discontinuity in predetermined characteristics for which we have data and that are known not to be affected by the treatment as defined in our case. This test is particularly important, because in the presence of other discontinuities, the estimated treatment effect may be attributed wrongly to the treatment of interest. We follow the same local linear regression methods (as we followed to estimate the treatment effect on our two outcome variables) for each of

these covariates at different bandwidth. Table A3 above shows that none of the covariates exhibits significant treatment effect, implying that there are no discontinuities in these covariates in the neighbourhood of cut-off. Here we also test the robustness of these results at different bandwidth with optimal order of polynomial i.e. 4.

b) Imprecise control over assignment variable:

Following the McCary (2008) test as outlined above, we plot the expected value of the frequency counts or density of assignment variable in Figure A1. From this figure we find that there is no discontinuity around the cut-off value. This shows that there was no precise control over the assignment variable and hence it accepts validity of RDD or assumption of local randomisation in our context.

Figure A1: Density plot of assignment variable following McCary (2008) test



c) Falsification or placebo test:

A final test for the validity of our RD design involves estimating jumps in the outcome variable at the points where there should not be any jump in the treatment effect on the outcome variable. For this we followed Imbens and Lemieux (2008), who test for jumps at the median value of the two subsamples on either side of the cut-off value. Now by the nature of our problem we will not have any jump in the probability of treatment in the right side of the cut-off value, as the probability of getting treated or P(T=1) is always 1 in the right side of the cut-off. This means that we will not get any

jump of outcome as well by construction. However, we can check the Imbens and Lemieux (2008) test to the left of the cut-off and for that we choose the median value of assignment variable x from the distribution of x and test the treatment effect at that median value. Table A4 presents the results. The results show no significant effect at the new cut-off point, which was set at the median value of x to the left original cut-off i.e. x=0. This result suggests that there is no such discontinuity at the non-discontinuity point and hence it passes our falsification or placebo test. Hence RDD is deemed valid in our context.

Table A4: Test of discontinuity at the non-discontinuity point

	Sample from below cut-off point (x<=0)					
	Whole sample		Sample with TMC GP		Sample with CPIM GP	
	NREGS Expenditure	NREGS Days	NREGS Expenditure	NREGS Days	NREGS Expenditure	NREGS Days
Treatment effect at non-discontinuity point	17640.54	17.433	43156.42	11.469	10959.97	-7.1993
	(0.70)	(-0.72)	(0.19)	(0.44)	(0.17)	(-01.29)
N	340	340	65	65	210	210

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