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THE DYNAMIC ELECTORAL RETURNS OF A LARGE ANTI-POVERTY PROGRAM

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Abstract

Short-term re-election strategies are widely used by governments around the world. This is problematic if governments can maximize their re-election chances by prioritizing short-term spending before an election over long-term reforms. This paper tests whether longer program exposure has a causal effect on election outcomes in the context of a large anti-poverty program in India. Using a regression-discontinuity framework, the results show that length of program exposure lowers electoral support for the government. The paper discusses a couple of potential explanations, finding that the most plausible mechanism is that voters hold the government accountable for the program's implementation quality.

Keywords: election outcomes, voting behavior, accountability, India, anti-poverty programs

JEL Codes: D72, H53, I38

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1 Introduction

Governments around the world make extensive use of short-run re-election strategies before an election, and a large literature suggests that this is often a successful strategy.[1] This is a problematic phenomenon for three reasons: First, election outcomes may be heavily influenced by luck or strategic short-run spending before the election rather than by the incumbent's level of competence.[2] Second, governments will have an incentive to focus on policies with quick payoffs over potentially more ambitious policies whose benefits only materialize in the medium to long run.[3] And third, if programs are announced and implemented relatively shortly before an election, voters may be unable to find out how large the benefits actually are.[4] All of these issues taken together mean that the accountability mechanism of elections in democratic settings breaks down.

While these issues affect democracies worldwide, they are of particular importance in developing countries: Developing countries face large-scale socio-economic problems, so consistent long-term policies are especially important. At the same time, many government programs suffer from low program awareness and problems with implementation quality, and research shows that short-run re-election strategies tend to be particularly successful.[5] It is therefore crucial to understand if developing country governments can derive medium-run benefits from the introduction of ambitious anti-poverty programs.

How longer exposure to a government program affects election outcomes is *a priori* unclear. Two plausible explanations that predict an increase in government support are

[1] See e.g. Akhmedov and Zhuavskaya (2004), Alesina et al. (1989), Brender and Drazen (2005), Healy and Lenz (2014), and Shi and Svensson (2006). See Drazen (2000) and Healy and Malhotra (2013) for literature overviews.

[2] Empirical evidence suggests, for example, that US voters have sometimes elected presidents who managed the economy less well overall because of slightly higher income growth in election years (Alesina et al., 1993; Bartels, 2008).

[3] Majumdar and Mukand (2004) set up a theoretical model that predicts that governments can be too conservative or too reckless early on during the election term but display inefficient policy persistence later on. They also provide case studies that are consistent with this model.

[4] See e.g. Canes-Wrone et al. (2001) for a theoretical model that incorporates this factor.

[5] See e.g. Akhmedov and Zhuavskaya (2004), Brender and Drazen (2005), Brender and Drazen (2008), Drazen and Eslava (2010), and Finan and Schechter (2012).

reciprocity for experienced program benefits and higher program awareness (Finan and Schechter, 2012). Longer exposure allows program benefits to be more fully realized and for more potential voters to experience the program. If beneficiaries reciprocate by voting for the incumbent, electoral support for the government increases over time. Similarly, awareness of a new policy may initially be low. Over time, households are more likely to learn of the scheme through word of mouth, other beneficiaries or the media. This may allow them to become beneficiaries themselves or to hold a more informed opinion on the program.

But the medium-run effects of a government program could also be negative. For a program to have a longer-lasting impact on electoral support, program salience has to remain high. If voters become used to the program benefits or if they are less important than other issues, electoral support for the government will decline as the newness of the program wears off. A discrepancy between promised and actual program benefits could similarly lead to a decline in voter support over time. Longer exposure gives beneficiaries more time to experience the actual program benefits and to adjust their initial expectations. If implementation quality is low or if the program is less effective than expected, this disappointment will be reflected in falling government support.

Lastly, length of program exposure may not affect election outcomes at all. In countries with a long history of failed government initiatives, voter interest in a new anti-poverty program may be low. Similarly, voters may be disillusioned with their ability to hold a government accountable for its performance, or may be skeptical about finding a better alternative among the opposition. Many voters in developing countries also consider the importance of social group identities such as caste or religion when making their decision (Chandra, 2004). If identity trumps performance, government programs will have little influence on the election outcome.

To test the empirical impact of longer program access on voting behavior, a government program needs to be rolled out in a manner that can be exploited in a causal analysis. Such a setup is difficult to find in practice since many large government programs are im-

plemented quickly and non-randomly. This paper contributes to addressing the gap in the literature by focusing on the introduction of the world's largest public-works program, India's National Rural Employment Guarantee Scheme (NREGS). NREGS legally guarantees each rural household up to 100 days of manual public-sector work per year at the minimum wage. It is supposed to be a demand-driven program under which households self-select into employment at any time during the year. The goal of the program is to provide a predictable and flexible safety net for the rural poor and to reduce rural to urban migration. NREGS take-up is highest during the agricultural off-season, when there are few alternative employment opportunities in rural labor markets. NREGS was rolled out between 2006 and 2008 in three implementation phases before the government stood for re-election in 2009. By the time of the general election, districts from the earliest implementation phase (Phase 1) had had access to NREGS for two full agricultural off-seasons. Phase 2 and Phase 3 districts had experienced NREGS for one and zero full agricultural off-seasons, respectively. To analyze whether there are medium-run election benefits from NREGS, the paper therefore concentrates on comparing election outcomes in Phase 1 and Phase 2 districts.

The empirical analysis exploits information about the assignment algorithm of Indian districts to program phases. Each state first received a quota of treatment districts proportional to the prevalence of poverty in that state. In the second step, the state quota was then filled with the poorest districts according to a poverty ranking. This algorithm generates state-specific treatment discontinuities with respect to the length of program exposure, which can be exploited in a regression-discontinuity (RD) design. The analysis also makes use of a newly digitized dataset of polling-station wise election results for the 2009 Indian general election with close to 600,000 observations.

The main RD results show that votes for the government in Phase 1 implementation areas are substantially lower than in Phase 2 areas. The probability of winning the race at a polling station decreases by 19 percentage points in areas with longer NREGS exposure at the cutoff. This effect is robust across different empirical specifications, and the results are

similar when aggregated to the parliamentary constituency level.

The main results are consistent with a loss of salience explanation or with voters holding the government accountable for low implementation quality. They do not support other mechanisms such as reciprocity or a rise in program awareness over time. To disentangle the remaining potential channels, I split the sample by a widely accepted classification of NREGS implementation quality. Further analysis reveals that NREGS take-up is much higher in Phase 1 than in Phase 2 districts in well-implemented areas, whereas there is little difference in take-up between phases in other districts. Consistent with this evidence, there are also heterogeneous treatment effects for election outcomes: The overall negative impact of longer NREGS exposure on government support is driven by areas with low implementation quality, whereas there is no drop-off in well-implemented areas. While these heterogeneous treatment effects are not causal and other explanations cannot be completely ruled out, they suggest that the explanation that is most consistent with the results is that voters are holding the government accountable for the program's implementation quality. Further quantitative, qualitative and circumstantial evidence supports the importance of this mechanism.

These results contribute to our understanding of voting behavior in developing countries. While a large existing literature analyzes how voters make decisions, much of it focuses on understanding political business cycles by showing that voters are fairly myopic and put a lot of weight on outcomes shortly before the election.[6] A smaller literature has developed on understanding the electoral impact of anti-poverty programs in developing countries, documenting large pro-incumbent effects.[7] My paper extends the existing research in a number of important ways: First, the dynamic variation in program rollout allows me to analyze how the length of program exposure affects voter behavior. Most of the existing literature on the electoral returns of government programs compares treatment and control areas and finds positive pro-incumbent effects. But it remains unclear whether the impacts

[6]See e.g. literature overviews in Drazen (2000) and Healy and Malhotra (2013).

[7]See e.g. the studies of conditional cash transfer programs in Brazil (Zucco, 2010), Colombia (Baez et al., 2012; Nupia, 2011), Mexico (De la O, 2013), the Philippines (Labonne, 2013), Romania (Pop-Eleches and Pop-Eleches, 2012), and Uruguay (Manacorda et al., 2011).

would have been larger or smaller if the program had been introduced at a different time (Bartels, 2008; Cole et al., 2012; Singer and Carlin, 2013). As the results of my paper show, the start date is important. Only De la O (2013) compares early and late treatment areas in her study of the electoral effects of Progresa in Mexico and finds a positive effect of length of program exposure on incumbent votes. This is the opposite of the effect I find in India, where longer exposure has a negative impact on the government's election performance. Additionally, the analysis in De la O (2013) is limited by only having access to about 500 villages and to aggregated election data at the precinct-level. In contrast, I have access to a large sample of polling-station level election data across Indian states and across three implementation phases. This allows me to take a more nuanced look at the dynamic patterns and to disentangle a number of potential explanations.

Second, the dynamic variation also allows me to test how long after its initial introduction NREGS remains an important topic for voters. Most of the existing literature focuses on analyzing voters' responses to policy initiatives introduced shortly before an election. The results in this paper show that the electoral effects of large government programs like NREGS can persist for a much longer time. In addition to De la O (2013), only one other paper addresses this point[8]: Bechtel and Hainmueller (2011) show that the concentrated disaster relief program after a flood in East Germany led to increased pro-incumbent support in more than one election. But this program was temporary, of high implementation quality, and was implemented in a developed country after a severe natural disaster. My paper instead focuses on the dynamic effects of a large anti-poverty program with implementation quality problems in a developing country, and confirms that the electoral impacts of government programs can be much longer lasting than suggested by the existing literature.

Third, I exploit variation in the implementation quality of NREGS to explore the heterogeneous treatment effects of voter responses over time. The existing literature focuses exclusively on the analysis of well-implemented programs, either in the developed country

[8]Manacorda et al. (2011) document that the pro-incumbent effects of a conditional cash transfer program in Uruguay persist for three months after the program is terminated.

context or with the study of well-working conditional cash transfer programs mostly in Latin America. NREGS provides the often more common case of a government program that faces severe implementation quality challenges in some areas. The results are consistent with voters attaching a lot of importance to implementation quality and being willing to hold the government accountable for the working of the program. This improves our understanding of the electoral benefits of anti-poverty programs.

Fourth, the results in this paper contribute to the broader literature of how citizens vote in developing countries. The findings are consistent with evidence that better informed voters increase the electoral accountability of governments and reduce malpractices.[9] In the Indian context, the results suggest that voters believe that their vote is important for holding governments accountable for their actions and that they are not disillusioned with the process even with a history of past failed government initiatives and empty campaign promises. Some of the results of the extended analysis also suggest that voters carefully think about who to hold accountable for the working of NREGS in a federal system where a large part of the responsibility for a successful implementation lies with lower tiers of government that may be controlled by the opposition.

The rest of this paper is organized as follows: Section 2 describes necessary background information about the working of NREGS and the Indian electoral system. Section 3 discusses the roll-out of NREGS and the empirical estimation strategy, and presents the data sources and some summary statistics. Section 4 discusses the results. Section 5 concludes.

2 Background

2.1 India's Political System and the 2009 General Election

India has a first-past-the-post electoral system: In each parliamentary constituency, the candidate with the most votes wins the seat in the Parliament's lower house, the Lok Sabha.

[9] See Pande (2011), Banerjee et al. (2011), Healy and Lenz (2014), Kendall et al. (2015).

The autonomous Election Commission of India (ECI) sets the election dates and monitors the electoral process. The ECI has a good reputation as a neutral institution ensuring fair and smooth elections. It is regularly identified as the most trusted institution by citizens in surveys and has the power to subject party behavior to a strict code of conduct in the weeks before the election (CSDS, 2009). The rules include specifications meant to level the playing field between the incumbent government and the opposition once elections have been called, for example by prohibiting governments from implementing any program that could be used as an electoral incentive.

On election day, the index finger of each voter is marked with indelible ink to avoid voter fraud, and ballots are cast using electronic voting machines. Election officials are randomly assigned to polling stations and are only informed of their assignment the day before the election when they report for duty. This ensures that election officials are assigned to an unfamiliar area and have little time to manipulate the voting process (Banerjee, 2014). Voter turnout in Indian elections tends to be high and is generally higher the lower the socio-economic status. Especially poor citizens often see voting as their duty and as an opportunity to affect government policy, since elections are one of the few occasions when politicians will visit villagers and listen to their concerns (Banerjee, 2014; Yadav, 1999).

During the period analyzed in this paper, coalition governments were common. An alliance of political parties called the United Progressive Alliance (UPA) won the 2004 general election.The coalition included a big national party, the Indian National Congress (INC), and 13 smaller parties with mostly regional strongholds.[10] Nevertheless, the UPA government was a minority government and depended on external support from other parties.[11]

[10]The small UPA member parties of the 2004 government are: Rashtriya Janata Dal, Dravida Munnetra Kazhagam, Nationalist Congress Party, Pattali Makkal Katchi, Telangana Rashtra Samithi, Jharkhand Mukti Morcha, Marumalarchi Dravida Munnetra Kazhagam, Lok Jan Shakti Party, Indian Union Muslim League, Jammu and Kashmir Peoples Democratic Party, Republican Party of India, All India Majlis-e-Ittehadul Muslimen, Kerala Congress. Before the 2009 general elections, four parties left the government coalition: Telangana Rashtra Samithi, Marumalarchi Dravida Munnetra Kazhagam, Jammu and Kashmir Peoples Democratic Party, and Pattali Makkal Katchi. The empirical results are robust to excluding these parties from the UPA definition. Additional parties joined the UPA for the 2009 elections, but I use the 2004 definition for my empirical analysis.

[11]The parties lending outside support include the Communist Party of India (Marxist), the Communist

For administrative and security reasons, the election was held in five phases between April 16 and May 13, and the results were announced on May 16. Voting took place at over 800,000 polling booths across the country. Pre-polls had suggested a close race between the UPA government coalition and the opposition with a slight edge for the UPA, so the strong performance of the UPA and its biggest party, the INC, came as a surprise for most experts (Ramani, 2009): The UPA won 262 of the 543 seats (2004: 218), with INC winning 206 seats, an increase of 61 seats relative to the 2004 election results.[12]

2.2 NREGS and the Election

The National Rural Employment Guarantee Scheme (NREGS) is one of the largest and most ambitious government anti-poverty programs in the world.[13] The scheme is based on the National Rural Employment Guarantee Act (NREGA), which was passed in the Indian Parliament in August 2005. It provides a legal guarantee of up to 100 days of manual public-sector work per year at the minimum wage for each rural household. There are no other eligibility criteria, so households self-select into NREGS work and can apply at any time.[14] NREGS was non-randomly rolled out across India in three phases: 200 districts received the program in February 2006 (Phase 1), 130 additional districts started implementation in April 2007 (Phase 2), and the remaining rural districts got NREGS in April 2008 (Phase 3) (Ministry of Rural Development, 2010). The Election Commission had decided in 2006 that NREGS would not be allowed to be extended to more districts after the announcement of elections in any state, and that with very few exceptions employment would need to be provided in ongoing projects during that time.[15] These provisions came into effect with the

Party of India, the Revolutionary Socialist Party, the All India Forward Bloc, the Bahujan Samaj Party and the Samajwadi Party.

[12]See Online Appendix for additional details.

[13]For more details on the scheme see e.g. Dey et al. (2006), Government of India (2009), Ministry of Rural Development (2010), and Zimmermann (2019).

[14]Men and women are paid equally, and at any given time at least one third of the NREGS workforce is supposed to be female. Wages are the state minimum wage for agricultural laborers, although NREGA specifies national floor and ceiling values for the minimum wage.

[15]See http://www.righttofoodindia.org/data/ec2006nregacodeofconduct.jpg.

start of the election campaign.

While NREGS is in theory available year-round, in practice there were implementation delays between a couple of weeks to a couple of months in many districts, so that official start date and actual start date of NREGS differ substantially.[16] The seasonality of NREGS is also well documented: Take-up of the scheme is highest in the agricultural off-season (typically March to May) when few alternative employment opportunities are available in many rural labor markets (Imbert and Papp, 2015). Together with the ECI rules, this implies that by the time of the election in 2009, citizens had had access to NREGS for two, one, or zero full agricultural off-seasons in Phase 1, Phase 2, and Phase 3 districts, respectively.

A number of papers analyze the economic impacts of the employment guarantee scheme. Using difference-in-difference approaches, empirical analyses often suggest low overall benefits but positive impacts on public employment and private-sector wages in the agricultural off-season, in areas with high implementation quality, and among casual workers (Azam, 2012; Berg et al., 2018; Imbert and Papp, 2015). Zimmermann (2019) uses a regression-discontinuity framework and finds that NREGS is primarily used as a safety net rather than as an additional form of employment and does not lead to an overall increase in public-sector employment, the casual private-sector wage or household income.

A growing literature suggests that this is due to general implementation problems and substantial state heterogeneity in the effectiveness of NREGS. While the goal of the program was to create employment and improve local development through public-works projects, in practice the scheme focuses mostly on drought-proofing measures rather than on infrastructure improvement.[17] Especially in poorer states, rationing of NREGS employment and corruption in the form of ghost workers and wage underpayment are common (Dutta et al.,

[16]Economist and social activist Jean Dreze noted in September 2006: '[M]ost of [the Indian states] are in breach of the Act for failing to put in place a 'Rural Employment Guarantee Scheme' (REGS) within six months.' More information at http://www.thehindu.com/todays-paper/tp-opinion/national-employment-guarantee-inaction/article18464791.ece.

[17]The breakdown of projects (2008-09) was: 46% water conservation, 20% provision of irrigation facility to land owned by lower-caste individuals, 18% land development, 15% rural connectivity (roads), 1% any other activity (Ministry of Rural Development, 2010).

2012; Niehaus and Sukhtankar, 2013a). Most households receive substantially fewer days of employment than the promised 100 days despite large interest in the scheme, and Niehaus and Sukhtankar (2013a) and Niehaus and Sukhtankar (2013b) find that an increase in the minimum wage was not passed through to workers in the state of Orissa. This state heterogeneity is also routinely found in field reports of the employment guarantee scheme, where the program seems to work relatively well in the so-called 'star states' (Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan, and Tamil Nadu), but faces severe challenges in the rest of the country (see e.g. Dreze and Khera (2009), Khera (2011)). Overall, the existing literature therefore suggests that while NREGS creates economic benefits, they tend to be substantially lower than the promised benefits of the scheme.

The Indian National Congress (INC) made the explicit promise to implement an employment guarantee scheme in its manifesto for the 2004 general election.[18] It was the main opposition party at the time and listed the program as an important measure that they would implement to improve the living conditions of the poor. Once in office, the new UPA government coalition faced substantial pressure from social activists, community organizations, workers' organizations and other segments of civil society to keep its promise.[19] A first draft of an employment guarantee act, similar to the final provisions of NREGA and written by social activists Nikhil Dey and Jean Dreze, was circulated in the fall of 2004.[20]

When NREGS was passed in Parliament a year later, it differed importantly from past, failed government development initiatives with respect to its legal status, scope, and promi-

[18]The manifesto states: 'A national Employment Guarantee Act will be enacted immediately. This will provide a legal guarantee for at least 100 days of employment on asset-creating public works programmes every year at minimum wage, for every rural household.' (http://aicc.org.in/web.php/making_of_the_nation/resolution_detail/13#.WGkVBOEWPEY)

[19]Economist and social activist Jean Dreze argued that in contrast to previous failed initiatives, NREGS would create a legal right to work that would be enforceable in courts. This would hold the government accountable and make it more likely that the scheme would be a long-term initiative. See e.g. Jean Dreze's article in the well-known newspaper The Hindu from November 2004: http://www.thehindu.com/2004/11/22/stories/2004112205071000.htm. See also http://www.ipc-undp.org/pub/IPCOnePager16.pdf

[20]As Nikhil Dey and Jean Dreze note in October 2004: 'Workers' organisations have been demanding a national Employment Guarantee Act (EGA) for many years. This 'primer' was prepared to facilitate public discussion of this issue at all levels – from remote villages to the national capital.' See http://www.sacw.net/Labour/EGAprimer.html

nence in the government's agenda. While previous anti-poverty programs had usually been temporary and limited to particularly underdeveloped areas or to specific households, the employment guarantee scheme was open to all rural households across the country, making it the world's largest public-works program. These ambitious characteristics made it the flagship program of the UPA government. Various tiers of government were involved in a large-scale awareness campaign for the scheme, and NGOs, social activists and other organizations were active in providing information about program details and worker rights. Advertisement materials by all players stressed the differences of NREGS relative to earlier schemes and especially the fact that NREGS had created a legal right for work.[21]

During the 2009 general election campaign and despite the mixed implementation quality of NREGS across states in practice, the government stressed NREGS as one of its main successes and as an integral part of the overall vision to create a better life for the country's poor.[22] While election campaigns had often focused on the poor, political experts stress that in contrast to the mere lip service of previous campaigns, the introduction of NREGS improved credibility.[23] Many commentators therefore believe that one important factor for the UPA's unexpected electoral success in 2009 was its focus on welfare policies and especially NREGS (Ramani, 2009).[24] The pro-poor election campaign is widely believed to have resonated with the electorate, and INC leaders have also claimed that the electoral victory was in large part due to NREGS. (See for example Khera (2011)).

[21]See Online Appendix for additional details.

[22]See Online Appendix for additional details.

[23]See e.g. the comments on the election results by political science professors Thachil at casi.ssc.upenn.edu/iit/thachil and Kumbhar at www.mainstreamweekly.net/article1382.html.

[24]Other explanations include the strong leadership skills of INC leaders Sonia and Rahul Gandhi, the corruption-free image of prime minister Manmohan Singh, intra-party problems in the opposition party BJP and regional factors (Economic and , EPW; Ramani, 2009).

3 NREGS Roll-out and Empirical Strategy

3.1 NREGS Roll-out and the Assignment Algorithm

NREGS was rolled out in three implementation phases according to an algorithm. As Zimmermann (2019) explains, the algorithm has two stages: First, each Indian state is allocated a quota of treatment districts, which is proportional to the percentage of India's poor living in that state as measured by the headcount ratio times the rural state population. This ensures inter-state fairness in program assignment. Second, the quota of treatment districts for each state is filled with the poorest districts based on a development ranking.

Headcount ratio data comes from 1993-1994 nationally representative National Sample Survey (NSS) data (Planning Commission, 2009). The development index comes from a 2003 Planning Commission report, which created an index of economic underdevelopment using three variables for 17 major states: agricultural wages, agricultural productivity, and the district proportion of low-caste individuals (Scheduled Castes and Scheduled Tribes) (Planning Commission, 2003).[25] Districts were ranked on their index values, and the same ranking is used for all implementation phases.[26]

The two-step algorithm creates state-specific treatment cutoffs between implementation phases, one between Phase 1 and Phase 2, and the other one between Phase 2 and Phase 3.[27] Since the general elections took place in 2009 when all rural districts had NREGS, the phasing in of the program provides variation in the length of time districts had been implementing the scheme. Ranks are made phase- and state-specific and are normalized so

[25]Data on the outcome variables was unavailable for the remaining Indian states. I therefore restrict the empirical analysis to these 17 states, which include Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Haryana, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh and West Bengal.

[26]Therefore, a district just above the cutoff for Phase 1 by design is at the top of the poorest districts that remain untreated after Phase 1 and is therefore prioritized in Phase 2.

[27]In addition to the algorithm, the government had a separate list of 32 districts heavily affected by Maoist violence. See e.g. Planning Commission (2005). These districts were not subject to the algorithm and all received NREGS in the first implementation phase. In order to closely replicate the algorithm used, I drop these districts from the sample. The results are robust to including them and assigning them a predicted treatment status based on their economic development index values.

that a district with a normalized state-specific rank of zero is the last program-eligible district in a state in a given phase.[28] This means that data can be easily pooled across states. To analyze the medium-run impacts of NREGS exposure, the empirical analysis concentrates on the cutoff between Phase 1 and Phase 2, although results for the cutoff between Phase 2 and Phase 3 will also be reported.

The overall prediction success rate of the assignment algorithm is 83 percent in Phase 1 and 82 percent in Phase 2. It is calculated as the percent of districts for which predicted and actual treatment status coincide.[29] This means that there is some slippage in treatment assignment in both phases. Nevertheless, the algorithm performs quite well in almost all states and the prediction success rates are considerably higher than would be expected from a random assignment of districts, which are 40.27 percent for Phase 1 and 37.45 percent for Phase 2, respectively. Deviations from the algorithm are most likely explained by the political reality of Indian politics, which required negotiation, although this does not create problems for the internal validity of the analysis. As shown below, there is no evidence of a discontinuity in political variables at the cutoff at baseline.[30]

The main assumption in an RD design is that treatment areas were unable to perfectly manipulate their treatment status, the length of exposure to NREGS. Observations close to the cutoff should then differ only with respect to their treatment status (Lee, 2008). In the case of the two-step algorithm, this implies that manipulation did not occur in either step. The used data sources and transparency in the index creation make this plausible: The headcount poverty ratio used data from the mid-1990s, which had long been available by the time the NREGS assignment was made. The economic underdevelopment index was also constructed from outcome variables collected in the early 1990s, eliminating the opportunity

[28]Rank data in the 17 major states is complete for all rural districts.

[29]Prediction success rates for Phase 2 are calculated after dropping Phase 1 districts.

[30]Please see the Online Appendix for details. The Indian government was a minority government and had to rely on outside support for its policy initiatives. In a federal system implementation of central programs also depends on the cooperation of lower levels of government, which may be ruled by the opposition. Deviating districts do not systematically differ from non-deviating districts on economic or political outcomes at baseline, with the exception that opposition-governed areas were given preferential treatment.

for districts to strategically misreport information. Additionally, the original Planning Commission report proposed targeting the 150 least developed districts, but NREGS cutoffs were higher than this even in Phase 1 (200 districts in Phase 1). Lastly, the Planning Commission report lists the raw data as well as the exact method for the index creation.

Figures 1a and 1b focus on the distribution of index values over state-specific ranks. They plot the relationship between the Planning Commission's index and the normalized state-specific ranks for the Phase 1 and Phase 2 cutoffs, respectively. In general, poverty index values are smooth at the cutoff of 0, suggesting again that manipulation is not a big concern.[31]

Figures 1c and 1d show the probability of receiving NREGS in a given phase for each bin, as well as fitted quadratic regression curves and corresponding 95 percent confidence intervals on either side of the cutoff. The graphs demonstrate that the average probability of receiving NREGS jumps down about 40 percentage points at the discontinuity in both phases. This suggests that there is indeed a discontinuity in the treatment probability at the cutoff.

3.2 Data and Variable Creation

The primary data source used in the empirical analysis is election data for the 2009 general election from the Election Commission of India.[32] Documents containing polling-station wise election results were digitized to create a dataset of election outcomes for the states with NREGS algorithm information. The data contains the names of all candidates, their party affiliation, and the number of votes received per candidate at the polling station as well as some limited candidate background information like gender, age, and broad caste category. Unfortunately, information on the number of eligible voters is often missing, so voter turnout cannot be studied at this disaggregated level.

[31] The Frandsen test (Frandsen, 2017), similar to the McCrary test for discrete running variables, also does not reject the null hypothesis of no manipulation. See Online Appendix.

[32] Data are publicly available at http://eci.nic.in.

A common problem with using election data is that election constituency boundaries do not coincide with administrative boundaries. Parliamentary constituencies are created to ensure a roughly equal vote-to-seat ratio across the country, and each parliamentary constituency in India elects one politician to the Indian Parliament. NREGS was rolled out at the district level, however, so different parts of the district can be part of different parliamentary constituencies. The use of polling station data allows matching each observation to the correct district regardless of its parliamentary constituency, so there is no concern about measurement error when combining election data with other information.

To the election data I merge information on the poverty index rank from the 2003 Planning Commission Report, district population size from the 2001 Census as well as information on a district's NREGS phase. This creates a dataset containing close to 600,000 polling stations.[33] Since India has a first-past-the-post system, receiving the most votes is a more relevant outcome than the achieved vote share. My analysis therefore focuses on the winning outcome, although the vote share results are qualitatively similar. I create index variables equal to 1 if a given party or alliance won the most votes at a polling station and 0 otherwise. Since the politician with the most votes in the parliamentary constituency (rather than at the polling station level) is elected to Parliament, robustness checks that aggregate the data to the parliamentary constituency level demonstrate that the polling station results for the outcome variables also hold at the higher level. The empirical analysis focuses on the UPA government coalition and its main party, the INC.

Table I shows some summary statistics for the primary variables of interest at the polling station level. For comparison, the table also reports the corresponding statistics for election results at the parliamentary constituency level. While there are minor differences between the results at both levels, the probability of a candidate from the Indian National Congress

[33]Occasionally, election results for a few polling stations cannot be digitized due to problems with the scanned documents available on the Election Commission of India website. In a few cases, hyperlinks are not working and do not allow a download of the election outcomes. This affects the state of Jharkhand, which does not have any working links on the website, but for all of the other states these issues are not large concerns.

(INC) to win its parliamentary constituency or polling station is between 31 and 37 percent. The corresponding victory likelihood for the government coalition is about 40 percent, and for the main opposition party BJP it is about 20 percent. On average, an INC candidate receives about 28 percent of the vote and a government coalition candidate about 35 percent. Voter turnout in the average parliamentary constituency is 60 percent. This information comes from 432 parliamentary constituencies and 586,903 polling stations across all phases.

To analyze the economic impacts of NREGS, I use household survey data from the National Sample Survey (NSS) from 2007-08. This is the only employment and wage survey that was carried out after the introduction of NREGS and before the 2009 election. At this point, both Phase 1 and Phase 2 districts had access to the program, but Phase 3 districts were still untreated. A representative sample of households in each district was interviewed in each season. I use this dataset to create variables for NREGS employment, household expenditures and migration outcomes.

As a measure of NREGS implementation quality I create an indicator variable equal to 1 if a constituency belongs to a 'star state' (Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan, and Tamil Nadu), and 0 otherwise (Dreze and Khera, 2009; Khera, 2011).

3.3 Empirical Specification

The algorithm creates state-specific district ranks that can be used as a running variable in a fuzzy regression-discontinuity design. The first stage is strong with an F-statistic of 220.80. Two main estimation techniques will be used: the local randomization approach and the more standard parametric estimation. The local randomization approach is a newer method in the RD literature (Cattaneo et al., 2016, 2017). In contrast to the more traditional techniques, which assume that all variables other than the treatment are smooth and monotonic at the cutoff, local randomization assumes that given the appropriate choice of an estimation window close to the cutoff, observations on both sides can be treated as randomly assigned. Estimation then proceeds as in an experiment, and finite sample adjustments ensure that

the method has power even for small samples in the vicinity of the cutoff. The estimation window is a window in which the hypothesis of balanced baseline variables cannot be rejected, which is similar to a balance table test in an experiment. Cattaneo et al. (2017) strongly suggest the use of this technique rather than non-parametric estimation techniques when the running variable is discrete.

The main results therefore use the local randomization approach with a two-stage least square estimation. Figures 1e and 1f show the minimum p-value of any variable used in the baseline test for different windows around the cutoff. The baseline variables include important socio-economic characteristics (public, family and private casual employment, landholding, log per capita expenditures, the log daily wage, and years of education), and the figures show that for both Phase 1 and Phase 2 cutoffs the co-variates are balanced for small windows around the cutoff. To be conservative, the horizontal dotted line, which represents a p-value of 0.15, is used as the minimum acceptable p-value in the balance test. Based on these results, the suggested window length is 5. The cutoff occurs at rank 1, so a suggested window length of 5 corresponds to a window of [-4,6]. To be more conservative since the p-value for window length 5 is only slightly above 0.15 for Phase 1, the main analysis will use a window of [-3,5]. This corresponds to a window length/2 of 4 in the figures. Standard errors are obtained by bootstrapping with 1000 repetitions.[34] Tables II and III show baseline tables for the analysis window for a large number of economic outcomes and political variables, finding that Phase 1 and Phase 2 areas are balanced on all of these outcomes. This further supports the assumption that observations in the analysis window do not systematically differ from each other with the exception of length of NREGS exposure.

In addition to the local randomization approach, the main results are also reported using the intent-to-treat version of the standard parametric estimations with linear regression lines on both sides of the cutoff.[35] This leads to the following regression equation:

[34]Cluster bootstrapping does not change the p-value of the results in the very large majority of cases, supporting the assumption of random assignment in the chosen window.

[35]Gelman and Imbens (2019) discourage the use of higher-order polynomials due to noisier estimates, large weights for observations far away from the cutoff, and misleading confidence intervals. The results are

$$y_{ij} = \beta_0 + \beta_1 nregs_i + f(rank, nregs) + \epsilon_{ij}$$

y_{ij} is an election outcome variable in polling station i and district j, and the coefficient of interest is β_1. $f(.)$ is a function of predicted NREGS receipt $nregs$, and the district's rank based on the state-specific normalized index *rank*.

Figure 2 also shows the non-parametric relationships for the main outcome variable at both polling station and parliamentary constituency levels, and plots linear polynomial regression curves.

4 Results

4.1 Main Results

Table IV and Figure 2 show the main results. Table IV shows the results of the impact of longer NREGS exposure on the probability of the UPA government winning the most votes. Columns one and two report the results of longer program access using the local randomization approach, whereas columns three and four show the impacts when using the parametric approach. Since the election data comes from polling stations, whereas the winner is determined at the parliamentary constituency level, the odd numbered columns use the polling station data, whereas the even numbers collapse the data to the parliamentary constituency level.

Table IV finds that longer NREGS exposure has a negative impact on electoral support for the government coalition: Polling stations in Phase 1 districts are 19 percentage points less likely to register the largest number of votes for the UPA coalition government at the cutoff than Phase 2 districts. This effect is highly statistically significant. When collapsed to the parliamentary constituency level, the probability of the government winning the constituency decreases by about 16 percentage points. The results are a bit smaller, but otherwise similar,

qualitatively robust to using other parametric specifications.

when using the parametric estimation approach instead. The result is therefore robust across a number of different empirical specifications.

Figure 2 shows these effects graphically. Graph 2a uses the analysis window in the vicinity of the cutoff at the polling station level, whereas Graph 2b plots the empirical patterns at the parliamentary constituency level. The figures use the approach in Calonico et al. (2015) to optimally undersmooth observations as well as linear parametric regression lines. Similar to Table IV, the figures show a substantial drop in electoral success for NREGS districts on the left side of the cutoff, which corresponds to longer NREGS exposure.

Taken together, Table IV and Figure 2 therefore show that the medium-run effects of NREGS access differ from a shorter program exposure. These results rule out hypotheses that longer access to the anti-poverty program increases voter support or has no effect: Both an increase in awareness over time and the willingness of voters to reciprocate for the cumulative benefits of NREGS by voting for the government coalition predict a positive effect similar to the existing literature. Similarly, an electorate that is disillusioned with their ability to hold politicians accountable or that considered NREGS to be far less important than other election topics would have led to a zero effect.

The two main explanations that are consistent with the results are that longer program access reduces the salience of NREGS in the election decision and that voters became more disappointed with the mismatch between promised and actual program benefits over time. Households in Phase 1 districts had an additional year to get used to the program than Phase 2 households. If access to the program was considered to be normal for these households by 2009, it was a less important topic in the election. Phase 2 households, on the other hand, had only experienced the program for one full agricultural off-season when the program is particularly attractive, and may therefore have been more excited about the scheme.

Alternatively, the low implementation quality and implementation delays in many areas may have led to a disappointment among voters. Phase 1 district households may have formed a clearer opinion on the likely long-term benefits of NREGS once government officials

have gained experience with implementing the program. Phase 2 households, on the other hand, had more limited time to form an opinion about the likely effectiveness of the program, making them less sure whether the observed implementation challenges would be a long-term problem with the program.

4.2 Economic Impacts and Heterogeneous Effects

To get a better sense of the plausibility of the two potential mechanisms, Table V compares the economic impacts in Phase 1 and Phase 2 districts. Unfortunately, there is no available household survey data that was collected shortly before the 2009 election. A large representative employment survey was carried out between July 2007 and June 2008, however. In that time period, both Phase 1 and Phase 2 districts had access to the scheme. Phase 1 households experienced their second full agricultural off-season, whereas Phase 2 households had access to NREGS for their first agricultural off-season. It can therefore be tested whether the economic benefits of NREGS were different in Phase 1 than in Phase 2 districts.

Panel A of Table V reports the impact of longer NREGS access on average household outcomes of interest at the district level, keeping the same local randomization window as the main results. Public employment measures the likelihood that the average household in a district worked under NREGS in the past week. The migration variables focus on the likelihood of a household member having migrated in the last year, migrated temporarily, and migrated for work. Both remittances and household expenditures refer to the average value of money received and spent in rupees in the last 30 days.

As Panel A shows, a typical household in a Phase 1 area is about 3 percentage points more likely to have worked under NREGS in the past week, suggesting that the program is more widely accessible in early implementation districts. At the same time, the likelihood of having migrated recently overall or for work is about 2 percentage points higher in Phase 1 districts, and temporary migration increases by about 13 percentage points at the cutoff. The higher migration rates are leading to an increase in remittances that the average household

receives. Household expenditures are about 500 rupees lower in Phase 1 than in similar Phase 2 areas. Overall, these results paint a mixed picture of the effectiveness of NREGS. They suggest that awareness of NREGS is higher in the early implementation areas and that more households can form an opinion on the program's benefits based on their own experience. But while higher participation rates suggest that NREGS should work better in Phase 1 areas, the increase in migration rates does not fit this story.

These overall impacts could mask heterogeneous treatment effects since NREGS was better implemented in the so-called star states than in other states. Panel B of Table V therefore splits the sample up by this measure of implementation quality. In star states, Phase 1 households are about 31 percentage points more likely to have worked under NREGS in the past week than Phase 2 households. In non-star states, on the other hand, the difference is economically insignificant at -0.3 percentage points. Households in Phase 1 areas in non-star states therefore do not benefit from increased access to NREGS employment with longer program exposure.

A similar discrepancy arises for the migration outcome variables: In star states, migration for work is unaffected by longer program access, whereas the likelihood of having migrated in the last year and of temporary migration decrease substantially. The impact of household expenditures is negative, but imprecisely estimated, whereas there is an increase in remittances that is somewhat larger than the coefficient on household expenditures. This suggests that households are overall better off and have less reason to have a household member migrate since access to jobs through NREGS is now more available locally, unless the migration opportunity is lucrative and leads to high remittances. In non-star states, however, the probability of having migrated increases, and the increase in remittances is much smaller than in star states. These impacts are consistent with a disappointment of the actual NREGS benefits among households with longer program exposure, which leads them to prefer migration to relying on NREGS as an employment opportunity.[36]

[36]These migration effects are consistent with extensive qualitative evidence (Jenkins and Manor, 2017).

While Panel B is not causal and could be driven by other differences between star and non-star states that are separate from NREGS implementation quality[37], the empirical patterns are consistent with NREGS working more successfully in star states than in non-star states, which allows households with longer program access to make more informed decisions about optimal employment and migration behaviors. Analyzing the impact of longer NREGS exposure on electoral support for the government coalition separately for star states and non-star states is therefore a test of whether the overall negative impact of longer program exposure on government votes is plausibly driven by implementation quality challenges rather than a loss in program salience.

Table VI shows that the overall decline in electoral support in areas with longer NREGS exposure is driven by the non-star states: The probability of winning the most votes decreases for the government by 20 percentage points in non-star states, but increases by about 19 percentage points in star states.

4.3 Discussion

The results in Table VI are consistent with voters holding the government accountable for the working of NREGS, while they are less consistent with a loss of salience story[38]: Voters reward the government for a good performance of NREGS in star states, whereas they express their disappointment with NREGS in non-star states.

Whether such an explanation is plausible in this context can be further tested. If voters hold the government accountable for the working of NREGS, two additional implications are that the biggest government party should be especially affected, and that it should be easier to hold the government accountable for the program's implementation quality in areas where the state government consists of UPA parties as well. The biggest party of the government coalition, the INC, promised a scheme like NREGS in its 2004 election campaign manifesto

[37]Please see Online Appendix for more details on this point.

[38]The loss in salience could be lower in star than non-star states if it takes longer to get used to a working program, but one would not expect the impact to be large and positive.

and focused on NREGS as one of the party's main successes in the 2009 election campaign. Similar to the results for the whole coalition government, Panel A of Table VII shows that the overall impact of longer NREGS access on the INC's probability of winning the most votes is negative, with a decrease of about 23 percentage points. This impact is driven by the low-implementation quality areas, whereas the votes for the INC increase in star states.

Panel B of Table VII splits the sample into areas governed by parties of the government at the state level and those that are governed by the opposition. Voters wanting to hold the government accountable for the working of a program like NREGS face the issue that in a federal state like India much of the responsibility for a successful implementation of the program lies with lower tiers of government. Voters may therefore be unsure who to blame or reward for the actually realized program benefits. This problem may be smaller in areas where state and central government are composed of parties from the same alliance. As Table VII shows, the percentage point drop in government support is larger in UPA-governed states than in states governed by the opposition.

Overall, the empirical results suggest that voters care enough about the implementation of NREGS to hold the government accountable for the realized benefits. Indian voters appear to believe that their vote will affect government policy, and realize how the federal structure interacts with the implementation of NREGS in practice. An early implementation of the program paid off in well implemented areas. In other areas, an early program implementation allowed voters to learn about the low actual program benefits and to decrease their electoral support.

The plausibility of this interpretation of the results relies on a few assumptions: Voters should predominantly vote for political parties rather than candidates, since the UPA government at the center is held responsible. They should believe in the power of their vote to change government policy, and should regard NREGS as an important issue in the election. The Online Appendix provides a wide range of quantitative and qualitative evidence that they hold up in practice. It also shows circumstantial evidence from newspaper articles and

google searches that interest in NREGS was at its highest level since the NREGS start in 2006 during the election months, making a loss of salience story less plausible.

4.4 Robustness Checks and Extensions

Table IV already showed that the main results of the paper are robust to the level of data aggregation and the chosen RD estimation technique. The Online Appendix finds that they are also robust to a change in the chosen analysis window around the cutoff in the local randomization approach, and to using the margin of victory instead of the probability of winning as a dependent variable.[39] It also provides additional details on some of the underlying assumptions of an implementation quality explanation, including the plausibility that voters initially had high expectations of NREGS that were adjusted downwards over time, and the question whether enough voters were likely to be aware of NREGS.

Tables VIII and IX extend the analysis in two directions. Table VIII shows the main results of length of exposure on government support at the cutoff between Phase 2 and Phase 3. Two factors make the Phase 2 implementation cutoff different from the Phase 1 cutoff: First, the non-random rollout of NREGS with priority to the most economically disadvantaged districts ensures that districts at the Phase 2 implementation cutoff are less disadvantaged than those at the first implementation cutoff. If voters in these districts have different preferences than those in poorer districts, we may therefore find different results from Phase 1. This makes Phase 1 and Phase 2 cutoff results not directly comparable. On the other hand, the Phase 2 cutoff can still be used to analyze whether voters vote differently in areas with longer NREGS exposure than similar areas with shorter program access, and doing so strengthens the external validity of the previous empirical analysis.

Second, at the Phase 2 cutoff areas with two years of official NREGS exposure are compared to similar districts with one year of NREGS access at the time of the 2009 election. While Phase 2 districts had access to NREGS for one full agricultural off-season, this is not

[39] It also addresses additional potential concerns with the results, such as further baseline tests and a more detailed discussion of the NREGS algorithm.

the case for Phase 3 districts. Voters in Phase 3 districts may therefore have very limited experience with NREGS and its benefits, and unfortunately there is no household survey data that would allow a comparison of the household employment and migration situation around the time of the election. This makes it more difficult to disentangle potential mechanisms.

Given these caveats, Table VIII presents the results for the second implementation cutoff. The results are similar to Table IV: The impact of longer access to NREGS on votes for the UPA coalition government is negative, with a decline of the winning probability of about 22 percentage points. Similar to Phase 1, this negative impact is driven by the low-implementation quality areas, whereas there is an increase in votes in the star states.

If voters have more access to information about the actual NREGS benefits over time and vote accordingly, one may assume that that also affects the variance of electoral support at the cutoffs. Panel A of Table IX tests whether the variance of election outcomes decreases with longer NREGS exposure. It shows that this holds at both cutoffs, supporting the idea that voter preferences become more similar over time, consistent with having received more signals about the actual implementation quality of NREGS.

Panel B of Table IX looks at within-parliamentary variation of votes. Since NREGS was rolled out at the district level whereas voters vote based on electoral constituency boundaries, there are parliamentary constituencies that include voters from more than one district and from different NREGS implementation phases. Within a parliamentary constituency, the political parties, candidates standing for election and election campaign strategies are the same. Panel B shows that once these factors are controlled for, votes for the INC and UPA are overall negative for both phases in the areas with longer NREGS access, although the effect for the UPA government is small and statistically insignificant for Phase 1. This supports the hypothesis that voters vote based on NREGS exposure rather than due to differences in the local candidates or election campaign strategies.

Overall, the results in this section suggest that the impact of longer NREGS exposure on electoral support for the government is negative and robust to different empirical specifi-

cations, and that a plausible explanation consistent with a variety of additional tests is that voters hold the government accountable for the implementation quality of the program.

5 Conclusion

This paper analyzed the impact of the Indian National Rural Employment Guarantee Scheme (NREGS) on the government parties' election performance in the next general election. It exploits the rollout of the program in a fuzzy RD design with state-specific treatment discontinuities. The results show that electoral support for the incumbent declines substantially with longer exposure to NREGS. This impact is robust across empirical specifications.

This negative impact is not consistent with a variety of potential explanations, including a disillusioned electorate that does not believe that a new anti-poverty program would work, or rising awareness of the program over time. One explanation consistent with the main results as well as with a number of heterogeneous treatment effects is that voters hold the government accountable for the implementation quality of the program: The decrease in electoral support is driven by low-implementation quality areas, whereas there is an increase in support for the government in well-implemented areas. While not all other explanations of these empirical patterns can be ruled out, a wide range of qualitative, quantitative and circumstantial evidence is consistent with this mechanism.

These results show that there are impacts from longer program exposure even in the medium run, which has been understudied in the existing literature. They suggest that the anticipated implementation quality is a key factor for the optimal timing of government policies. If implementation quality is expected to be low, from the government's viewpoint a political initiative is best implemented shortly before an election, which is consistent with evidence from around the world that spending in many countries increases in the election year. In well-implemented areas the timing is much less important, and longer program exposure may actually improve the government's election performance. Governments in

developing countries may therefore be losing out on substantial election benefits from good governance if they mainly focus on short-term re-election strategies.

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Table I: Summary Statistics

	Polling Station Level	**Parliamentary Constituency Level**
INC win	0.3105	0.3681
UPA win	0.3938	0.4375
BJP win	0.2062	0.2014
INC vote share	27.90	27.58
UPA vote share	35.07	35.95
BJP vote share	19.70	18.83
voter turnout		0.6023
Observations	586,903	432

Note: Vote shares given in percent. INC (Indian National Congress), UPA (United Progressive Alliance), BJP (Bharatiya Janata Party). UPA is the name of the government coalition. For the government elected in 2004, the UPA consisted of the following parties: Indian National Congress, Rashtriya Janata Dal, Dravida Munnetra Kazhagam, Nationalist Congress Party, Pattali Makkal Katchi, Telangana Rashtra Samithi, Jharkhand Mukti Morcha, Marumalarchi Dravida Munnetra Kazhagam, Lok Jan Shakti Party, Indian Union Muslim League, Jammu and Kashmir Peoples Democratic Party, Republican Party of India, All India Majlis-e-Ittehadul Muslimen, Kerala Congress.

Table II: Baseline Balance Test (Economic Variables)

	Men			Women		
Variable	**Phase 1**	**Phase 2**	**Difference**	**Phase 1**	**Phase 2**	**Difference**
	(1)	(2)	(3)	(4)	(5)	(6)
public empl.	0.001	0.002	0.001	0.000	0.001	0.001
	(0.002)	(0.007)	(0.001)	(0.002)	(0.006)	(0.001)
private empl.	0.313	0.309	-0.004	0.157	0.163	0.006
	(0.147)	(0.137)	(0.024)	(0.126)	(0.124)	(0.021)
family empl.	0.538	0.518	-0.020	0.329	0.297	-0.033
	(0.158)	(0.153)	(0.026)	(0.176)	(0.164)	(0.029)
log priv. wage	3.953	3.982	0.029	3.605	3.607	0.002
	(0.363)	(0.387)	(0.062)	(0.355)	(0.356)	(0.060)
log per-cap. exp.	6.244	6.270	0.026	6.237	6.266	0.029
	(0.333)	(0.272)	(0.051)	(0.319)	(0.278)	(0.050)
land	1,024.685	1,002.614	-22.071	987.723	976.492	-11.231
	(604.820)	(575.832)	(98.765)	(588.499)	(577.871)	(97.362)
education	3.697	3.839	0.142	2.521	2.672	0.151
	(0.782)	(0.730)	(0.127)	(0.953)	(0.938)	(0.158)
cons exp.	2,759.125	2,867.213	108.088	2,695.430	2,845.345	149.916
	(922.252)	(867.437)	(149.847)	(904.911)	(895.566)	(150.219)
hh agric. labor	0.264	0.276	0.012	0.262	0.279	0.017
	(0.184)	(0.166)	(0.029)	(0.182)	(0.173)	(0.030)
hh agric. selfempl.	0.396	0.376	-0.020	0.401	0.372	-0.029
	(0.184)	(0.156)	(0.029)	(0.181)	(0.145)	(0.028)
unemployed	0.033	0.034	0.001	0.018	0.021	0.004
	(0.035)	(0.037)	(0.006)	(0.027)	(0.034)	(0.005)
poor	0.223	0.196	-0.027	0.224	0.197	-0.027
	(0.219)	(0.172)	(0.033)	(0.221)	(0.178)	(0.034)
Observations	64	82	146	64	82	146

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables: District-level averages in 2004/05 for public employment, private casual employment, family employment, log private daily wage. All of these are reported for the last week. Log per-capita expenditures in the last 30 days, land in acres and years of education. Consumption expenditures in rupees, the proportion of households who are agricultural laborers and self-employed in agriculture. Unemployment in the last 7 days and the headcount poverty ratio below the state-specific poverty line. Averages reported separately for women and men. Difference columns test whether differences in the averages are statistically significant.

Table III: Baseline Balance Test (Political Variables)

Variable	**Phase 1**	**Phase 2**	**Difference**
	(1)	(2)	(3)
INC won	0.304	0.274	-0.030
	(0.464)	(0.449)	(0.095)
UPA won	0.406	0.384	-0.022
	(0.495)	(0.490)	(0.099)
BJP won	0.203	0.260	0.057
	(0.405)	(0.442)	(0.077)
INC vote share	28.468	30.569	2.101
	(20.538)	(19.640)	(4.171)
UPA vote share	34.761	37.450	2.689
	(19.521)	(17.279)	(4.175)
BJP vote share	20.761	19.816	-0.945
	(19.049)	(20.452)	(3.431)
candidate age	51.391	53.767	2.376
	(11.486)	(10.580)	(2.098)
candidate name length	17.843	17.785	-0.058
	(7.192)	(8.420)	(1.424)
candidate SC	0.174	0.151	-0.023
	(0.382)	(0.360)	(0.062)
Observations	70	79	149

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: Election Commission of India. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables from the 2004 general election, reported at the parliamentary constituency level: INC is the main government party, UPA is the government coalition, BJP is the main national opposition party. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a constituency, and 0 otherwise. Vote shares are reported in percent. Candidate variables refer to the elected politician's age, length of name (proxy for social class) and whether they belong to the Scheduled Castes (SC). Difference column tests whether differences in the averages are statistically significant.

Table IV: Impact of NREGS on 2009 Government Election Results

Specification	**UPA won**	**UPA won**	**UPA won**	**UPA won**
Phase 1	-0.1900***	-0.1641***	-0.1115**	-0.1231**
	(0.0167)	(0.0066)	(0.0490)	(0.0534)
N	209971	147	586903	412
Data level	polling station	constituency	polling station	constituency
Method	local rand.	local rand.	parametric	parametric

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. The won variables are indicator variables equal to 1 if the UPA coalition government received the most votes at a polling station or parliamentary constituency, and 0 otherwise. Data level indicates whether the estimates use the polling station information directly, or use election data aggregated to the constituency level. Results in columns 1 and 2 use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications. Parametric specifications in columns 3 and 4 estimate linear regression lines on either side of the cutoff without restricting the analysis window. Standard errors are clustered at the district level.

Table V: Impact of NREGS on Economic Outcomes

Specification	public employment	migrated last year	temporary migration	migrated for work	remittances	household expenditures
Panel A: Phase 1 Overall						
Phase 1	0.0270***	0.0173***	0.1265***	0.0191***	328.20***	-541.37***
	(0.0007)	(0.0009)	(0.0119)	(0.0008)	(63.54)	(21.07)
N	146	146	146	146	146	146
Panel B: Phase 1 Implementation Quality						
Specification	**public employment**	**migrated last year**	**temporary migration**	**migrated for work**	**remittances**	**household expenditures**
Phase 1 star	0.3067***	-0.0224***	-0.5649***	-0.0003	1030.82***	-787.11
	(0.0349)	(0.0011)	(0.1487)	(0.0019)	(58.82)	(525.52)
N	44	44	44	44	44	44
Phase 1 non-star	-0.0029***	0.0219***	0.1732***	0.0215***	306.39***	-458.34***
	(0.0001)	(0.0002)	(0.0101)	(0.0009)	(29.05)	(26.07)
N	102	102	102	102	102	102

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: National Sample Survey of India (2007-8) - Employment and Unemployment Module. Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. Star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu, which are more successful at implementing NREGS than the other states (Dreze and Khera, 2009; Khera, 2011). The first four outcomes variables are district averages for NREGS employment, migration in the last year, temporary migration and migration for work. Remittances are the average district value of remittances in the last 30 days in rupees; household expenditures are the average district value of expenditures in the last 30 days. Results use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications.

Table VI: Impact on 2009 Government Election Results by Implementation Quality

Specification	**UPA won**	**UPA won**
Phase 1	-0.1978***	0.1947*
	(0.0107)	(0.1107)
N	148524	61447
Implementation Quality	non-star	star

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. Star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu, which are more successful at implementing NREGS than the other states (Dreze and Khera, 2009; Khera, 2011). The won variables are indicator variables equal to 1 if the UPA coalition government received the most votes at a polling station, and 0 otherwise. Results use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications.

Table VII: Further Impacts of 2009 Government Election Results

Specification	Panel A: INC Election Result INC won overall	 INC won non-star	 INC won star
Phase 1	-0.2336***	-0.2331***	0.0710***
	(0.0086)	(0.0128)	(0.0118)
N	209971	148524	61447

Specification	Panel B: UPA-Governed States UPA won non-UPA	 UPA won UPA
Phase 1	-0.1790***	-0.2706***
	(0.0217)	(0.0194)
N	138357	71614

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. Star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu, which are more successful at implementing NREGS than the other states (Dreze and Khera, 2009; Khera, 2011). The won variables are indicator variables equal to 1 if the UPA coalition government or the INC received the most votes at a polling station, and 0 otherwise. The INC is the main party in the government coalition. In Panel B, non-UPA and UPA split polling station observations by whether they are in a state that has a UPA state government. The UPA-governed states include Andhra Pradesh, Assam, Haryana, Maharashtra, Rajasthan and Tamil Nadu. Results use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications.

Table VIII: Impact on 2009 Government Election Results (Phase 2)

Specification	**UPA won overall**	**UPA won overall**	**UPA won non-star**	**UPA won star**
Phase 2	-0.2155***	-0.2376***	-0.3756***	0.0950***
	(0.0233)	(0.0161)	(0.0036)	(0.0095)
N	137855	99	106104	31751
Data level	polling station	constituency	polling station	polling station

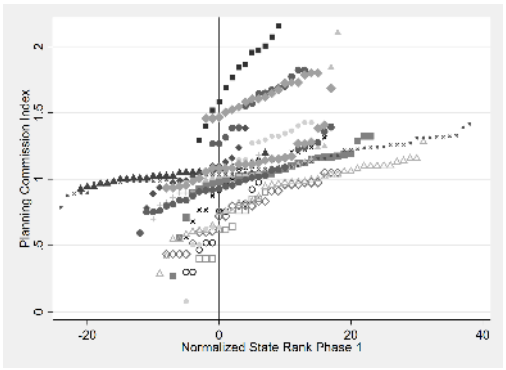
*** p<0.01, ** p<0.05, * p<0.1 Phase 2 refers to the early implementation phase with longer NREGS exposure as compared to Phase 3. Star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu, which are more successful at implementing NREGS than the other states (Dreze and Khera, 2009; Khera, 2011). The won variables are indicator variables equal to 1 if the UPA coalition government received the most votes at a polling station or parliamentary constituency, and 0 otherwise. Results use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications.

Table IX: Impact of NREGS on Variance of Votes for the Government

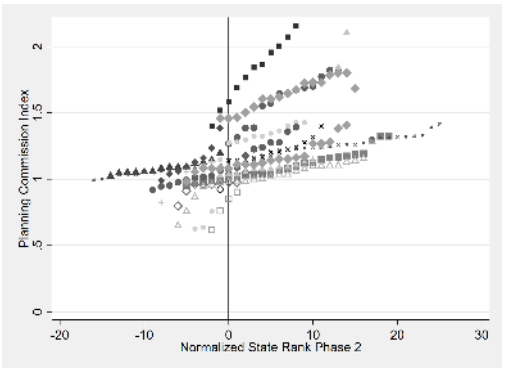
	Panel A: Variance of Votes			
	Phase 1		Phase 2	
Specification	**UPA won**	**INC won**	**UPA won**	**INC won**
Earlier Exposure	-0.2547***	-0.2148***	-0.2152***	-0.1563***
	(0.0058)	(0.0051)	(0.0044)	(0.0030)
N	147	147	99	99
	Panel B: Within Parliamentary Constituency			
	Phase 1		Phase 2	
Specification	**UPA won**	**INC won**	**UPA won**	**INC won**
Earlier Exposure	-0.0020	-0.0159***	-0.0320***	-0.0354***
	(0.0035)	(0.0034)	(0.0036)	(0.0034)
N	82212	82212	77197	77197

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2, Phase 2 indicates the cutoff between Phase 2 and Phase 3. The won variables are indicator variables equal to 1 if the UPA coalition government or the INC received the most votes at a polling station, and 0 otherwise. The INC is the main party in the government coalition. Results use the regression-discontinuity local randomization approach at the district level with an analysis window of [-3,5] in Panel A. Simple regression analysis is used in Panel B since neighboring districts in the same parliamentary constituency do not have to be close to the implementation cutoffs. Standard errors are obtained by bootstrapping with 1000 replications. The outcome variable in Panel A is the standard variation of the UPA won variable on either side of the cutoff, with the standard deviation calculated at the district level.

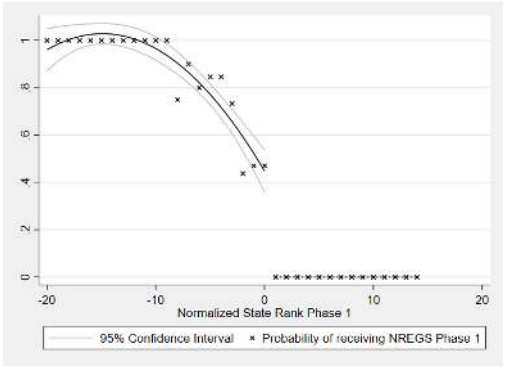
Figure 1: Distribution of Index, Discontinuities and Balance Tests by Phase



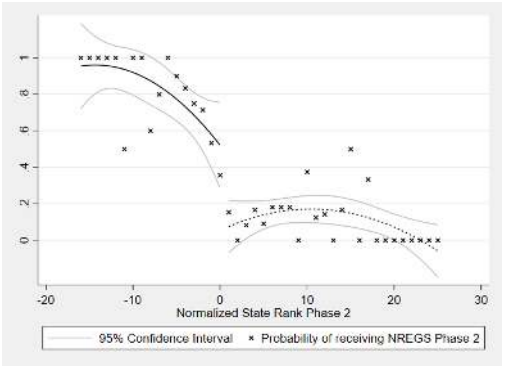
(a) Distribution of Index - Phase 1



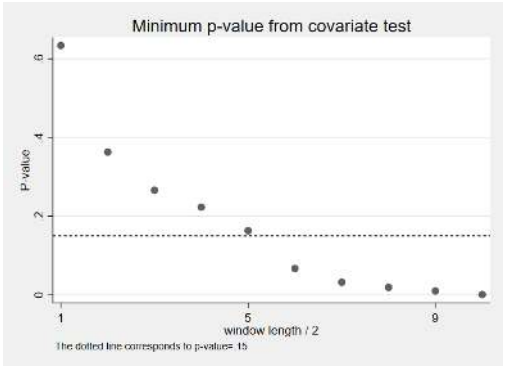
(b) Distribution of Index - Phase 2



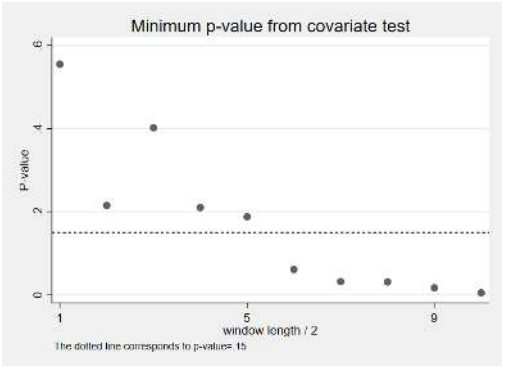
(c) Phase 1 Discontinuity



(d) Phase 2 Discontinuity



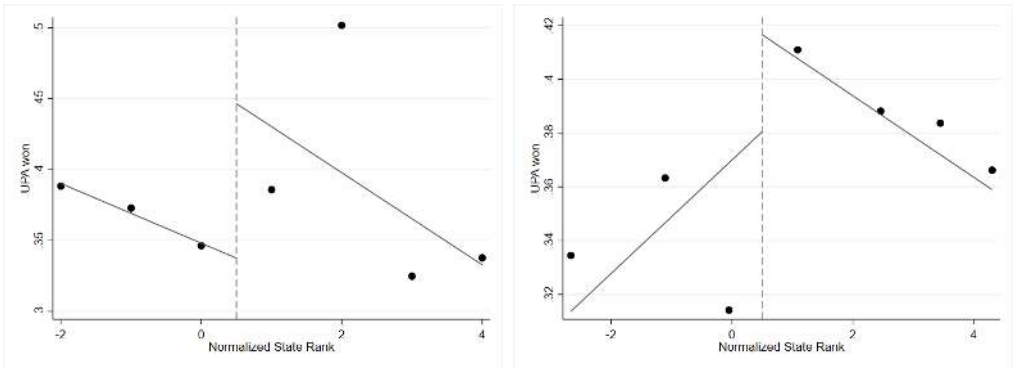
(e) Phase 1 Minimum P-Value Window Selection



(f) Phase 2 Minimum P-Value Window Selection

Note: First row plots the distribution of the district poverty index by state. Second row shows the treatment discontinuities for each phase, dropping the phase far away from the cutoff (Phase 3 in (c), Phase 1 in (d)). Negative and zero normalized state rank numbers are districts that should have received NREGS based on the government algorithm, whereas positive numbers are assigned to districts that should have been ineligible. Third row plots the minimum p-value of any of the baseline variables in a balance test for different analysis windows around the cutoff. window length/2 is the symmetric interval around the cutoff, so a value of 4 corresponds to the main analysis window of [-3,5].

Figure 2: Discontinuities for UPA Government (Phase 1)



(a) UPA Won Phase 1 Polling Station (b) UPA Won Phase 1 Constituency

Note: The graphs use the optimal quantile-spaced binning procedure suggested by Calonico et al. (2015). Polynomials are fitted through the complete underlying dataset and not just the bins.

THE DYNAMIC ELECTORAL RETURNS OF A LARGE ANTI-POVERTY PROGRAM (Online Appendix)

Laura Zimmermann

C Background Information and Additional Evidence

C.1 The 2009 General Election

This section provides additional background information on the 2009 general election, including information on logistics and election campaigns.

C.1.1 Overview

General elections in India are massive events. The 2009 general election was held in five phases due to administrative and security considerations and had an electorate of over 700 million people. Voting took place at over 800,000 polling stations across the country, with few instances of suspected voter fraud or disruptions on election day: In the first phase of the election, for example, the ECI re-polled 46 polling booths across 7 states out of the 185,000 polling stations where elections had been held (Syed, 2009). The election was mostly peaceful, although there were a few violent incidents in some areas. Maoist insurgents tried to disrupt the election process in some areas and killed 19 people (Syed, 2009). The results were announced on May 16. Overall, the 2009 election is generally thought of as a very 'normal' general election in India.[1]

Over 8000 candidates from a multitude of political parties (or running as independents) contested the election. India has a party system that includes a large number of regional parties, parties with regional strongholds and parties with particular appeal for certain caste or religious groups in addition to the two main national parties, the Indian National Congress (INC) and the Bharatiya Janata Party (BJP). Due to this fragmentation of the party system even during general elections, coalition governments were common (Yadav, 1999). The INC led the United Progressive Alliance (UPA), the incumbent government coalition at the time of the 2009 election, whereas the BJP headed the National Democratic Alliance (NDA). The INC was founded in the late 19th century, became an important player during the

[1] Banerjee (2014), for example, states: '*The 2009 elections were fairly typical and there were no unusual factors affecting it. It was held on schedule and the result was genuinely uncertain with no obvious extraordinary factors affecting the outcome.*'

independence movement in the 1940s, and formed the government under prime ministers like Jawaharlal Nehru and his daughter Indira Gandhi. The INC is a center-left political party with an ideology based on secularism and on lifting the poor out of poverty. The BJP, on the other hand, is a Hindu-nationalist party with a more right-wing ideology and a traditionally more industry-friendly economic policy. The NDA had formed the government between 1998 and 2004, when it lost the election to the UPA.

The INC's election campaign focused on the slogan *Aam aadmi ke badhte kadam, har kadam par bharat buland* (The common man moves forward, and with his every step India prospers). The party manifesto stressed NREGS as one of the main successes of the UPA government and as an integral part of the party's overall vision to create a better life for the country's poor. INC also bought the rights to the title song 'Jai Ho' (May there be victory) of the film Slumdog Millionaire, which tells the story of a boy from the slums who wins the Indian version of the quiz show 'Who Wants to Be a Millionaire?'. The rhetoric of the INC election campaign therefore focused very heavily on social welfare issues.[2]

The BJP's election manifesto was organized around the tag line *Good Governance, Development, Security.* Much of the program focuses heavily on national security and effective government topics. While the BJP program included a couple of specific policies to improve the economic situation of the poor that the BJP would implement once in office, the focus on development policies was on infrastructure and food security initiatives rather than on employment programs. There is no mention of NREGS or a similar program in the manifesto.[3] Voters could therefore assume that a BJP-led government would either discontinue NREGS, not least because it was the flagship program of the UPA government, or at least very heavily decrease its importance in the new government's agenda. The BJP should therefore have been an option for voters who wanted a dismantling of NREGS or a focus on different anti-poverty strategies, but should not have been an option for voters who liked the idea of an employment guarantee scheme but wanted an improvement in its implementation quality.

The third national alternative was a coalition called the Third Front, an alliance of regional parties affiliated with neither the UPA nor the NDA. It was led by the CPI(M), the Communist Party of India (Maoist), and included a number of communist and socialist parties. The Third Front tried to project itself as an alternative to the more established coalitions and one that would be able to form a non-INC, non-BJP government. The CPI(M)'s election manifesto focused on the importance of improving the lives of the poor, and made the specific promise to improve and expand NREGS. It criticized the poor implementation quality of NREGS and claimed that the UPA government had only created NREGS in its current form due to outside pressure from Third Front parties. It promised to expand NREGS from a scheme that guarantees 100 days of employment at the household level to a program that would entitle every adult to receive at least 100 days of employment annually. In addition, an Urban Employment Guarantee Act would be implemented.[4] Voting for the Third Front

[2]INC manifesto available here: http://inc.in/documents/election-doc/manifesto09-eng.pdf.

[3]The 2009 BJP manifesto is available here: http://www.bjp.org/documents/manifesto.

[4]CPI(M) 2009 manifesto available here: https://www.cpim.org/sites/default/files/documents/manifesto.pdf. The CPI(M) manifesto says specifically: 'The Left parties made crucial interventions in NREGA legislation

would therefore have been a potentially attractive alternative for voters who liked the idea of an employment guarantee scheme but wanted a better working and expanded program. Since a number of the Third Front parties, including the CPI(M), had supported the minority UPA government on social welfare issues from outside the government, a stronger Third Front could plausibly be expected to increase the pressure on a UPA government to improve NREGS implementation even if they had too few votes to form their own government.

Pre-polls in 2009 had suggested a close race between the UPA and NDA coalitions with a slight edge for the UPA incumbent coalition government. Therefore, the strong performance of the UPA, and the INC in particular, came as a surprise for most experts (see for example Ramani 2009): The UPA won 262 of the 543 seats (2004: 218), with INC winning 206 seats, an increase of 61 seats relative to the 2004 election results.[5] The coalition led by the BJP, on the other hand, lost support and only won 159 seats (2004: 181 seats).[6] The Third Front also did much worse than predicted and won 79 seats.

While an election campaign strategy focusing on the living conditions of the poor had been used repeatedly by INC in the past, political experts stress that in contrast to previous campaigns which paid mere lip service to the party's commitment to the poor, the introduction of NREGS made such claims much more credible.[7] Many commentators therefore believe that one important factor for the UPA's unexpected electoral success in 2009 was its focus on welfare policies and other government programs, and especially NREGS (see e.g. Ramani 2009).[8] The pro-poor election campaign is widely believed to have resonated with the electorate, and INC leaders have also claimed that the electoral victory was in large part due to NREGS.[9]

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which have proved to be of great benefit to the people. These include: (1) the deletion of a clause which gave Government the right to terminate the programme if it so wanted; (2) to ensure that it be made a universal right for anyone who was willing to do manual work and not limited to BPL families alone as suggested by the Government; (3) a special provision to ensure that at least one-third of the beneficiaries are women; and (4) to ensure more flexibility in the type of projects that may be taken up through the introduction of a clause that gives State Governments the scope to make suitable project proposals.' On proposed changes to NREGS: 'The employment guarantee to be extended to cover all adults and for as many days as demanded; Employment guarantee to be extended to the urban areas through the enactment of legislation. The list of permissible works under the NREGA to be expanded to include all activities that improve the quality of life in rural areas. Minimum wages should be ensured through fair and objective Schedule of Rates; Part of wages to be paid in subsidised foodgrains.'

[5]The absolute majority is 272 seats, so the UPA government was still dependent on external support. The UPA received 37.22 percent of the total vote (2004: 35.4 percent).

[6]24.63 percent of the votes (2004: 33.3 percent). The BJP won 116 seats (2004: 138).

[7]See for example the comments on the election results by political science professors Thachil at casi.ssc.upenn.edu/iit/thachil and Kumbhar at www.mainstreamweekly.net/article1382.html.

[8]Other explanations for the unexpectedly strong performance of the INC and its coalition government include the strong leadership skills of INC leaders Sonia and Rahul Gandhi, the competent and corruption-free image of prime minister Manmohan Singh, as well as intra-party problems in the BJP and regional factors (see for example EPW 2009, Ramani 2009).

[9]See for example Khera (2010).

C.1.2 Logistics

The autonomous Election Commission of India (ECI) sets the election dates and monitors the electoral process. The ECI has a good reputation as a neutral institution ensuring fair and smooth elections. Banerjee (2014) notes, for example: '*India's elections provide in the lives of the masses such a unique moment of procedural fairness, equality, rule of law, efficiency, unity of enterprise, citizenship, meaningfulness and festivity, that they have taken on the mantle of ritual in the deepest sense [...] In a country where much smaller events are often tainted with scandal and inefficiency, it is extraordinary that the ECI delivers such an exceptional performance every time.*' In surveys like the National Election Survey (NES), which is a representative survey of registered voters on election-related issues, the ECI is regularly identified as the most trusted institution.

The Election Commission has the power to subject party behavior to a strict code of conduct in the weeks before the election. The Model Code of Conduct requires all political parties and the incumbent government to comply with rules set up to ensure a fair and equal battleground. Millions of officers are drafted to monitor party behavior on behalf of the ECI, and the ECI rules supersede decisions made by all government institutions. The rules include specifications meant to level the playing field between the incumbent government and the opposition once elections have been called. On election day, the index finger of each voter is marked with indelible ink to avoid voter fraud, and ballots are cast using electronic voting machines. Election officials are randomly assigned to polling stations (excluding the area they come from) and are only informed of their assignment the day before the election when they report for duty. This ensures that election officials are assigned to an unfamiliar area and have little time to manipulate the voting process (Banerjee, 2014). Banerjee (2014) documents that election officials typically did not accept any food or drink from locals, slept in the polling station location (typically a school) the night before the election, and otherwise avoided socializing with the local population.

Banerjee (2014) provides a very detailed account of the 2009 general election through field reports from around the country in the weeks before the election and on election day. Observers were sent to typical towns and villages in a number of states well in advance of election day and observed the election campaign strategies of different parties as well as citizen reactions and the election process itself.[10] Despite large-scale heterogeneity across states in India, Banerjee (2014) stresses that a number of national narratives emerge through this qualitative fieldwork with respect to parties' election campaign strategies and voter behavior, making the qualitative examples more likely to be representative of behavior and opinions at a more aggregated level. The information in the following sub-sections is based on the examples provided in that book.

[10] There were 12 fieldwork sites in total, with a mix of big cities, small towns, and rural sites across India. The empirical methodology is described as follows: '*Researchers spent a month at the field site [engaging in] informal conversations, formal and partially structured interviews, shadowing candidates on the campaign trail, attending political rallies and street corner meetings, accompanying party workers on door-to-door campaigns, being present at all times at the field site to absorb and watch life as it unfolded around them [...] Each research site was the catchment area of a polling booth that on average accommodates 1000-1500 voters.*'

C.1.3 Party Election Campaign Strategies

The ECI's Model Code of Conduct subjects parties and candidates to close scrutiny. In the 2009 election campaign, the rules prohibited the display of posters and murals in public spaces, which led to a larger focus on personal interactions with potential voters. A representative survey among registered voters shows that 19 percent of respondents had attended an election meeting, 13 percent had been to a rally, and 58 percent had had a candidate or party worker come to their house (CSDS, 2009). In addition to going from door to door, party workers socialized with potential voters in public areas such as at tea stalls, markets, weddings or factory gates. Parties with a good level of grassroots organization sometimes tailored speeches and campaign materials to particular neighborhoods and distributed information in various forms. Parties also put on rallies and lunch and dinner meetings to attract poor potential voters (usually separated by caste and with tailored speeches).

Parties used various forms of materials and methods:

a) flags, pamphlets, handbills, posters
b) murals (mainly candidate name, alliance parties' names, alliance symbol)
c) street theatre: in several states, researchers saw performances by established groups of performers who were commissioned by political parties to perform plays dramatizing their achievements
d) vans with loud-hailers
e) giant cutouts
f) free bottles of liquor distributed to men in some areas, typically in the night before election day
g) merchandise (e.g. caps, umbrellas, balloons, stickers, badges, buttons, etc.)
h) campaign vehicles
i) paid news (newspapers, TV stations)
j) text messages

Here are some observations from the researchers:

'*As in previous elections, committed party workers spent most of their time among the voters, talking endlessly at tea stalls, factory gates, jan sabhas (congregations), biradari (community) panchayats, hukka sessions, card games, weekly markets, weddings, buses, fields, intersections, and the doorsteps of homes and shops. All day one heard gossip, discussions and judgments about different candidates, their performances as incumbent MPs or MLAs, their assets and liabilities, their characters, personalities and skills. [...] Door-to-door campaigning largely took place in the evenings, and the conversations followed a fairly standard pattern. Unlike the party leaders, local activists could not make any specific promises or policy announcements and were thus limited in what they could tell the people, but they emphasised what their party had done in the past and then asked people to vote for them.*'

C.1.4 Citizen Opinions and Behavior

Voter turnout in Indian elections tends to be high and is generally higher the lower the socio-economic status. Especially poor citizens often see voting as their duty and as an opportunity to affect government policy, since elections are one of the few occasions when politicians will actually visit villagers and listen to their concerns.[11] Ballots as well as election campaign materials feature symbols for each party to enable illiterates to vote. There are also practice electoral machines at polling stations where citizens can learn about the process (Banerjee, 2014; Yadav, 1999).

Observers in villages across states found that many citizens, but especially the poor, were excited about the upcoming general election and thought that voting was important. Here are a few examples:

'*They talked, of course, about their material needs and hope for a better future, and the importance of voting in trying to secure this. But these discussions would often take a more philosophical turn as they variously described, often very articulately:*
- the importance of voting for generating a feeling of citizenship, and for signalling the values of that citizenship
- voting as an expression of their identity as Indians
- the duty they felt to exercise what they saw as the most precious of rights
- the sense of gratitude and obligation they felt towards the Election Commission of India (hereafter ECI) for organising free and fair elections
- the importance they attached to the fact that 'each and every vote' was important to any election'

'*The earnest, engaged and often profound ways in which my informants discussed politicians, campaign styles or the work of the ECI were in stark contrast to the cynicism, sensationalism and superficiality in much of the media.*'

'*Many of the villagers I interacted with over the course of my fieldwork talked about politics all the time, and their everyday language had the creativity and plasticity to describe the politics unfolding around them. They modified official English words to describe local events, and used local idioms to explain philosophical notions of citizenship and participation. Entirely new words were coined to describe unprecedented events, and in general their discourse had a liveliness and accuracy that the official language of social science and political commentary simply does not capture.*'

'*Election campaigns from the viewpoint of the ordinary voter look very different from that portrayed in the media reports. The ways in which ordinary people assess politicians, discuss party ideologies, or evaluate campaign tactics show that voters deeply appreciate the levelling effect that the election campaigns have on the powerful when, in a period of role-reversal, however temporary, politicians have to beg for votes and get their spotless clothes soiled in the heat and dust of the campaign battle. For at least 40 per cent of the Indian population who officially still live below the poverty line, such humbling of the powerful, however tem-*

[11] Banerjee (2014) documents, for example, that women wear their best saris on election day, which are otherwise reserved for very rare special occasions.

porary, carries deep significance. [...] [I]lliteracy and poverty are clearly not impediments to understanding, and the practice of voting regularly in Indian elections over 60 years has allowed the masses to develop a sophisticated understanding of the ideas of democracy and citizenship in India.'

'*[D]iscussions then filtered back into people's homes as men brought back news of the day and what they had seen and heard, repeating statements made by others word for word and sometimes passing off the particularly witty and intelligent comments as their own in order to impress their families. Younger members would also contribute the jokes and slogans that they had picked up during the day and these would be further shared by neighbours and visitors who, in turn, would file them away mentally to repeat to new audiences. Women, who were often missing from public discussions of politics, were nevertheless interested and often asked questions, sometimes awkward ones, and this, in turn, required the men to clarify various points, revise their positions or defend them against criticism.*'

'*We found both Ali and Hasim [two barely literate young men in eastern UP] agreeing on the point that casting vote was their fundamental right and the only right they had that could not be questioned by anyone. As Ali emphasised: 'I can vote for anyone. I am free to vote, and I should not waste it. I can cast my vote at my will. No one can force me to cast vote in his/her favour.' [...] On the polling day, we had seen Hasim and his family come to cast their votes. This was quite remarkable, as it was the time to sow sugar cane and they would have taken valuable time off to come to the polling station. We met others who had travelled from the nearby towns where they worked to come and cast their votes. Interestingly, many of them were Chamars who were so angry with Yogesh Verma and the performance of the BSP that they made it a point to return to the village just to cast their vote for the Congress candidate. Everywhere there was a remarkable commitment among voters, who had all made sacrifices of time and money. Hasim and his family clearly believed that voting was as important as sowing the crop and so had started their sowing especially early to make time to vote.*'

In the 2009 election, as in previous elections, turnout was high among the poor: Scheduled Tribes and Scheduled Castes groups, for example, had a higher voting turnout than the national average, which was about 60 percent.

C.2 NREGS Advertisement Strategies and Differences from Previous Government Programs

This subsection provides additional background information on whether different actors (various levels of government, social activists and NGOs) publicized NREGS and on whether citizens could plausibly have expected NREGS to work more successfully than previous government programs before experiencing the actual program benefits over time.[12] It helps to address why it is plausible to assume that many voters initially had high expectations of NREGS despite India's history with previous failed development schemes.

Timeline Overview

The Indian National Congress (INC) made the explicit promise to implement an employment guarantee scheme in its manifesto for the 2004 general elections.[13] The INC was the main opposition party at the time and listed the program as one of a number of measures that would improve the living conditions of the poor. Once in office, the new INC-led UPA government coalition faced substantial pressure from social activists, community organizations, workers' organizations and other segments of civil society to keep its promise and implement an employment guarantee scheme. Economist and social activist Jean Dreze in particular argued that India needed an employment guarantee scheme as part of a successful anti-poverty strategy: The employment guarantee would provide the safety net necessary to improve the living conditions in rural areas. In contrast to previous failed initiatives, it would also create a legal right to work that would be enforceable in courts, which would hold the government accountable and make it more likely that the scheme would be a long-term initiative.[14] A first draft of an employment guarantee act, similar to the final provisions of NREGA and written by social activists Nikhil Dey and Jean Dreze, was circulated in the fall of 2004.[15]

The National Rural Employment Guarantee Act (NREGA) was passed in the Indian Parliament in August 2005 and was ratified by the Indian President on September 5, 2005. The Indian government officially disseminates information about new laws in both English and Hindi through a weekly public journal, the Gazette of India, which is published by the Department of Publication in the Ministry of Urban Development. The Gazette of India issue

[12] It is very similar to the additional information provided in the Online Appendix of the paper *Guns and Butter? Fighting Violence with the Promise of Development* by Gaurav Khanna and Laura Zimmermann.

[13] The 2004 election manifesto states: 'A national Employment Guarantee Act will be enacted immediately. This will provide a legal guarantee for at least 100 days of employment on asset-creating public works programmes every year at minimum wage, for every rural household.' See http://aicc.org.in/web.php/making_of_the_nation/resolution_detail/13.WGkVBOEWPEY

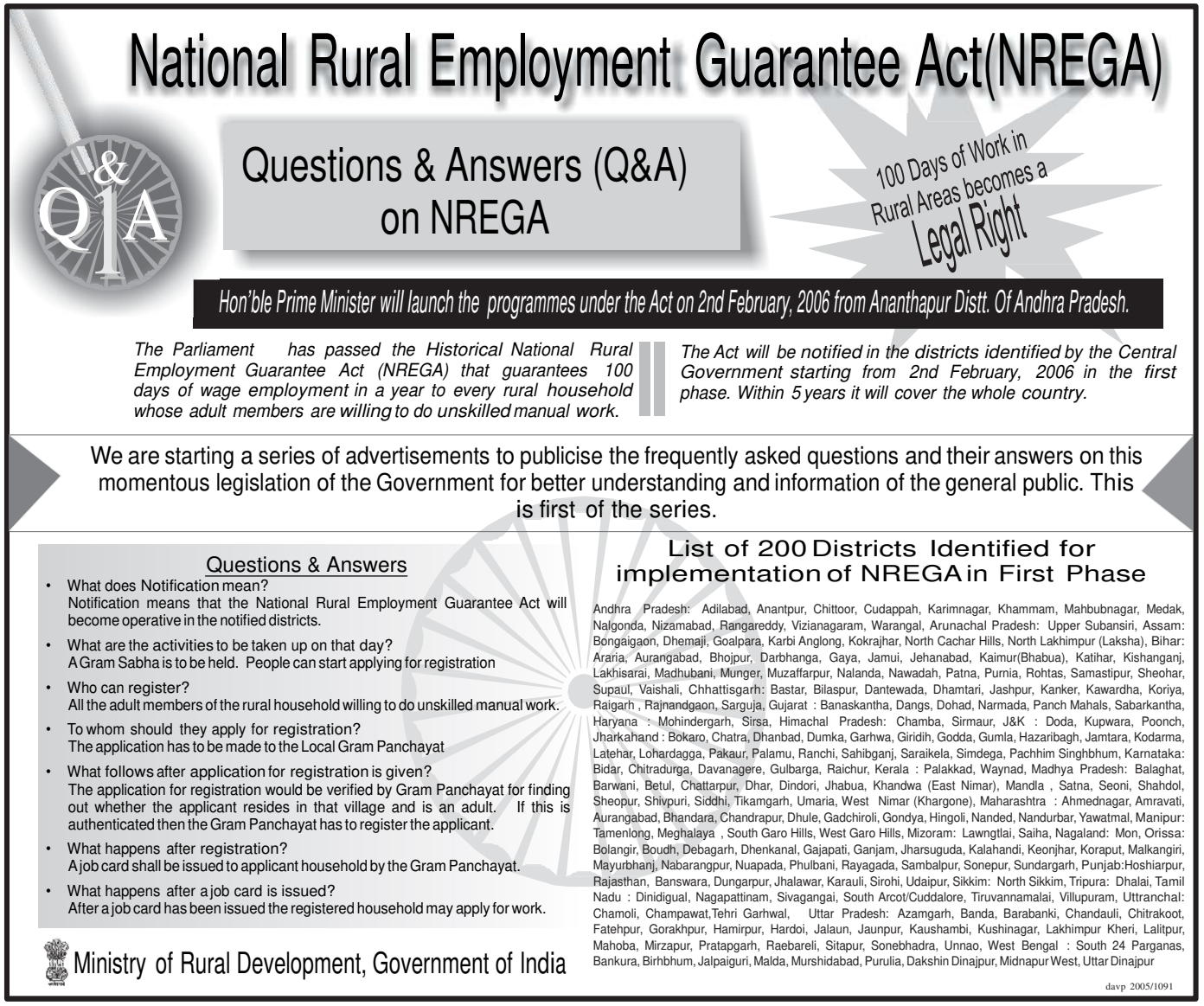
[14] See e.g. Jean Dreze's case for an Act in the well-known newspaper The Hindu from November 2004: http://www.thehindu.com/2004/11/22/stories/2004112205071000.htm. Also see http://www.ipc-undp.org/pub/IPCOnePager16.pdf

[15] As Nikhil Dey and Jean Dreze note in their booklet 'Employment Guarantee Act – A Primer' from October 2004: 'Workers' organisations have been demanding a national Employment Guarantee Act (EGA) for many years. This 'primer' was prepared to facilitate public discussion of this issue at all levels – from remote villages to the national capital. The answers are based on a draft National Rural Employment Guarantee Act prepared by concerned citizens, dated 1 September 2004 (hereafter the 'reference draft').' See http://www.sacw.net/Labour/EGAprimer.html

from September 7, 2005 featured NREGA as its main news item.[16] It contains the exact law that was passed, which provides details on the intended goals, benefits and operation of the program. NREGS came into effect on February 2, 2006 in the 200 Phase 1 districts, before being rolled out to the remaining rural districts in 2007 and 2008.

[16] http://nrega.nic.in/rajaswa.pdf

Figure C.1: Government Advertisement for NREGS



1) NREGS Advertisement and Awareness before 2009

Central as well as lower-level governments in India publicized the provisions of the National Rural Employment Guarantee Act and provided information about the districts that would be receiving the program. Due to NREGS being the flagship anti-poverty program of the government that was implemented after substantial pressure from non-state actors, different levels of government put in effort to raise awareness of the program. Since NGOs, community organizations and social activists had played an important role in getting NREGA passed by campaigning for an employment guarantee scheme, they were also heavily involved in raising awareness of the program before its start. What follows is qualitative evidence of strategies to raise NREGA awareness separately for different actors.

Central Government

Different levels of government worked on disseminating information on NREGA before the start of the program. The central government published the National Rural Employment Guarantee Act in the official government publication The Gazette of India on September 7, 2005, only two days after it had been ratified by the Indian President.[17] This put the exact text of the Act into the public domain. Information in The Gazette is available in both English and Hindi.

Additionally, the Ministry of Rural Development of the central government advertised NREGA through a series of advertisements organized as answering frequently asked questions about the program in an accessible format.[18] The first part of the series was launched in 2005 and is presented in Figure C.1 above (other parts in the series are available at the link provided in the footnote). It contains answers to general questions about the process of registering to be able to apply for NREGA employment as well as the complete list of all 200 Phase 1 districts that would be receiving NREGA in Phase 1 arranged by state. It also stresses that NREGA was passed by Parliament, that it provides a legal right to guaranteed employment, and that this is an ambitious program by using words such as 'historical' and 'momentous' in the description.

The advertisement campaign was handled by the Directorate of Advertising and Visual Publicity (DAVP) of the central government, which describes their advertising strategies and target groups for the year 2005-2006 in the following way:

'The Directorate of Advertising and Visual Publicity (DAVP) is the nodal multi- media advertising agency of the Central Government. It caters to the communication needs of all Central Ministries/Departments and around 200 Public Sector Undertakings and Autonomous Bodies and provides them a single window cost effective service. It informs and educates the people, both rural and urban, about the Government's policies and programmes and motivates them to participate in development activities. DAVP reaches the people through different means of communication such as press advertisements, print material, audio-visual programmes, outdoor publicity and exhibitions.[19] *'*

[17] http://nrega.nic.in/rajaswa.pdf
[18] http://nrega.nic.in/faq.pdf
[19] http://davp.nic.in/AR_05_06.html

The multi-media campaign for 2005-2006 focused on the most important government schemes of the Ministry of Rural Development, which included NREGA as a prominent program and had an all-India reach. DAVP also sponsored radio programs on All India Radio broadcast in Hindi and regional languages and a 'folk based sponsored radio programme' to disseminate information on Ministry of Rural Development programs.[20] DAVP has regional offices spread around the country in Kolkata, Chennai, Bangalore and Guwahati that assist with the distribution of information.[21][22]

Lower-Level Governments

The National Rural Employment Guarantee Act made the explicit stipulation that all states were required to post a summary of the program details in at least two local newspapers circulated in the program areas, one of which was required to be in a vernacular language.[23] To the extent this can be verified retroactively, a number of lower-level government institutions also put information on NREGA on their own websites before its official launch to make information on the program more widely available at a local level. Examples include the District Rural Development Agencies (the main implementing agency for anti-poverty programs at the district level) of Kangra and Chamba districts in Himachal Pradesh[24] or the official website of the Nandurbar district in Maharashtra.[25] In a document from November 2005 detailing how NREGA was envisioned to be implemented in the state of Andhra Pradesh, Mandal Samakyas (federation of the village organizations of the poor) are mentioned as important entities in helping carry out awareness campaigns for the program.[26] Andhra Pradesh also piloted the program in three villages starting on December 15, 2005, which included a test of the full process (from awareness campaigns to carrying out projects, payments and software use to document the work being performed).[27] In the annual NREGA report on the first year of implementation in Jashpur district in Chhattisgarh, the preparation for the introduction of NREGA, which includes plans to raise awareness and disseminate information among both government officials and citizens, is described as follows.

'...the process of Social Mobilisation and awareness about the new act & their guidelines was started by receiving the official letter wide 4785/31-10-2005 and subsequently meeting of review committee by honorable Secretary on 16-12-05.

Detail plan was chalk out to aware the line department about the new act, its salient features and their role & responsibility also was discussed. A meeting was held on 20-12-2005 at district level and all the implementing agencies were invited to discuss about the perspective Plan for NREGA and its implementation mode according to the guidelines. A series of 8 Training workshops were organized for the PRI member at Zilla Panchayat/Janpad level from

[20] http://davp.nic.in/AR_05_06.html

[21] http://davp.nic.in/AR_08_09.html

[22] Detailed information about strategies and reach of further NREGA awareness campaigns at later points is available here: http://nrega.nic.in/Netnrega/WriteReaddata/Circulars/IEC_Strategy_MGNREGA2905.pdf

[23] http://nrega.nic.in/rajaswa.pdf (Chapter III, 4(2))

[24] http://drdakangra.com/narega.php and http://drdachamba.org/schemes/NREGA/start.htm

[25] http://nandurbar.nic.in/html_docs/nregs/nregs_view.html

[26] http://www.wassan.org/nreg/APREGS%202005%20with%20annxures.pdf (p.6)

[27] http://www.wassan.org/apregs/document/Report%20-%207.pdf

the period 23-12-2005 to 02-01-2006.The district collector of Jashpur Shri Durgesh Mishra also attended the initial workshop and express & share his valuable information. While the entire workshop was presided by CEO Zilla Panchayat Shri Narendra Dugge and APO Shri Shiv Prasad Mishra. The training was given in LCD projector. To aware the communities about NREGA and its benefit, a two layered planning was done. First, non negotiable instructions were issued to all the Sarpanch and Sachiv to organize special Gram Sabha and discuss the whole NREGA scheme. On other hand, all the NGOs and civil society organization operating in Jashpur district were invited for the awareness and mass mobilisation under NREGA. Secondly, the messages, the benefits, the rights and communities involvement was duly depicted in wall paintings, Folk dances, Drama version and other media modes across the district deep into the villages. 19 program of Kala Jattha was organized in different cluster villages across the district as part of social mobilization process.' [28]

This shows that the strategy in Jashpur district was to require village-level officials to hold village meetings (Gram Sabha) to discuss NREGA as well as to reach citizens in multiple ways, including posting information and relying on non-conventional outlets such as dance performances. All of this preparation work was carried out despite Jashpur having been one of the districts that had been implementing one of the earlier and less ambitious employment programs. Similarly, a report on Pratapgarh, a district in Uttar Pradesh, provides pictures taken of a wall painting of NREGA on a government building and of an information board at a NREGA work site.[29]

NGOs, Social Activists and Word of Mouth

Social activists, community organizations, workers' organizations and other segments of civil society had been involved in campaigning for an employment guarantee program long before it became a law in September 2005. As Nikhil Dey and Jean Dreze note in their booklet 'Employment Guarantee Act – A Primer' from October 2004: 'Workers' organisations have been demanding a national Employment Guarantee Act (EGA) for many years. This 'primer' was prepared to facilitate public discussion of this issue at all levels – from remote villages to the national capital. The answers are based on a draft National Rural Employment Guarantee Act prepared by concerned citizens, dated 1 September 2004 (hereafter the 'reference draft').'[30]

In particular, it was deemed important by social activists that what was needed was an Act which, in contrast to earlier failed anti-poverty schemes, would be enforceable in courts and hold the government accountable while also having a much better chance of being a more long-term program than short-term initiatives.[31] This active campaigning for an

[28] http://www.jashpur.gov.in/pdf/Annua%20Report%20%202Feb-31Mar%2006_NREGA%20Jashpur.pdf (pp 5-6)

[29] http://pratapgarh.nic.in/Nrega.pdf While this document is reported by google as being produced on February 2, 2006, some of the data provided in the report are from 2007-08. As the report from Jashpur shows, the idea of publicizing NREGA through wall paintings on government buildings was raised elsewhere as well.

[30] http://www.sacw.net/Labour/EGAprimer.html

[31] See e.g. Jean Dreze's case for an Act in the well-known newspaper The Hindu from November 2004: http://www.thehindu.com/2004/11/22/stories/2004112205071000.htm . Also see http://www.ipc-

employment guarantee act by various segments of society as well as the fact that it was part of the national policy debate for about a year before becoming a law in September 2005 make NREGA very different from other anti-poverty programs and ensured a high level of awareness and enthusiasm for the scheme among social activists, NGOs and other groups. A number of individuals and organizations therefore became involved in raising awareness of the program and monitoring its success. Some examples follow below.

An updated version of the primer was written by prominent researchers and social activists Nikhil Dey, Jean Dreze and Reetika Khera. It was first published in 2006, cost 25 rupees and was available in English and Hindi. The primer uses simple language to provide information about NREGA in a question and answer format.[32] It was reprinted several times. In its quarterly newsletter for October to December 2005, the Orissa Development Action Forum (ODAF), an established forum of 12 NGOs, describes NREGA as having been enacted as a response to the pressures from society and encourages NGOs to take an active role to spread awareness of the program and to monitor the implementation of NREGA[33]:

'The National Rural Employment Guarantee Act, 2005 is now in place with the objective to provide at least hundred days of guaranteed employment to the rural mass in a year; thanks to the long drawn and pain-staking campaign by the people from various corners of the country owing to whose pressure the Government enacted it... The onus to spread awareness among the people and to help them to use the acts lies with the NGOs, People's organisations and other community-based organisations. We should strategise to make the Adivasis, Dalits, Fisher folk, Landless people and other marginalized sections to use both the acts [NREGA and the Right to Information Act] in their favour.'

The PACS (Poorest Areas Civil Society) Programme, whose leadership is based in Delhi and which covered 9000 villages that received NREGA in Phase 1, decided to become involved in creating awareness for NREGA and in monitoring its implementation before NREGA was officially launched.[34] Some of its activities included a multitude of awareness-raising events, e.g. a 'NREGS Week' that was held in July 2006:

'Hundreds of different types of events like rallies, village-level meetings, sammelans, distribution of communication material, padyatras and nukkad natak performances were held across PACS Programme areas in the states of Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Chhattisgarh and Maharashtra, from July 3-9, 2006.

In Bihar, the initiative that covered 2,326 villages in 106 blocks of 22 districts was supported by the state's secretary of rural development who sent an official letter to all the concerned district officials urging them to support the PACS Programme effort. The programme's state communications agency, Communicators for Development, facilitated a radio interview on the NREGS with the state's special secretary for rural development. CSOs [Civil Society Organizations] helped people fill forms for job cards in different areas. Each CSO was given

undp.org/pub/IPCOnePager16.pdf

[32] http://www.arvindguptatoys.com/arvindgupta/employment-guarantee.pdf ; http://www.sacw.net/Labour/EGAprimer.html

[33] http://www.odafforum.org/Oct-Dec.htm

[34] http://www.oecd.org/derec/unitedkingdom/40692330.pdf (p.34)

a target of filling at least 300 forms.

In Jharkhand, NREGS Week was observed in 4,500 villages in 20 districts by over 100 CSOs. A meeting to plan NREGS Week activities was held on July 1, 2006, in Ranchi at the office of Manthan Yuva Sanstha, the PACS Programme's communications agency for the state. Around 65 representatives from different programme CSOs and resource organisations participated. A cluster-wise plan of activities was finalised at the meeting and communication support material was distributed. It included posters, a CD of a film on the NREGS, a CD of 10 songs, a script for a street play and a booklet on the NREGS. Training for CSOs on the NREGA (National Rural Employment Guarantee Act), padyatras and nukkad sabhas at several villages to spread awareness about the scheme were undertaken in all clusters. In Madhya Pradesh and Chhattisgarh, approximately 1,460 gram panchayats and 3,000 villages in 45 blocks were covered by various events organised by programme CSOs.[35] '

The All India Agricultural Labour Association (AIALA) was also involved in raising awareness, providing information, and helping with the registration of potential workers under NREGA in various states.[36] In an ILO-funded household survey carried out in 2006 in four districts across India (Sirohi in Rajasthan, Dhar in Madhya Pradesh, Gulbarga in Karnataka and Sundargarh in Orissa), NREGA awareness levels through word of mouth were substantial (50% in Sirohi, 30% in Dhar, 80% in Sundargarh), whereas in Gulbarga awareness of the program was created through the village leader (sarpanch; all but one respondent).[37]

2) Differences from Previous Schemes

India has a long-standing history of anti-poverty programs, many of which have not been successful. It could therefore be taken as surprising that citizens believed NREGA would be different from previous failed initiatives. What distinguishes NREGA from earlier programs are three main factors: its legal status, its scope, and the involvement of social activists and community organizations in shaping the program. All of these aspects were featured in the awareness campaigns for the scheme and make it more likely that citizens were aware of the differences from earlier programs.

Legal Status

Since the National Rural Employment Guarantee Act is a law that provides an employment guarantee, it is enforceable in courts and thereby increases the accountability of Indian governments at various levels relative to previous programs. It marks the first time that a national anti-poverty government scheme was given such a legal basis, introducing the idea of a right to work. This point was explicitly raised in the advertisement campaign by the central government (see Figure C.1 above), which stressed the fact that NREGA was passed by Parliament and that the program provides a legal guarantee to employment. A very visible note in the upper-right corner on the advertisement states '100 Days of Work in Rural Areas becomes a Legal Right', for example. The legal status of NREGS also allows citizens to feel a sense of permanency of NREGS than they would not have felt with previous programs,

[35] http://www.oecd.org/derec/unitedkingdom/40692330.pdf
[36] http://archive.cpiml.org/liberation/year_2006/March/nrega.htm
[37] http://www.isstindia.org/reports-details/informal-economy-and-womens-work/1/

since laws are harder to abolish than normal government programs and since taking back an implicitly granted right to work would be politically unpopular.

The legal status of NREGA was something that social activists like Jean Dreze and civil society organizations had been explicitly campaigning for for years, exactly because they believed that what was needed was a substantial shift in Indian anti-poverty programs that would make governments more accountable and make programs more long-lasting since an employment guarantee would be far harder to abolish.[38] The NREGA primer written by researchers and social activists Nikhil Dey, Jean Dreze and Reetika Khera therefore stresses this point as well. The document uses simple language to provide information about NREGA in a question and answer format.[39] The first question in the primer is 'What is the basic idea of an Employment Guarantee Act?' and is answered as follows:

'The idea is to give a legal guarantee of employment to anyone who is willing to do casual manual labour at the statutory minimum wage. Any adult who applies for work under the Act is entitled to being employed on public works without delays. Thus, an Employment Guarantee Act provides a universal and enforceable legal right to the most basic form of employment. It is a step towards legal enforcement of the right to work, as an aspect of the fundamental right to live with dignity.'

The primer goes on stress that

'For the first time, the Act provides employment opportunities to rural labourers as a matter of right. It is also a major departure from elitist economic policies, and a potential stepping stone towards other forms of social security. In this and other ways, the Act is a real 'breakthrough'. [...] Schemes can come and go, but laws are more durable. A scheme can be trimmed or even cancelled by a bureaucrat, whereas changing a law requires an amendment in Parliament. Under the Employment Guarantee Act, labourers will have durable legal entitlements.'

These expressions make it very clear that the legal status of NREGA was deemed to be very important and a substantial shift from other programs. It is therefore very likely that the nature of the employment guarantee featured prominently in the awareness campaigns of NGOs, social activists and civil society organizations. At the very least, readers of the NREGS primer, which was reprinted various times, were able to read about how experts perceived the scheme to be vastly different from earlier anti-poverty programs.

Scope

In contrast to other anti-poverty programs, which were usually targeted at segments of the population below the poverty line or at a few districts thought to be especially struggling with economic development, it was very clear that NREGA would not have any eligibility criteria in addition to living in a rural area. This was very different from earlier programs

[38] See e.g. Jean Dreze's case for an Act in the well-known newspaper The Hindu from November 2004: http://www.thehindu.com/2004/11/22/stories/2004112205071000.htm. Also see http://www.ipc-undp.org/pub/IPCOnePager16.pdf

[39] http://www.arvindguptatoys.com/arvindgupta/employment-guarantee.pdf ; http://www.sacw.net/Labour/EGAprimer.html

like the Food for Work Program, for example, which had a below-the-poverty line (BPL) requirement, meaning that households needed to have a BPL card to become program beneficiaries. This opened up substantial corruption opportunities (such as fake BPL cards), so the idea behind getting rid of the eligibility criteria for NREGS was to get rid of this channel for corruption.

The central government tried to emphasize this difference in scope and ambitiousness from other programs in its advertising campaign through words such as 'historical' and 'momentous', but also by explaining the process of how to get work. In answer to the question of who can register, the advertisement in Figure C.1 above is clear to point out that all adult members of a rural household are eligible, for example.

Similarly, the NREGA primer by Dey, Dreze and Khera clearly states

'Who is entitled to work under the Employment Guarantee Act?

The work guarantee is a 'universal' entitlement – any adult is entitled to apply. The Act is based on the principle of self-selection: anyone who is willing to do unskilled manual labour at the minimum wage is presumed to be in need of public support, and must be provided employment on demand. If anyone tells you that the work guarantee is only for households with a 'BPL card', do not believe it!'

This paragraph stresses the universal nature of the program and that in contrast to a number of other government schemes access to NREGA employment is not conditional on having a below the poverty line (BPL) card by the Indian government.

Involvement of Social Activists and Civil Society Organization

In contrast to other anti-poverty programs, social activists, community organizations, workers' organizations and other segments of civil society had been actively involved in campaigning for an employment guarantee program long before it became a law in September 2005, which is very likely to have influenced how NREGA was portrayed in awareness campaigns and interactions with citizens.

As the Orissa Development Action Forum stressed in 2005:[40]

'The National Rural Employment Guarantee Act, 2005 is now in place with the objective to provide at least hundred days of guaranteed employment to the rural mass in a year; thanks to the long drawn and pain-staking campaign by the people from various corners of the country owing to whose pressure the Government enacted it...The onus to spread awareness among the people and to help them to use the acts lies with the NGOs, People's organisations and other community-based organisations. We should strategise to make the Adivasis, Dalits, Fisher folk, Landless people and other marginalized sections to use both the acts [NREGA and the Right to Information Act] in their favour.'

This shows that civil society organizations had a substantially different relationship to NREGA than other programs since it was felt that the program had been enacted by the government under the pressure from non-government actors.

[40] http://www.odafforum.org/Oct-Dec.htm

C.3 Additional Information on the Plausibility of the Proposed Explanation

This section focuses on discussing the plausibility of some of the assumptions underlying the main explanation of the empirical results of the paper, which centers around the idea that voters initially had high expectations of NREGS that were updated over time, and that voters used the 2009 election to hold the government accountable for the working of NREGS.

C.3.1 NREGS Salience in the 2009 Election

An alternative explanation of the main results is that length of exposure to the program reduced the salience of NREGS for the election decision: If households in early-treatment areas had gotten used to the program and its benefits (or the lack thereof), they may have based their voting decision more heavily on other topics raised during the election campaign. Later-treatment areas, on the other hand, had less exposure to the program (one full agricultural off-season instead of two), so NREGS may have still been considered as something new and important to determine their vote. Such an explanation would be consistent with the lower government support in areas with longer program exposure, although it is not necessarily consistent with the heterogenous effects and additional results presented in the paper. This section explores additional suggestive evidence to test the plausibility of the salience explanation.

One way of testing the salience explanation is to focus on the news coverage surrounding NREGS in the media. If the media interest in NREGS declined over time, this could indicate a decline in general interest in the program and a change in focus to other topics considered to be more important. This would be suggestive of a reduced voter interest. To test this hypothesis, I collected all newspaper articles published in the big national newspaper The Hindu that mention NREGA in the time period between the start of NREGA's implementation in Phase 1 districts (February 2006) and July 2009. Figure C.1 (a) plots the number of newspaper reports published over time. The vertical line marks May 2009, when the election results were announced. The election itself took place in April and May. As the graph shows, news coverage of NREGS increased over time, and the number of articles that mentioned NREGS were at their highest level since the start of the program exactly during the election months in April and May of 2009.

Another indicator of the interest of voters in the program are google searches online. Figure C.1 (b) plots the average search interest by people in India.[41] The graph shows a very pronounced increase in google searches of 'NREGA' over time. Similar to Figure C.1 (a), the web searches were at their highest level since the introduction of NREGS in the few months before the election.

Overall, both figures are not consistent with a loss of salience of NREGS over time, and instead suggest unusually high levels of interest in the program by both the media and by

[41] Google searches are reported weekly, with the interest re-scaled to lie between 0 and 100 for the chosen time period.

voters shortly before the election.

C.3.2 Voters Holding Government Accountable for NREGS Implementation

The paper proposes that the most plausible explanation for the results is that voters held the government accountable for the working of NREGS. For this to be plausible, implementation quality of NREGS must have been something that was salient in the election.

Shortfalls in implementation quality were widely reported on in newspaper articles and reports by NGOs, social activists and government organizations. The Comptroller and Auditor General (CAG) of India, for example, is a government authority that audits government spending. A draft report of its evaluation of the working of NREGS was leaked and created widespread media coverage in 2008, about one year before the election. The news coverage was very negative, with headlines in big newspapers such as 'UPA guaranteed 100 days of work to the poor, over 96 per cent didn't get it, says first audit' or 'It's official: In poorest states, job funds don't reach the poor'.[42] While some commentators note that the report was more nuanced than the media made it seem and contained a number of constructive elements (Siddhartha and Vanaik, 2008), over the next couple of months this incident forced the government to acknowledge these shortcomings and to make promises to deal with them.

About six months before the election, the Indian Prime Minister Manmohan Singh explicitly acknowledged problems at an event on 'Initiative on Supporting the National Rural Employment Guarantee Scheme through State Legal Services Authorities', which was well covered in the national media. He said *'Some States have shown good results. Some are lagging behind. I urge the States that have been behind to make all effort to catch up with the more progressive ones.'*[43] He went on to say: *'I have already given instructions for examination of the issue so that we can put in place an institutional mechanism for rigorous and independent evaluation of the flagship schemes.'* Additionally, he mentioned that public opinion should be mobilized to improve implementation quality, and that loopholes should be plugged to ensure that the program benefited the poor. Just a few weeks later, the CAG told the central government's Ministry of Rural Development to accept responsibility for the implementation and monitoring of NREGS and to work on the large implementation challenges.[44] In response, the Ministry of Rural Development proposed the introduction of an independent grievance redressal mechanism to address issues with implementation quality such as problems with issuing job cards to poor households, and set up a toll-free helpline for grievances with NREGS.[45]

In addition to this national news coverage on low implementation quality, newspapers also reported extensively on state differences in implementation quality. In the six months before the 2009 election alone, the big national newspaper *The Hindu*, for example, published articles on the poor working of the scheme in 'non-star' states such as Karnataka, Jharkhand

[42]See http://archive.indianexpress.com/news/upa-guaranteed-100-days-of-work-to-poor-over-96–didn-t-get-it-says-first-audit/258543/ and http://archive.indianexpress.com/news/it-s-official-in-poorest-states-job-funds-don-t-reach-the-poor/258873/3

[43]Speed up rural job scheme: Manmohan, *The Hindu*, October 3, 2008

[44]NREGA being diluted: CAG, *The Hindu*, October 29, 2008

[45]Lok Adalats for NREGA grievances under study, *The Hindu*, November 5, 2008

and Orissa[46], while having positive coverage on 'star' states such as Andhra Pradesh and Tamil Nadu.[47]

Newspaper articles in the few months before the election also reported on actions taken by citizens to hold officials accountable for NREGS implementation problems. In Karnataka and Uttar Pradesh, for example, hundreds of NREGS workers protested on the street in multiple villages against the NREGS wage payment delays they were experiencing and against a lack of materials for the work that they were supposed to carry out.[48] The article 'The wages of protest' from April 2009 pointed out that the Rights to Information Act (RTI) and the social audit provisions of the NREGA allow average citizens to hold governments accountable for the working of NREGS when this was not a possibility for past programs. These features were increasingly being used, but had also started to lead to violent incidents with the police and clashes with the elites who were unwilling to relinquish power.[49]

Successful improvements to implementation quality after citizen complaints were much more likely when they were supported by higher-level state and national politicians, or when pressure could successfully be built up at higher levels of the administration to force them to issue orders and improve monitoring. News coverage on the working of Andhra Pradesh, for example, pointed out that social audits in Andhra Pradesh worked well because they were supported at the state and national levels, and were important to hold governments accountable for the working of NREGS.[50] In Jharkhand, on the other hand, citizens had protested against the lack of unemployment allowance that they should have been eligible for under NREGS due to delayed provisions of jobs. With the help of the Jharkhand State Legal Services Authority, which provides legal advice to the poor, citizens successfully pressurized the state's Rural Development Secretary to pay the unemployment allowance, and an official in charge was fined Rs. 1000 under the provisions of NREGA.[51] More broadly, Chief Justice of India K. G. Balakrishnan said that legal services authorities were under an obligation to provide free legal aid to NREGS beneficiaries under the Legal Services Authorities Act to combat implementation quality issues like non-payment of wages or wage

[46]Rural job scheme yet to gain momentum in many districts, *The Hindu*, November 22, 2008; Job scheme progress poor in Kodagu, *The Hindu*, February 12, 2009; Job guarantee scheme can check naxal, ultra recruitment, *The Hindu*, March 1, 2009; Multiplier accelerator synergy in NREGA, *The Hindu*, April 30, 2009

[47]State bags three NREGA awards, *The Hindu*, January 31, 2009; Sivaganga district selected for award, *The Hindu*, January 31, 2009; Silent but successful initiative, *The Hindu*, March 1, 2009

[48]Incidents such as these were not uncommon: *In the village Panchayat Aira Kake Mau of Bharawan Block of Hardoi District, workers had assembled on January 14, 2009, at the door of the Gram Pradhan as previously agreed, to seek their unpaid wages. [...] In Kopaganj Block of Mau district, labourers from the villages Devkali, Bishunpur, Purana Kopa and Jairamgarh, mostly women and dalit, had assembled at the office of the Block Officer, merely eight km from the district headquarters, to demand wages due for the last six months.* (The wages of protest, *The Hindu*, April 5, 2009) Please also see: NREGS implementation a sour point between beneficiaries and officials, *The Hindu*, March 2, 2009; Protest leads to arrest of KPRS leader, *The Hindu*, March 3, 2009; The wages of protest, *The Hindu*, April 5, 2009; Police behavior irks protesters, *The Hindu*, February 21, 2009

[49]The wages of protest, *The Hindu*, April 5, 2009

[50]POTA-like law to deal with terror opposed, *The Hindu*, December 13, 2008

[51]Row over dole in Latehar, *The Hindu*, February 5, 2009

payment delays.[52]

Overall, both the independent government authority CAG as well as experiences from the ground therefore suggest that the way to improve the implementation quality of NREGS was to hold higher-level politicians accountable for the working of the scheme, which would force them to take their monitoring role more seriously and to address the grievances expressed by citizens. In their book, the political scientists Jenkins and Manor (2017) make a very similar argument. Based on extensive qualitative field work in two Indian states, they write:

[...] the disappointments that poor people experienced during programme implementation possessed constructive potential. The programme's design is sufficiently transparent to enable local residents to understand the various abuses to which they are being subjected. Awareness helped NREGA applicants to move from being repeatedly disappointed to being politically discontented and therefore more likely to operate proactively in the public sphere. This process of political transformation resembled the trajectory that NREGA's architects foresaw and intended: a gradual process of enhancing the political capacity and influence of some of India's poorest and most marginalized people. Other non-rights-based government programmes have had much less (or in many cases, no) impact of this kind. So despite the many ambiguous and negative findings that emerge from our survey evidence, our stakeholder interviews seem to suggest substantial 'citizenship assertion'. By citizenship assertion, we mean something larger than just demanding new rights or the full recognition of rights acknowledged earlier. Here we refer to demands by citizens to participate directly in state institutions that are designed to hold officials accountable for their performance in delivering improvements to specific aspects of people's well-being. (p.145)

They also mention that the government made similar observations (Jenkins and Manor, 2017):

NREGA's political dimension is real, and not a product of academic overinterpretation. The Government of India's own 2010 'Report to the People' on NREGA's first four years in operation identified impacts 'beyond wage employment' that had allowed NREGA to 'promote multiplier effects'. Among these were 'social capital formation', improvements to local 'democratic process', and enhanced capacity among the 'most vulnerable people' to 'articulate needs and negotiate their rights.' [...] By incentivizing a form of continuous democratic struggle, however, NREGA channeled discontent in ways that enhanced the political awareness, skills, confidence, and connections of people who engaged with the programme. (pp.229-230)

This suggests that the general election of 2009 was a good opportunity for discontented voters to hold the government accountable for the working of NREGS and made it a salient topic for the election. The behavior by politicians during the 2009 election campaign is also consistent with the idea that voters found NREGS, but also its implementation quality, to be an important topic influencing their voting decision. As the main government party, the INC in particular wanted to take credit for the scheme: The party had included a program similar to NREGS in its election manifesto for the 2004 election, and the 2009 election manifesto listed NREGS as one of its main successes in office. Prominent INC politicians like Manmohan Singh, Sonia Gandhi, and Rahul Gandhi, who were travelling extensively in

[52]Speed up rural job scheme: Manmohan, *The Hindu*, October 3, 2008

the couple of months before the election to speak at rallies and other election campaign events all over India, mentioned NREGS as an important success for the poor.[53] In Andhra Pradesh, one of the 'star states', the party produced a television campaign advertisement film with the film star Akkineni Nagarjuna that highlighted NREGS and other welfare programs.[54]

In Rajasthan, another 'star state', the government faced the problem that the state had until recently been ruled by the opposition, who had tried to re-brand NREGS as a state initiative. Before the general election, INC implemented a large-scale publicity campaign to make clear to voters that the 'credit' for implementing and funding the program should go to INC rather than to the BJP (Jenkins and Manor, 2017). This seems to have paid off in the 2009 election:

A survey conducted prior to India's 2009 parliamentary election found that, in Rajasthan, people who benefited from NREGA - as workers or in some other capacity (for instance, through use of or access to durable assets produced under NREGA) - were more likely to vote for Congress candidates than those who had not benefited. Among survey respondents who had heard of NREGA, 71 per cent reported having benefited from the scheme. Of these beneficiaries, 55 per cent voted for Congress candidates. The remaining 45 per cent was divided among other parties, with the largest share (34 per cent) being BJP voters. Among respondents who had not benefited from NREGA, however, just 43 per cent had voted for Congress's parliamentary candidates. (pp.120-121)

In areas where implementation quality of NREGS was low, the strategy appears to have been to take credit for its introduction, but to blame the state governments for poor implementation despite the central government's best intentions.[55]

The INC also accused the Third Front parties of unfair behavior, since the Third Front had supported the introduction of NREGS from outside the government, but then started accusing the government of poor NREGS implementation during the election campaign[56]: *The Congress on Monday described the criticism of the United Progressive Alliance by the Communist Party of India (Marxist) in its manifesto as 'unfair, hypocritical and dishonest.' [...] And, he went on to reel off some of the government's key programmes, including the National Rural Employment Guarantee Act (NREGA) and Bharat Nirman. [...] Stating that the Left parties revel in being part of the power equation without being held accountable, the Congress*

[53] NREGS implementation has proved critics wrong: Sonia, *The Hindu*, February 3, 2009; Full statehood for Delhi, April 28, 2009; Sonia urges voters to defeat communal, separatist forces, *The Hindu*, May 3, 2009; BJP, Akali Dal ignored farmers' interests, says Manmohan Singh, *The Hindu*, May 3, 2009

[54] Congress ropes in Nag for campaign, *The Hindu*, November 7, 2008

[55] *Coming down heavily on the Third Front Government in the State [West Bengal], Mr. Gandhi said: 'We had sent Central funds and policies like the National Rural Employment Generation Act (NREGA) to the State to help the poor. But 40 per cent of the funds remain unused, and people have not even been given 20 days of work out of the 100 days guaranteed by the NREGA scheme.' [...] Mr. Gandhi urged the people to change the government that did not work for their welfare. 'You need to pressure the Government. If it still does not relent, you should change it.'*(Rahul Gandhi charms the crowd in Purulia, *The Hindu*, April 25, 2009). *[Rahul Gandhi] also accused the State Government [of Bihar] of not properly implementing the UPA Government's flagship programme National Rural Employment Guarantee Scheme. [...] 'We have made available huge funds to the State for execution of NREGA but the State Government has not been able to properly utilise it,' he alleged.* (Rahul attacks Nitish Govt. on flood relief, *The Hindu*, April 26, 2009)

[56] East to be armchair critics, says Congress, *The Hindu*, March 17, 2009

accused the CPI(M) of indulging in perennial criticism. 'It is easy to be armchair critics, but difficult to give good governance.' [...] Further, the Congress sought to point out that the UPA and the National Common Minimum Programme was good enough for the CPI(M) from 2004-2008. 'Suddenly, everything about this government is bad and all black; without even shades of grey.' [...] As for the CPI(M) taking credit for the NREGA and stopping banking sector reforms that in turn helped India weather the global meltdown, Mr. Singhvi said: 'This is an old disease with the Left; it takes credit for all good things and blames us for all bad things. They have got used to exercising power without responsibility. Their claim would have been correct had they joined the government.' At an election campaign event in Delhi organized by People's Action for Employment Guarantee and National Campaign for People's Right to Information in March 2009 hundreds of voters demanded improvements to NREGS, and politicians like the present INC representative admitted that NREGS needed to be strengthened[57].

Jenkins and Manor (2017) also provide a summary of how NREGS and its implementation quality are likely to have affected election results and voter behavior:

The all-India evidence collected during the 2009 national election indicated that no party had more than a minimal advantage among voters who had heard about NREGA and similar programmes. But the ruling Congress Party and its allies, which had pursued these programmes, gained a modest advantage among voters who had benefited from them. (p.157)

Election surveys conducted since NREGA came into force suggested that, when the programme provided meaningful responses to a substantial number of ordinary people, voters were willing to reward leaders at both the central and state level of the political system. Assessments of good NREGA performance were based on factors like the quantum of employment offered, the level and timeliness of wages paid, the degree to which working conditions conformed to legal requirements, the durability of the physical assets created, and so forth. The important point is that people extended political support not merely to individual officers who dispensed patronage (in the form of temporary employment), but to parties and elected representatives that worked to make the scheme function credibly. (pp.245-246)

In a survey of voters in the 2009 election, Suri (2009) finds that satisfaction with the household's economic situation and the government's work was very important in determining votes for the government: The survey shows that 81 percent of votes for the government came from voters who reported being either 'highly satisfied' or 'somewhat satisfied' with the government's performance. More than 46 percent of respondents claimed their economic situation was 'much better' or 'better' than at the time of the last election, and many of those households voted for government parties in the 2009 election. Those that felt worse off than 5 year ago, on the other hand, were much less likely to vote for the government. While the survey did not explicitly ask about NREGS, it similarly suggests that voters held the government accountable for its performance and considered economic factors in their voting decision.

The nationally representative National Election Survey (NES) of potential voters also found that economic issues were important for voters. The survey asked respondents to name

[57] Political parties admit need to strengthen RTI and NREG Acts, *The Hindu*, March 22, 2009

important problems they faced which they would like the government to solve. 29 percent of respondents named unemployment and 15 percent poverty as important problems, which are both issues that NREGS seeks to alleviate through the employment guarantee. When asked about the most important aim that India should focus on in the next 10 years, the most popular answer category was *'Seeing that people have secure jobs'* (30%), compared to *'A high level of economic growth'* (21%), *'Making sure that the country has a strong defense force'* (6%), *'trying to make our villages and cities more beautiful'* (10%), *'Ensuring social harmony and unity'* (13%), and *'no opinion'* (19%). Another question asked about whether the respondent had heard about livelihood or employment opportunities, which about 52 percent had, and then asked those individuals about how much this affected their decision to vote. About 31 percent of all respondents said this affected their decision a lot or almost entirely, which was about 60 percent of the people who had heard of these opportunities.

Overall, implementation quality challenges of the NREGS program were therefore widely discussed at national, state and local levels. The government had officially accepted responsibility for shortcomings of the program and had promised to improve it. Implementation quality differences were explicitly addressed on the campaign trail by multiple parties and individuals, usually with the intent to take credit for the benefits and to blame political opponents for the problems. Citizens in multiple Indian states had demanded accountability for the working on NREGS, not least with the free legal assistance of the legal services authorities. Voters in the 2009 election considered economic issues such as unemployment and poverty to be crucial problems that the government should address, and election survey evidence found that voters were willing to reward political parties who were providing NREGS benefits to large numbers of people. Taken together, this is consistent with the proposed mechanism that voters in the 2009 election held the government accountable for the implementation quality of NREGS.

C.3.3 NREGS Program Awareness

Did voters in 2009 know about NREGS? While a lack of program awareness and salience would not affect the internal validity of the RD design, since there were no other government initiatives that were implemented using the same cutoffs, this would importantly affect the interpretation of the results. Existing research has shown that NREGS had impacts on the prevalence of Maoist violence and may have impacted labor-market decisions other than direct NREGS take-up (Khanna and Zimmermann, 2017; Zimmermann, 2013). If voters observed the positive impacts from NREGS but did not directly link them to the introduction of the program, voters may have voted on issues such as the national security situation instead of voting based on the NREGS program itself.

One important source of information about what voters found important for making their decisions is the National Election Survey (NES) from 2009.[58] The NES is an election survey drawn from all registered voters in India in a 4-stage stratified random sampling design. The sample was drawn from 4 polling stations for each of 659 assembly constituencies in 537 (out

[58]Please see http://www.lokniti.org/national_election_study2009.php for more information.

of 543) parliamentary constituencies across 29 states. In each polling station (2636 polling stations in total), 20 respondents were sampled from the electoral rolls, leading to a sample of 36641 potential voters who were surveyed about issues surrounding the 2009 election in a post poll survey. This makes the survey a large and important source of information about voter preferences. Unfortunately, the micro data of the election survey is not released, so information from this survey cannot be matched with NREGS information. A summary of the results is published in a report, however, from which the following information is drawn to address a couple of concerns (CSDS, 2009).

As a first issue, one may question whether the typical voter knew about NREGS. Especially in rural areas and among poor, not very educated voters, one could assume that large information constraints prevented widespread knowledge about the program even among potential program beneficiaries. Qualitative evidence on the timeline and rollout of NREGS above already suggests that information constraints were lower in the case of NREGS than they may have been for a typical government initiative: NREGS was a program implemented under substantial external pressure from social activists, NGOs and other organizations, so in addition to government efforts to inform citizens about the program a number of organizations were involved in providing information to beneficiaries through various means (see section C.2 above for more details). NREGS was also featured as one of the flagship programs of the Indian National Congress (INC) and the UPA government coalition in the 2009 election campaign, so it is very likely that politicians and local party activists brought up the program at campaign events and in conversations.

A couple of questions in the NES directly lend support to these ideas. One question on the survey asked respondents directly about whether they had heard of a couple of government schemes implemented by the central government.[59] NREGS was one of the schemes directly asked about. Of those who responded, about 65 percent had heard of the program. About 26 percent had either personally benefited from the program or had a family member who was a program beneficiary, whereas 36 percent reported not having benefited from the initiative (the remaining respondents were mostly those who did not know of the program). Based on this evidence, NREGS awareness was high.

The survey also provides evidence on some aspects of the election campaign that make it more likely that the respondents heard about NREGS and its benefits from politicians and party workers. A couple of questions directly asked about the respondent's participation in the election campaign in various forms. About 19 percent reported having attended an election meeting, about 13 percent to have participated in rallies or processions. About 12 percent were involved in other forms, for example through door-to-door visits and active campaigning (of those, roughly 25 percent reported campaigning for the INC). About 58 percent reported having a candidate or party worker come to their house, which was higher than for previous elections because the Election Commission of India actively incentivized the direct contact between party members and potential voters by restricting other campaign methods. While many of these activities could have come from any of the many political

[59] Question C14: 'Now I am going to read out the names of a few schemes of the Central Government. Please tell me if you have heard of them? (if yes) In the last five years, have you or someone from your family benefited from them?'

parties contesting in the election, the INC is one of the largest and most well-known political parties, so it is likely that a substantial fraction of potential voters came into direct contact with a government coalition party politician or party worker. The NES also asked whether a person had been exposed to an advertisement of a party or candidate on radio or TV, which was true for about 45 percent of respondents. Respondents were then asked to name up to three parties for which they remembered having seen or heard such an advertisement, and about 84 percent of those who knew of any advertisements named the INC as one of those three parties. In addition to personal contact, this suggests that the INC's election campaign had a substantial reach through different media outlets.

C.3.4 Expectations and Vote Effectiveness

If voters had high initial expectations of NREGS and then held the government accountable for the program's implementation quality in the 2009 election, this assumes that Indian citizens trust a government's actions enough to initially have high expectations about government policies despite a history of past failed anti-poverty initiatives, or perceive NREGS to be much more likely to be successful than other schemes. Section C.2 above provides detailed anecdotal information and circumstantial evidence about the roll-out and the development of NREGS, which support the idea that NREGS was perceived as a very different program than other anti-poverty initiatives due to its legal guarantee, the massive scope of the program and the heavy involvement of social activists and NGOs in the drafting of NREGS and the spreading of awareness on the ground. Additionally, the post-poll survey NES asked respondents about the level of trust they had in the central government, with about 74 percent of respondents reporting some or a great deal of trust.[60] Survey respondents were also 14 percentage points more likely to think that the UPA government was better than the previous BJP-led coalition government (38 percent vs 24 percent). 24 percent claimed to be fully satisfied with the performance of the UPA government during the last five years, whereas 42 percent were somewhat satisfied.[61] These results suggest that most voters have at least some trust in the government and its policies rather than being completely disillusioned with the process.

A second implication of the proposed explanation is that voters must have thought that their vote would help hold the government accountable and affect government policy. The NES asked specific questions to get at these issues. Survey respondents were asked whether they thought that their vote had an effect on how things were run in the country or whether their vote made no difference, with 60 percent saying that their vote had an effect.[62] Similarly, 45 percent of respondents thought that people had the power to change the government if they do not like it.[63]

A third implication of the proposed channel is that people should vote for a political party

[60] 41% said 'Great deal', 34% 'Somewhat', 7% 'Not very much', and 4% 'Not at all', with 15% having no opinion.

[61] 9% reported being somewhat dissatisfied and 11 percent to be fully dissatisfied, with 15% having no opinion.

[62] 17% answered their vote had no effect, 23% did not know.

[63] 18% somewhat agreed, 10% somewhat disagreed, 8% fully disagreed and 18% had no opinion.

rather than for a particular candidate and base their choice of the party largely on performance rather than on other factors like the voting preferences of co-ethnics. NREGS was a government scheme implemented by the UPA coalition government under the leadership of the INC rather than by individuals. In the NES, 62 percent of respondents claimed to consider the party as more important than the candidate in their election decision (23% thought the candidate was more important). When asked about the most important factor in deciding which party to choose, the largest answer categories were 'The party has good leadership' and 'The overall programme of the party is good.'[64]

Evidence from the NES potentially suffers from the problem that individuals may have responded differently than they actually felt because they were being interviewed for an election survey, although the results are entirely consistent with the empirical analysis in this paper. Section C.1 above provides additional evidence of the perceived effectiveness of the vote and of a good understanding of politics even among rural voters collected by a research team in representative villages across a number of Indian states in the weeks leading up to the 2009 election and on election day (Banerjee, 2014).

Additionally, expert interpretations of the verdict of the 2009 election are also consistent with the view that there had been a national trend in voting behavior that benefited the government parties and its main party, the INC: *'Clearly, this result is not simply an aggregation of State-level verdicts. There is a clear national trend here. In almost every State, the Congress has finished at the upper end of the band that it could have performed within. [...] A verdict like this cannot be attributed only to local factors such as candidate selection or factionalism within rival parties. If so, the Congress would not have performed as well in Rajasthan and Haryana. [...] A combination of factors appears to have caused this almost invisible undercurrent in its favour. A positive image of the Prime Minister and the Congress president definitely helped. Many of the major pro-people initiatives of this government such as the NREGA, the farm loan waiver, and the Right to Information Act may not have fully impacted on the people, but they did create a positive climate for the party. It also helped that the party did not become overconfident and did not resort to an 'India Shining' kind of campaign. The Congress appeared more responsible, more future-oriented and more pro-people than its opponents.'*[65]

[64]The full set of answers was: 'People of my caste or community supported that party' 7%, 'The group or the faction in the village/mohalla supported the party' 4%, 'My family members are traditional supporters/voters of the party' 10%, 'I/members of my family have benefited, or expect to benefit from the party' 6%, 'The party has good leadership' 19%, 'The overall programme of the party is good' 11%, 'Others' 5%, 'Can't say' 6%, not applicable (since question only asked if thought that party more important than candidate).

[65]Making sense of the verdict, *The Hindu*, May 18, 2009

D Additional Algorithm Information and Analyses

D.1 Additional Details on Algorithm Prediction Success

In this section, I discuss in detail why the algorithm prediction success rates do not present a threat to internal validity and what some plausible explanations are for deviations from the government algorithm.[66]

1) Is the prediction success rate of a bit over 80% a concern for the internal validity of the analysis?

The worry about a valid identification strategy in an RD design is that there is manipulation of the running variable or the cutoff. If it is possible for districts to manipulate the algorithm used in the program rollout or the program cutoff to perfectly determine which side of the cutoff their district ends up on, then districts in the vicinity of the NREGS program cutoff are no longer credibly similar to each other and the analysis will be biased. We therefore want to be able to rule out that the 80% success rate is likely to be an indication of such manipulation. In addition to outright manipulation of the algorithm, internal validity concerns could arise from other factors that are correlated with the running variable, such as certain forms of non-classical measurement error or using an incorrect algorithm. In practice, these concerns are unlikely to drive the results.

There is no reason to believe that the used algorithm is not the correct algorithm. The official government documents referenced in the paper explicitly mention the algorithm and provide detailed information on parts of it, e.g. through a Planning Commission of India document that details the construction of the poverty index and provides the raw data and generated index values for the districts. Additionally, I have confirmed that the algorithm was used for NREGS district allocation with some experts, including a former member of the Planning Commission. The success rates of the algorithm in predicting actual treatment assignment are also much higher than those expected under random district assignment (they are about twice as high). There is therefore no evidence that the government somehow used a different algorithm than the one I am using.

The paper also provides evidence that strategic manipulation of the running variable was not feasible. The data used to construct the algorithm used data from the early- to mid-1990s, which was long publicly available by the time the algorithm was created. In addition, the algorithm was created by a research group at the Planning Commission of India long before NREGS became a law and had only been used for a few much smaller, temporary anti-poverty programs before NREGS. This means that even if manipulation of the running variable had been possible, the much lower cutoffs for earlier programs would have led to manipulation at very different parts of the distribution.

Since the running variable in the paper is discrete, a McCrary test would lead to misleading results, either in the form of an over-rejection of the null hypothesis of no manipulation, or in the form of the inability to detect actual manipulation in the running variable (Frandsen,

[66] A part of this section is taken from the Online Appendix of *Guns and Butter? Fighting Violence with the Promise of Development* by Gaurav Khanna and Laura Zimmermann.

2017). Frandsen (2017) develops a similar test for manipulation of the running variable for discrete running variables. The test examines whether the distribution of the running variable is smooth around the cutoff by using the support points directly adjacent to the RD cutoff. Different from the McCrary test, the researcher has to specify a parameter typically referred to as k, which captures the maximum degree of non-linearity in the pmf that would be considered acceptable for no manipulation. The most conservative value is k=0, which implies that the mass at the threshold is perfectly linear.

Figure C.2 plots the distribution of the running variable across districts. The vertical line denotes the first non-treated observations according to the algorithm, which are districts with a state-specific rank of 1. It shows no visual evidence of manipulation right around the cutoff. The most conservative version of the Frandsen test with k=0 yields a p-value of 0.813 for the Phase 1 implementation cutoff, which means that the null hypothesis of no manipulation cannot be rejected. The corresponding p-value for the Phase 2 implementation cutoff is 0.856. Figures 1a and 1b in the main paper also show no evidence of suspicious bunching of algorithm values in the vicinity of the cutoff.

There is also no discontinuity at the cutoff for a broad variety of baseline variables. As Figures 1e and 1f in the main paper show, the hypothesis that the characteristics of NREGS observations are balanced on both sides for a narrow window around the cutoff cannot be rejected, suggesting that NREGS treatment is as good as randomly assigned for districts in the vicinity of the two cutoffs. The main paper also reports a balance table for economic and political variables at baseline that show no discontinuity. Table B.1 shows balance at the Phase 2 cutoff. A similar baseline analysis can be performed for the more traditional parametric approach. Tables B.2, B.3, B.4 and B.5 as well as Figures C.4, C.5 and C.6 show no discontinuity at the cutoff on economic, political, demographic and geographic variables. Based on all of this, manipulation of the running variable is not a concern in this case.

The last potential threat to internal validity is that the misclassification is introduced at least partially by the researcher. This concern only applies to one of the two steps of the algorithm. There is no measurement error for the second step, since official documents by the Planning Commission of India provide the exact values for the poverty index as well as complete instructions on how the index was constructed. I therefore have exactly the same information that the government had when using the poverty index. Where measurement error is possible is in the first step with the exact values of the headcount poverty ratios used to assign treatment quotas to states. This is due to the fact that the algorithm was developed a couple of years before NREGS was introduced and was based on data from the 1990s. By the time NREGS was introduced, India had created three new states, which means that the state headcount poverty ratios had to be re-calculated. The official headcount poverty ratios, including the new states, come from another official Planning Commission of India document, but the document was published a few years after NREGS was introduced (although based on data that was available at the time of the NREGS district allocation). This means that I unfortunately do not have the exact headcount poverty ratio values that the government used for the algorithm, although it is highly likely that the official values from the later publication are those that were used at the time.

Measurement error in the algorithm values is therefore possible but not expected to be large.

Given that the official headcount poverty ratio values that are used in the analysis are unlikely to be systematically different from the ones that the government used, we should expect to be facing classical measurement error here, which should tend to attenuate the results. If measurement error exists, this will lead to the artificial misclassification of some districts because treatment district quotas are assigned incorrectly to states. This is potentially important since this will induce misclassification directly around the cutoff. To test the importance of this concern for the empirical results, I therefore report the results using the donut hole approach in Table B.6 below, which drops observations right around the cutoff which could potentially be misclassified due to measurement error. The table reports the results of the donut hole approach for the local randomization approach as well as the parametric estimation results at both the polling station and parliamentary constituency levels. The results are robust to this specification, suggesting that measurement error is unlikely to drive the results.

Overall, there is therefore no evidence that would suggest that the use of the algorithm is associated with internal validity concerns.

2) What are potential explanations for the 80% prediction success rate of the algorithm?

While the explanations in 1) suggest that the success probability of a bit over 80% does not cause an internal validity concern, it does not address the concern of what explains deviations from the algorithm.

One potential explanation, measurement error for one part of the algorithm, was already mentioned above. Another plausible explanation for the fuzziness of the discontinuity are strategic deviations of district assignment for political considerations. Important here is the fact that the algorithm was proposed and developed by research experts of the Planning Commission of India, a government organization separate from the Indian government. The Planning Commission algorithm has the advantage of an objective process of allocating treatment to districts by taking into account inter-state fairness norms (through the headcount poverty ratios) and intra-state fairness norms (through the district poverty index). The downside of this allocation from the viewpoint of the government, on the other hand, was that it was not tailored to political considerations. The 80% success rate of the algorithm may therefore be indicative of the Indian government trading off the benefits from a clear and objective criterion of allocating NREGS to districts around the country developed by a team of researchers while tweaking actual assignments a bit to exploit political benefits. One such political motivation is the fact that all 32 districts that were on a list of Maoist-affected districts received NREGS in the first implementation phase regardless of their poverty rank, suggesting that the Indian government was trying to tailor the program to violence-affected districts where it was expected to make a difference. I drop these 32 districts in the main analysis, but the results are robust to including them.

The other political issue likely to be important is related to the political negotiation process. India is a federal country and was headed by a minority UPA coalition government at the time, so dependent on outside support for their policies in Parliament. That means that as a simple political reality, the Indian government probably felt it would be politically beneficial to tweak the district allocation to make the scheme more attractive for the opposition or

regions where the opposition parties were more popular. This explanation for deviations of actual district assignment from the predicted one can be tested directly by analyzing whether misclassifications are correlated with the party affiliation of the MP in the district. The results are reported in Table B.7 below for Phase 1 districts separately for two categories: all excluded districts (predicted to receive NREGS but untreated in practice) (column 1) as well as those misclassified districts that are located in states where the predicted quota of the algorithm was not met (so states received more or fewer NREGS districts in practice) (column 2).

The results are consistent with the Indian minority government modifying the district allocation of NREGS to increase the support for NREGS among the opposition by providing earlier program access to opposition-governed areas. In this political bargaining process, we would expect the first implementation phase to be especially important if parties anticipate program benefits (since it was clear from the beginning that the program would eventually be extended to the whole country). Therefore, it makes sense for an important opposition party like the BJP (Bharatiya Janata Party), which had considerable power both at the state and the national level, to bargain for early treatment districts. The results suggest that districts ruled by the BJP are less likely to be misclassified in practice (i.e. excluded from NREGS access even though they should receive the program based on the algorithm), which is consistent with such bargaining. This occurs both overall (for all misclassified districts) as well as just in states where the predicted quota was changed (and not just a richer district prioritized over a poorer one). Government-controlled districts, on the other hand, are hardly affected. While there is less political manipulation of treatment districts in Phase 2 (results not shown), there is still some evidence that BJP districts are prioritized at the expense of government-controlled districts.

Additionally, as Tables B.8 and B.9 show, deviating treatment status districts do not systematically differ from non-deviating treatment status districts for the main analysis sample for any economic outcome variables at baseline or for the personal characteristics of the elected Members of Parliament. Again, the only systematic difference is that opposition-governed states were more likely to receive NREGS earlier than those with an elected politician from the government coalition.

Such political manipulation does not affect the internal validity of the estimates since it does not lead to a manipulation of the running variable values. In the paper, I test specifically whether there is a discontinuity of the party in power at the cutoff at baseline, and find no evidence of this, again suggesting that the parties in power did not actually manipulate the running variable.

Summary

Overall, the 80% success rate of the algorithm is not likely to cause internal validity issues. There is no reason to believe that I have not identified the correct algorithm or that manipulation of the running variable was possible. The measurement error, if it exists at all, is likely to be classical and should therefore attenuate the results. Additionally, I report the results from a donut hole specification, which offers a way of testing the importance of measurement error right around the cutoff, and the results are robust to this extension. While the

misclassification of districts is therefore unlikely to lead to biased results, I find support for a plausible explanation for why the Indian government did not follow the algorithm proposed by researchers at the Planning Commission completely: The district allocation seems to have been subject to bargaining between the minority government coalition and the opposition, with the BJP, the main opposition party, benefiting with early program access. While these deviations do not affect the validity of the Planning Commission algorithm, which I use in the paper, they explain why the government did not perfectly follow it.

D.2 Additional Analyses and Additional Election Dataset Information

D.2.1 Additional Election Dataset Information

Election constituencies are created to ensure fair votes-to-seat ratios that are roughly equal across the country. The parliamentary constituency (PC) boundaries are re-drawn occasionally by a special commission, the Delimitation Commission of India, in a transparent and well-documented way set to minimize room for political manipulation.[67] The whole country is divided into areas of roughly equal population size for the parliamentary constituencies, so that PC boundaries do not have to overlap with administrative boundaries.[68] The Delimitation Commission of India redrew the existing boundaries between the 2004 and 2009 general elections. The last changes to electoral constituency boundaries before then were made in 1976. The new boundaries are fixed until the first census taken after 2026. Since almost all PC boundaries changed between the 2004 and 2009 general elections, the election results at the PC level for the two elections are not directly comparable (Delimitation Commission of India 2008).

D.2.2 Additional Analyses

Table B.10 shows that the results are robust to varying the analysis window in the local randomization approach. Table B.11 shows that the results are also robust to using the vote margin instead of the winning outcome as dependent variable. Tables B.12 and B.13 show that the sub-samples of star and non-star states are balanced at baseline on a wide range of economic and political variables. Figure C.7 and the Frandsen test also show no evidence of manipulation of the running variable in either of the sub-samples. The p-value is 0.763 for the star-state sample, and 0.777 for the non-star state sample, respectively. This means that the null hypothesis of no manipulation of the running variable cannot be rejected in either sub-sample.

Tables B.14 and B.15 test how different the star and non-star samples were at baseline. As Table B.14 shows, star and non-star states do not systematically differ on a number of economic variables: Individuals in both states have similar employment probabilities in the public, private and family employment, have similar unemployment and poverty rates, and have a similar proportion of agricultural households who are self-employed. Differences on

[67] For more details, please see Delimitation Commission of India 2008.

[68] Each parliamentary constituency is divided into a number of smaller areas which do not cross district boundaries and are called Assembly Constituencies (AC). ACs are used for state elections.

the remaining outcomes are typically not large in absolute magnitude, but are statistically significant. They suggest that individuals in star states own more land than in non-star states, but otherwise are slightly worse off: They have a slightly lower log daily private wage and slightly lower log per capita expenditures and consumption expenditures. They also have about 0.4 years less schooling and a higher proportion of households working as agricultural laborers. With regard to political variables, the political candidates elected in 2004 did not differ in candidate quality between the two states as measured by age, caste, and the length of the candidate's name (a rough proxy for social status). The largest difference between star states and non-star states occurs with respect to voting behavior at baseline: the big national parties (INC and BJP) were about twice as likely to win seats in the Lower House at baseline than in non-star states. Overall, this suggests that individuals in star and non-star states lived in broadly comparable economic conditions. While people in star states seem slightly worse off on a couple of indicators, this is not enough to translate into vastly different employment opportunities or into higher poverty rates (which are set according to state-specific poverty lines by an independent commission and take into account differences in purchasing power). But star states were much more likely to have an incumbent from a large national party (INC and BJP) than non-star states.

The paper finds that star states experienced a decrease in migration, but an increase in remittances, whereas migration increased in non-star states but remittances did not increase as strongly. One way to interpret this result is that individuals in star states no longer have to migrate since more jobs are now available locally through NREGS. Therefore, if someone migrates, they may do so because the opportunity is especially lucrative. Individuals in non-star states, on the other hand, do not have the local employment opportunities through NREGS, and will therefore have to migrate even for lower-paying jobs.

Such migration effects are consistent with extensive qualitative and survey evidence. Jenkins and Manor (2017) note that while overall migration in what they call 'opportunity migration' (mostly well-paying jobs in construction) was not heavily affected in star states like Rajasthan and Madhya Pradesh, 'distress migration' in those states decreased sharply: *'Our early 2009 survey in Barwani District of Madhya Pradesh found that distress migration by males from very poor households had all but ceased after NREGA came into force, and a knowledgeable observer of the poorer western districts of that state said that such migration there was 'well down.''* Similarly, they cite a 2006 survey by the Institute of Applied Manpower Research, which found that *'migration from villages where significant NREGA works were undertaken continued in just 25 per cent of the localities surveyed.'* On the other hand, in areas with poor NREGS implementation, distress migration increased again: *'As early as 2007, the head of PRIA's network of civil society organisations argued that delayed payment of NREGA wages - a widespread problem discussed elsewhere in this book - was driving many poor workers to resume distress migration. That view was later corroborated by a number of reliable analysts. Sainath found that migration by entire families continued from Bolangir and Kalahandi districts of Orissa - among the least developed in India - to the brick kilns of Andhra Pradesh, where working conditions remain appalling.'* They go on to say: *'It must be stressed, however, that references to those Orissa districts do not provide a fair test of NREGA because the state government had largely failed to implement the programme there, due in part to administrative incapacity, even though Orissa's need is*

greater than almost anywhere else in the country.' So this is consistent with NREGS distress migration decreasing in areas where NREGS works well, whereas it increased again in poorly implemented areas once workers realized that NREGS was not available to them (or with lower benefits than expected). In star states, this leaves workers to decide more freely which employment opportunities they want to migrate for.

Lastly, Table B.16 analyzes how the length of exposure to NREGS affected non-government party electoral support. Three opposition parties or groups are of particular interest.[69] This includes the main national opposition party, the Hindu-nationalist BJP, a group of smaller parties aligned with the BJP under the coalition name NDA, and a group of mainly communist and socialist parties called the Third Front under the leadership of the Communist Party of India (Marxist) (CPI(M)). The BJP election manifesto did not include any mention of NREGS or a similar program, and focused on infrastructure and food security rather than jobs as the main economic development issues. The Third Front, on the other hand, had supported the minority government from outside, and the CPI(M) promised to substantially expand NREGS in its election manifesto. As Table B.16 shows, the main national opposition party did not benefit from the reduced electoral support for the government. Voters instead voted for smaller opposition parties as well as the residual category of other regional parties and independent candidates. When splitting the sample by implementation quality (not shown here), the BJP loses support in both sub-samples. In low-implementation quality areas, the winners are both the small opposition parties and the Third Front parties, whereas in the high-implementation quality areas (where votes for the government parties go up) no non-government group gains support. One way of interpreting these results is that voters that are holding the government accountable for a poor implementation of NREGS did not want a strong BJP, which would probably have abolished the program completely. Instead, the votes went to parties expected to be more open to continuing and improving NREGS, or to parties expected to put pressure on a UPA-led government from the outside to achieve a higher implementation quality.

[69] Please see background section above for additional details.

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B Additional Tables

Table B.1: Baseline Balance Test (Phase 2 vs Phase 3)

	Men			Women		
Variable	**Phase 2**	**Phase 3**	**Difference**	**Phase 2**	**Phase 3**	**Difference**
public empl.	0.002	0.004	0.002	0.001	0.001	0.000
	(0.008)	(0.017)	(0.002)	(0.003)	(0.006)	(0.001)
private empl.	0.292	0.291	-0.001	0.156	0.133	-0.022
	(0.132)	(0.126)	(0.024)	(0.129)	(0.122)	(0.023)
family empl.	0.528	0.512	-0.017	0.322	0.300	-0.022
	(0.155)	(0.159)	(0.028)	(0.155)	(0.175)	(0.030)
log priv. wage	4.014	4.096	0.082	3.640	3.744	0.104
	(0.410)	(0.381)	(0.072)	(0.356)	(0.376)	(0.069)
log per-cap. exp.	6.267	6.338	0.071	6.258	6.334	0.076
	(0.308)	(0.275)	(0.053)	(0.298)	(0.275)	(0.052)
land	1,010.589	1,085.940	75.351	1,002.749	1,083.255	80.506
	(510.911)	(773.056)	(116.358)	(529.309)	(788.751)	(119.363)
education	4.014	3.934	-0.081	2.729	2.806	0.076
	(0.714)	(0.758)	(0.133)	(0.977)	(1.019)	(0.181)
cons. exp.	2,898.203	3,086.519	188.316	2,864.366	3,089.023	224.656
	(1,010.322)	(1,005.817)	(182.822)	(998.577)	(1,136.517)	(192.665)
hh agric. labor	0.225	0.234	0.008	0.230	0.233	0.002
	(0.149)	(0.151)	(0.027)	(0.157)	(0.159)	(0.029)
hh agric. selfempl.	0.403	0.387	-0.016	0.404	0.390	-0.014
	(0.167)	(0.159)	(0.030)	(0.158)	(0.152)	(0.028)
Observations	55	68	123	55	68	123

	Political Variables		
Variable	**Phase 2**	**Phase 3**	**Difference**
INC won	0.300	0.340	0.040
	(0.464)	(0.478)	(0.111)
UPA won	0.450	0.453	0.003
	(0.504)	(0.503)	(0.117)
BJP won	0.325	0.321	-0.004
	(0.474)	(0.471)	(0.108)
INC vote share	31.252	32.435	1.183
	(19.370)	(17.904)	(4.303)
UPA vote share	39.474	40.049	0.575
	(15.371)	(14.810)	(3.243)
BJP vote share	24.692	21.055	-3.637
	(19.396)	(18.507)	(4.309)
Observations	43	59	102

Note: *** p<0.01, ** p<0.05, * p<0.1 Data: National Sample Survey of India (2004-5) and Election Commission of India. Data is restricted to districts with poverty rank values of [-3,5]. Baseline variables: District-level averages in 2004/05 for public employment, private casual employment, family employment, log private daily wage. All reported for the last week. Log per-capita expenditures in the last 30 days, land in acres and years of education. Consumption expenditures in rupees, the proportion of households who are agricultural laborers and self-employed in agriculture. Vote share in percent.

Table B.2: Baseline Tests (Economic)

	HH Agri Labor	HH Self-emp in Agri	Pvt Wage	Pvt Wage Ext
Linear	-0.102	-0.00495	9.571	1.864
	(0.0775)	(0.0748)	(8.120)	(3.903)
Linear Flex Slope	-0.139*	0.121	-0.260	-6.352
	(0.0803)	(0.0784)	(5.807)	(3.863)
Quadratic	-0.142	0.0913	7.998	-2.986
	(0.0976)	(0.0908)	(9.051)	(4.553)
	Education	**Pvt Emp**	**Public Emp**	**Emp in Family Work**
Linear	0.351	0.0191	-0.00141	-0.0590
	(0.330)	(0.0616)	(0.00305)	(0.0668)
Linear Flex Slope	0.282	-0.0939	-0.00111	0.0938
	(0.338)	(0.0654)	(0.00262)	(0.0683)
Quadratic	0.395	-0.0622	-0.00433	0.0536
	(0.400)	(0.0764)	(0.00337)	(0.0785)

Table taken from Khanna and Zimmermann (2017). Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Dependent Variables: District-level averages in 2004/05 for male, working age workers (18-60 years) in rural areas. HH agri labor is proportion of households engaged in agricultural labor, HH self-emp in agri is proportion of households self-employed in agriculture, education is years of schooling, pvt wage is private daily casual wage in past 7 days in rupees, pvt wage ext is the private daily casual wage for everyone with a positive wage and 0 for everyone with a missing wage, pvt emp, public emp, and emp in family work are the proportion of workers working in public, private casual, and family employment during last week. 2SLS Regressions where treatment is instrumented with predicted treatment.

Table B.3: Baseline Tests (Demographic)

Specification	Population	Child Sex Ratio	Lit Rate Total	Lit Rate Male	Lit Rate Female	College Grads
Linear	-289,058	2.573	8.157	7.045	10.14	-14,243
	(693,128)	(14.92)	(5.840)	(5.038)	(7.068)	(38,633)
R-squared	0.055	0.136	0.009	0.032	-0.007	0.035
Linear Flexible Slope	-496,980	-3.547	-1.370	-0.703	-1.940	-41,490
	(656,070)	(11.91)	(5.886)	(5.235)	(7.022)	(40,468)
R-squared	0.056	0.096	0.143	0.142	0.144	0.032
Quadratic	-309,182	-7.520	3.364	2.980	4.006	-33,064
	(829,873)	(17.22)	(6.990)	(6.059)	(8.461)	(49,752)
R-squared	0.056	0.082	0.092	0.102	0.090	0.045
Outcome mean	1884544	928	62	73	50	54154

The table produces baseline results for demographic variables. Demographic Variables measured using Census data. Literacy Rates (male, female, total) calculated as ratio of literate individuals over population. Graduates are number of persons with a college degree. Reported coefficients come from a two-staged least squares regression, where actual NREGS treatment is instrumented with predicted treatment based on the assignment algorithm. In each subsequent row the regressions control for linear, linear with a flexible slope and quadratic functions of the running variable (normalized state rank).

Table B.4: Baseline Tests (Geographic)

Specification	**Distance to City**	**Distance to highway**	**Distance to Rail**	**Fraction Coastal**	**Latitude**	**Longitude**
Linear	0.440	-0.0150	0.0298*	0.0772	-4.701*	-3.214
	(0.678)	(0.0255)	(0.0171)	(0.0957)	(2.491)	(2.465)
R-squared	0.007	0.00	0.030	0.00	0.00	0.00
Linear Flexible Slope	-0.944	-0.0380	0.0205	0.137	0.431	0.0726
	(0.627)	(0.0264)	(0.0139)	(0.138)	(2.281)	(2.224)
R-squared	0.00	0.00	0.030	0.00	0.032	0.008
Quadratic	-0.950	-0.0527*	0.00570	0.197	-0.0817	-0.741
	(0.786)	(0.0317)	(0.0166)	(0.154)	(2.765)	(2.716)
R-squared	0.00	0.00	0.025	0.00	0.073	0.008
Outcome Means	0.03	0.02	0.07	22.50	80.29	1.75

The table produces baseline results for geographic variables. Geographic variables measured using shapefiles. Fraction Coastal is the fraction of sub-districts within a district that lie on the coast. Distance to Railway captures shortest distance from anywhere in the district to the any of the nearest railway line. Distance to Big City captures shortest distance from closest point in the district to either Mumbai, Delhi, Calcutta, or Chennai. Distance to Trunk Road is shortest distance from anywhere in the district to nearest national highway (NH).

Table B.5: Baseline Tests (Political)

Specification	Panel A: Phase 1 vs Phase 2 won constituencies					
	INC	**UPA**	**BJP**	**UPA w/o INC**	**NDA w/o BJP**	**Third Front**
Linear	-0.0673	-0.0711	-0.0390	0.0053	0.0345	0.0377
	(0.0819)	(0.0865)	(0.0731)	(0.0494)	(0.0212)	(0.0287)
Linear flexible	-0.0372	-0.0474	-0.0344	0.0009	0.0324	0.0361
	(0.0821)	(0.0880)	(0.0729)	(0.0520)	(0.0207)	(0.0326)
Quadratic	-0.0039	-0.0108	-0.0140	0.0056	0.0292	0.0413
	(0.0854)	(0.0921)	(0.0741)	(0.0560)	(0.0184)	(0.0363)
Specification	**Panel B: Phase 2 vs Phase 3 won constituencies**					
	INC	**UPA**	**BJP**	**UPA w/o INC**	**NDA w/o BJP**	**Third Front**
Linear	0.0202	0.0016	0.0383	-0.0272	-0.0112	-0.0103
	(0.0813)	(0.0895)	(0.0766)	(0.0301)	(0.0140)	(0.0557)
Linear flexible	-0.0692	-0.0990	0.0424	-0.0296	0.0036	-0.0232
	(0.0883)	(0.0949)	(0.0898)	(0.0317)	(0.0238)	(0.0606)
Quadratic	-0.0805	-0.1279	0.0658	-0.0352	-0.0043	-0.0417
	(0.0932)	(0.0997)	(0.0973)	(0.0324)	(0.0260)	(0.0626)

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: Election Commission of India. Baseline variables from the 2004 general election, reported at the parliamentary constituency level: INC is the main government party, UPA is the government coalition, BJP is the main national opposition party. UPA w/o INC are government parties without the INC, NDA w/o BJP are opposition parties affiliated with the BJP, Third Front are a group of communist and socialist political parties that supported the UPA minority government. Regressions contain 378 observations in both panels. Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2004 general election. Parametric regressions with different levels of flexibility are reported. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a constituency, and 0 otherwise.

Table B.6: Impact of NREGS on 2009 Election Results: Donuthole Approach

Specification	**UPA won**	**UPA won**	**UPA won**
Phase 1	-0.1795***	-0.1240**	-0.1364**
	(0.0153)	(0.0560)	(0.0582)
N	162288	539220	394
Data level	polling station	polling station	constituency
Method	local rand.	parametric	parametric

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. The won variables are indicator variables equal to 1 if the UPA coalition government received the most votes at a polling station or parliamentary constituency, and 0 otherwise. Data level indicates whether the estimates use the polling station information directly, or use election data aggregated to the constituency level. Results in column 1 use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications. Parametric specifications in columns 2 and 3 estimate linear regression lines on either side of the cutoff without restricting the analysis window. Standard errors are clustered at the district level. The donut hole specification drops observations with a state-specific rank of 0 or 1.

Table B.7: Political Parties and Misclassification

Specification	Phase 1	
	Excluded	**Excluded (quota)**
Government (UPA)	0.0341	0.03221
	(0.03)	(0.03)
Opposition (BJP)	-0.0712**	-0.0769**
	(0.03)	(0.03)

Note: 437 observations. All outcome variables are indicator variables. Excluded is equal to 1 if a district is predicted to receive NREGS based on the algorithm but did not receive the program in practice. Excluded (quota) is defined similarly to excluded, except that the variable is only equal to 1 for misclassified districts in states where the predicted quota of NREGS districts in the state does not equal the actual number of treatment districts. The regressions are robust to the inclusion of normalized rank variables, state fixed effects, and restricting the sample to adjacent predicted implementation phases (e.g. dropping predicted phase 3 districts for the Phase 1 implementation phase). UPA (United Progressive Alliance) is the name of the coalition government. For the relevant timeframe, the coalition includes the following parties: Indian National Congress (INC), Rashtriya Janata Dal, Dravida Munnetra Kazhagam, Nationalist Congress Party, Pattali Makkal Katchi, Telangana Rashtra Samithi, Jharkhand Mukti Morcha, Marumalarchi Dravida Munnetra Kazhagam (MDMK), Lok Jan Shakti Party, Indian Union Muslim League, Jammu & Kashmir Peoples Democratic Party, Republican Party of India, All India Majlis-e-Ittehadul Muslimen, Kerala Congress. BJP (Bharatiya Janata Party) was the main opposition party. Data are taken from the 2004 national election results from the Election Commission of India and parliamentary constituencies are matched to districts.

Table B.8: Baseline Balance Test (Economic Variables) for Deviating vs Non-Deviating Districts

	Men			**Women**		
Variable	Deviate	Non-Deviate	Difference	Deviate	Non-Deviate	Difference
	(1)	(2)	(3)	(4)	(5)	(6)
public empl.	0.001	0.002	0.000	0.001	0.001	-0.001
	(0.004)	(0.008)	(0.001)	(0.006)	(0.003)	(0.001)
private empl.	0.306	0.320	0.014	0.159	0.164	0.005
	(0.151)	(0.123)	(0.023)	(0.127)	(0.121)	(0.021)
family empl.	0.538	0.506	-0.033	0.305	0.322	0.017
	(0.158)	(0.148)	(0.026)	(0.176)	(0.160)	(0.028)
log priv. wage	3.985	3.941	-0.044	3.612	3.595	-0.017
	(0.374)	(0.380)	(0.065)	(0.360)	(0.348)	(0.062)
log per-cap. exp.	6.262	6.252	-0.010	6.263	6.236	-0.027
	(0.297)	(0.306)	(0.052)	(0.300)	(0.291)	(0.051)
land	1,010.927	1,014.679	3.752	969.334	1,002.613	33.278
	(571.860)	(617.608)	(103.374)	(572.816)	(598.844)	(101.339)
education	3.757	3.813	0.056	2.623	2.575	-0.048
	(0.802)	(0.668)	(0.124)	(1.009)	(0.827)	(0.154)
cons exp.	2,839.315	2,785.646	-53.670	2,808.382	2,729.175	-79.207
	(902.146)	(876.834)	(152.341)	(929.841)	(850.407)	(151.322)
hh agric. labor	0.268	0.274	0.006	0.270	0.275	0.005
	(0.181)	(0.161)	(0.029)	(0.183)	(0.164)	(0.029)
hh agric. selfempl.	0.394	0.369	-0.025	0.390	0.375	-0.015
	(0.178)	(0.150)	(0.028)	(0.171)	(0.144)	(0.027)
unemployed	0.033	0.034	0.001	0.020	0.019	-0.001
	(0.035)	(0.037)	(0.006)	(0.032)	(0.029)	(0.005)
poor	0.210	0.204	-0.006	0.210	0.207	-0.004
	(0.191)	(0.201)	(0.034)	(0.194)	(0.206)	(0.035)
Observations	96	53	149	96	53	149

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables: District-level averages in 2004/05 for public employment, private casual employment, family employment, log private daily wage. All of these are reported for the last week. Log per-capita expenditures in the last 30 days, land in acres and years of education. Consumption expenditures in rupees, the proportion of households who are agricultural laborers and self-employed in agriculture. Unemployment in the last 7 days and the headcount poverty ratio below the state-specific poverty line. Averages reported separately for women and men. Difference columns test whether differences in the averages are statistically significant.

Table B.9: Baseline Balance Test (Political Variables) for Deviating vs Non-Deviating Districts

Variable	Deviate (1)	Non-Deviate (2)	Difference (3)
INC won	0.222	0.404	0.182
	(0.418)	(0.495)	(0.098)*
UPA won	0.333	0.500	0.167
	(0.474)	(0.505)	(0.099)*
BJP won	0.233	0.231	-0.003
	(0.425)	(0.425)	(0.081)
INC vote share	25.780	31.613	5.833
	(19.686)	(17.914)	(4.028)
UPA vote share	31.097	38.062	6.965
	(17.743)	(17.945)	(3.881)*
BJP vote share	16.899	19.207	2.308
	(18.606)	(18.481)	(3.537)
candidate	52.811	52.269	-0.542
	(11.002)	(11.243)	(2.286)
candidate name length	17.167	18.981	1.814
	(7.436)	(8.473)	(1.515)
candidate SC	0.156	0.173	0.018
	(0.364)	(0.382)	(0.063)
Observations	96	53	149

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: Election Commission of India. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables from the 2004 general election, reported at the parliamentary constituency level: INC is the main government party, UPA is the government coalition, BJP is the main national opposition party. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a constituency, and 0 otherwise. Vote shares are reported in percent. Candidate variables refer to the elected politician's age, length of name (proxy for social class) and whether they belong to the Scheduled Castes (SC). Difference column tests whether differences in the averages are statistically significant.

Table B.10: Main Results: Robustness to Different Analysis Window

Specification	**UPA won**	**UPA won**
Phase 1	-0.2007***	-0.1843***
	(0.0184)	(0.0274)
N	245452	172
Data level	polling station	constituency
Method	local rand.	local rand.

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. The won variables are indicator variables equal to 1 if the UPA coalition government received the most votes at a polling station or parliamentary constituency, and 0 otherwise. Data level indicates whether the estimates use the polling station information directly, or use election data aggregated to the constituency level. Results use the regression-discontinuity local randomization approach with an analysis window of [-4,6] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications.

Table B.11: Impact of NREGS on 2009 Government Winning Margin

Specification	**UPA margin**	**UPA margin**	**UPA margin**	**UPA margin**
Phase 1	-19.39***	-24.41***	-11.60**	-13.22**
	(1.56)	(0.83)	(5.02)	(5.36)
N	209971	147	586903	412
Data level	polling station	constituency	polling station	constituency
Method	local rand.	local rand.	parametric	parametric

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. The outcome variable is the winning margin of the UPA government. Data level indicates whether the estimates use the polling station information directly, or use election data aggregated to the constituency level. Results in columns 1 and 2 use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications. Parametric specifications in columns 3 and 4 estimate linear regression lines on either side of the cutoff without restricting the analysis window. Standard errors are clustered at the district level.

Table B.12: Baseline Balance Test (Economic Variables) for Star and Non-Star States

	Star			Non-Star		
Variable	**Phase 1**	**Phase 2**	**Difference**	**Phase 1**	**Phase 2**	**Difference**
	(1)	(2)	(3)	(4)	(5)	(6)
public empl.	0.001	0.004	0.004	0.001	0.001	0.000
	(0.002)	(0.012)	(0.002)	(0.003)	(0.004)	(0.001)
private empl.	0.326	0.347	0.021	0.308	0.293	-0.014
	(0.137)	(0.148)	(0.043)	(0.153)	(0.131)	(0.029)
family empl.	0.519	0.486	-0.033	0.546	0.531	-0.015
	(0.167)	(0.166)	(0.050)	(0.155)	(0.146)	(0.030)
log priv. wage	3.860	3.906	0.046	3.995	4.013	0.018
	(0.321)	(0.278)	(0.091)	(0.376)	(0.422)	(0.079)
log per-cap. exp.	6.138	6.220	0.082	6.292	6.291	-0.001
	(0.298)	(0.185)	(0.076)	(0.340)	(0.299)	(0.065)
land	1,228.147	1,158.072	-70.075	932.203	938.287	6.084
	(637.276)	(643.831)	(193.777)	(573.146)	(538.096)	(111.563)
education	3.355	3.556	0.201	3.853	3.957	0.104
	(0.632)	(0.465)	(0.170)	(0.801)	(0.789)	(0.159)
cons_exp	2,445.522	2,517.216	71.694	2,901.673	3,012.040	110.367
	(598.980)	(404.907)	(157.200)	(1,010.488)	(964.464)	(198.013)
hh agric. labor	0.287	0.328	0.041	0.253	0.254	0.001
	(0.167)	(0.189)	(0.054)	(0.192)	(0.152)	(0.035)
hh agric. selfempl.	0.412	0.371	-0.040	0.390	0.378	-0.011
	(0.197)	(0.185)	(0.058)	(0.180)	(0.144)	(0.033)
unemployed	0.025	0.029	0.004	0.036	0.036	-0.000
	(0.024)	(0.036)	(0.009)	(0.038)	(0.037)	(0.008)
poor	0.244	0.145	-0.099	0.214	0.218	0.004
	(0.258)	(0.122)	(0.063)	(0.202)	(0.186)	(0.039)
Observations	20	24	44	44	58	102

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables: District-level averages in 2004/05 for public employment, private casual employment, family employment, log private daily wage. All of these are reported for the last week. Log per-capita expenditures in the last 30 days, land in acres and years of education. Consumption expenditures in rupees, the proportion of households who are agricultural laborers and self-employed in agriculture. Unemployment in the last 7 days and the headcount poverty ratio below the state-specific poverty line. Averages reported for men, but results are similar for women. Difference columns test whether differences in the averages are statistically significant.

Table B.13: Baseline Balance Test (Political Variables) for Star and Non-Star States

	Star			Non-Star		
Variable	**Phase 1**	**Phase 2**	**Difference**	**Phase 1**	**Phase 2**	**Difference**
	(1)	(2)	(3)	(4)	(5)	(6)
INC won	0.550	0.429	-0.121	0.204	0.212	0.007
	(0.510)	(0.507)	(0.193)	(0.407)	(0.412)	(0.094)
UPA won	0.600	0.571	-0.029	0.327	0.308	-0.019
	(0.503)	(0.507)	(0.180)	(0.474)	(0.466)	(0.107)
BJP won	0.300	0.429	0.129	0.163	0.192	0.029
	(0.470)	(0.507)	(0.175)	(0.373)	(0.398)	(0.082)
INC vote share	36.968	37.012	0.045	22.818	25.292	2.474
	(12.705)	(14.590)	(4.281)	(19.714)	(20.313)	(4.918)
UPA vote share	41.382	40.970	-0.412	29.432	31.405	1.972
	(14.382)	(8.185)	(3.697)	(20.875)	(18.056)	(5.139)
BJP vote share	17.082	20.313	3.231	15.959	18.469	2.510
	(20.686)	(20.690)	(7.427)	(16.786)	(18.620)	(3.758)
candidate age	51.000	55.333	4.333	51.551	53.135	1.584
	(10.959)	(9.941)	(3.300)	(11.801)	(10.856)	(2.654)
candidate name length	17.619	20.909	3.290	17.939	16.579	-1.360
	(7.003)	(9.283)	(2.543)	(7.341)	(7.817)	(1.665)
candidate SC	0.150	0.048	-0.102	0.184	0.192	0.009
	(0.366)	(0.218)	(0.086)	(0.391)	(0.398)	(0.080)
Observations	21	22	43	49	57	106

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: Election Commission of India. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables from the 2004 general election, reported at the parliamentary constituency level: INC is the main government party, UPA is the government coalition, BJP is the main national opposition party. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a constituency, and 0 otherwise. Vote shares are reported in percent. Candidate variables refer to the elected politician's age, length of name (proxy for social class) and whether they belong to the Scheduled Castes (SC). Difference column tests whether differences in the averages are statistically significant.

Table B.14: Baseline Results Comparing Star and Non-Star States (Economic Variables)

Variable	(1) Star	(2) Non-Star	(3) Difference
public empl.	0.003	0.001	-0.002
	(0.009)	(0.004)	(0.001)
private empl.	0.337	0.299	-0.038
	(0.142)	(0.140)	(0.025)
family empl.	0.501	0.538	0.037
	(0.165)	(0.149)	(0.029)
log priv. wage	3.885	4.006	0.121
	(0.295)	(0.401)	(0.060)**
log per-cap. exp.	6.182	6.291	0.109
	(0.243)	(0.316)	(0.048)**
land	1,189.924	935.662	-254.262
	(634.361)	(550.701)	(109.759)**
education	3.465	3.912	0.447
	(0.550)	(0.792)	(0.114)***
cons exp.	2,484.628	2,964.430	479.803
	(497.521)	(981.171)	(122.677)***
hh agric. labor	0.309	0.254	-0.056
	(0.178)	(0.170)	(0.032)*
hh agric. selfempl	0.390	0.383	-0.007
	(0.189)	(0.160)	(0.033)
unemployed	0.027	0.036	0.009
	(0.031)	(0.037)	(0.006)
poor	0.190	0.216	0.026
	(0.199)	(0.192)	(0.035)
Observations	44	102	146

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables: District-level averages in 2004/05 for public employment, private casual employment, family employment, log private daily wage. All of these are reported for the last week. Log per-capita expenditures in the last 30 days, land in acres and years of education. Consumption expenditures in rupees, the proportion of households who are agricultural laborers and self-employed in agriculture. Unemployment in the last 7 days and the headcount poverty ratio below the state-specific poverty line. Averages reported for men, but results are similar for women. Difference columns test whether differences in the averages are statistically significant.

Table B.15: Baseline Results Comparing Star and Non-Star States (Political Variables)

Variable	(1) Star	(2) Non-Star	(3) Difference
INC won	0.488	0.208	-0.280
	(0.506)	(0.408)	(0.106)***
UPA won	0.585	0.317	-0.269
	(0.499)	(0.468)	(0.103)**
BJP won	0.366	0.178	-0.188
	(0.488)	(0.385)	(0.096)*
INC vote share	36.990	24.149	-12.842
	(13.539)	(19.982)	(3.243)***
UPA vote share	41.171	30.493	-10.678
	(11.491)	(19.341)	(3.125)***
BJP vote share	18.735	17.309	-1.426
	(20.506)	(17.757)	(4.121)
candidate age	53.220	52.366	-0.853
	(10.549)	(11.295)	(2.146)
candidate name length	19.302	17.208	-2.095
	(8.320)	(7.595)	(1.523)
candidate SC	0.098	0.188	0.091
	(0.300)	(0.393)	(0.060)
Observations	43	106	149

Note: *** p<0.01, ** p<0.05, * p<0.1 Data source: Election Commission of India. Data is restricted to districts with poverty rank values of [-3,5], the main analysis window for the local randomization approach. Baseline variables from the 2004 general election, reported at the parliamentary constituency level: INC is the main government party, UPA is the government coalition, BJP is the main national opposition party. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a constituency, and 0 otherwise. Vote shares are reported in percent. Candidate variables refer to the elected politician's age, length of name (proxy for social class) and whether they belong to the Scheduled Castes (SC). Difference column tests whether differences in the averages are statistically significant.

Table B.16: Impact of NREGS on 2009 Election Results: Non-Government Parties

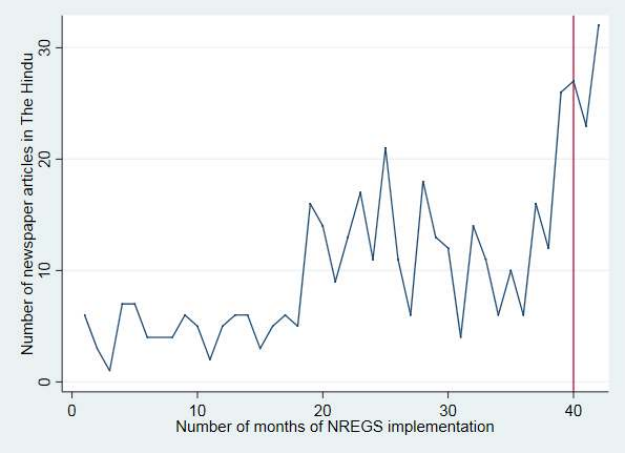
Specification	BJP won	non-BJP NDA won	Third Front won
Phase 1	-0.1613***	0.1209***	-0.0476**
	(0.0055)	(0.0097)	(0.0027)
N	209971	209971	209971

Note: *** p<0.01, ** p<0.05, * p<0.1 Phase 1 refers to the early implementation phase with longer NREGS exposure as compared to Phase 2. The won variables are indicator variables equal to 1 if a given party received the most votes at a polling station, and 0 otherwise. Results use the regression-discontinuity local randomization approach with an analysis window of [-3,5] around the cutoff. Standard errors are obtained by bootstrapping with 1000 replications. BJP is the main national opposition party, non-BJP NDA refers to smaller opposition parties that are part of the BJP-led alliance NDA, and Third Front is an alliance of left-wing parties under the leadership of the Communist Party of India (Marxist).

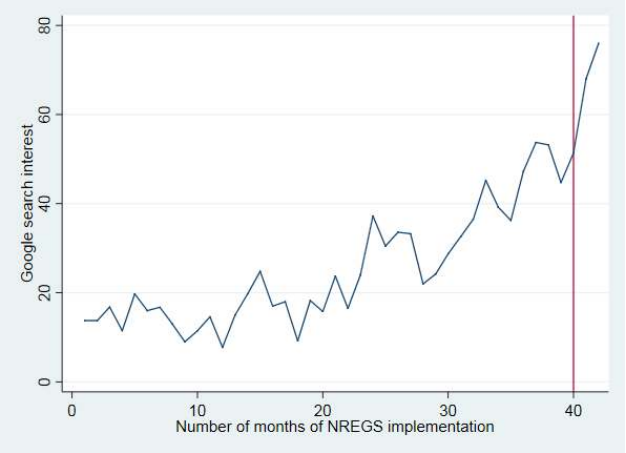
C Additional Figures

Figure C.1: Salience of NREGS: Media and Google Search Interest

(a) Newspaper articles on NREGS



(b) Google Searches of NREGS



Note: Vertical line denotes May 2009, when election results were announced. Number of newspaper articles published in the national newspaper *The Hindu* monthly between February 2006 and July 2009 that mention the term 'NREGA'. Google searches for the search term 'NREGA' between Feburary 2006 and July 2009. Google data is reported weekly as interest value between 0 and 100, with highest level of interest re-scaled to 100. Figure averages weekly data for a month.

Figure C.2: Manipulation of Running Variable

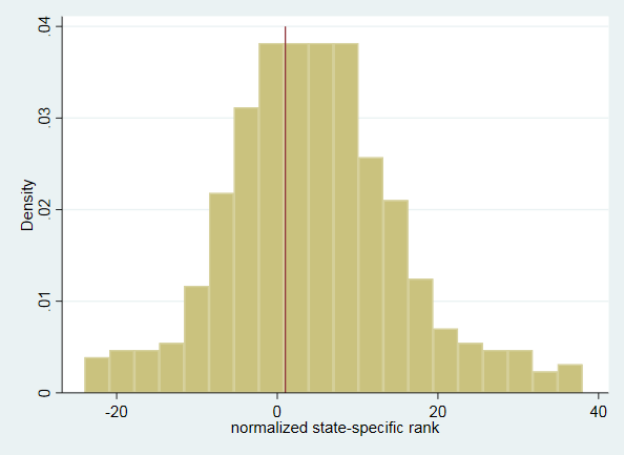
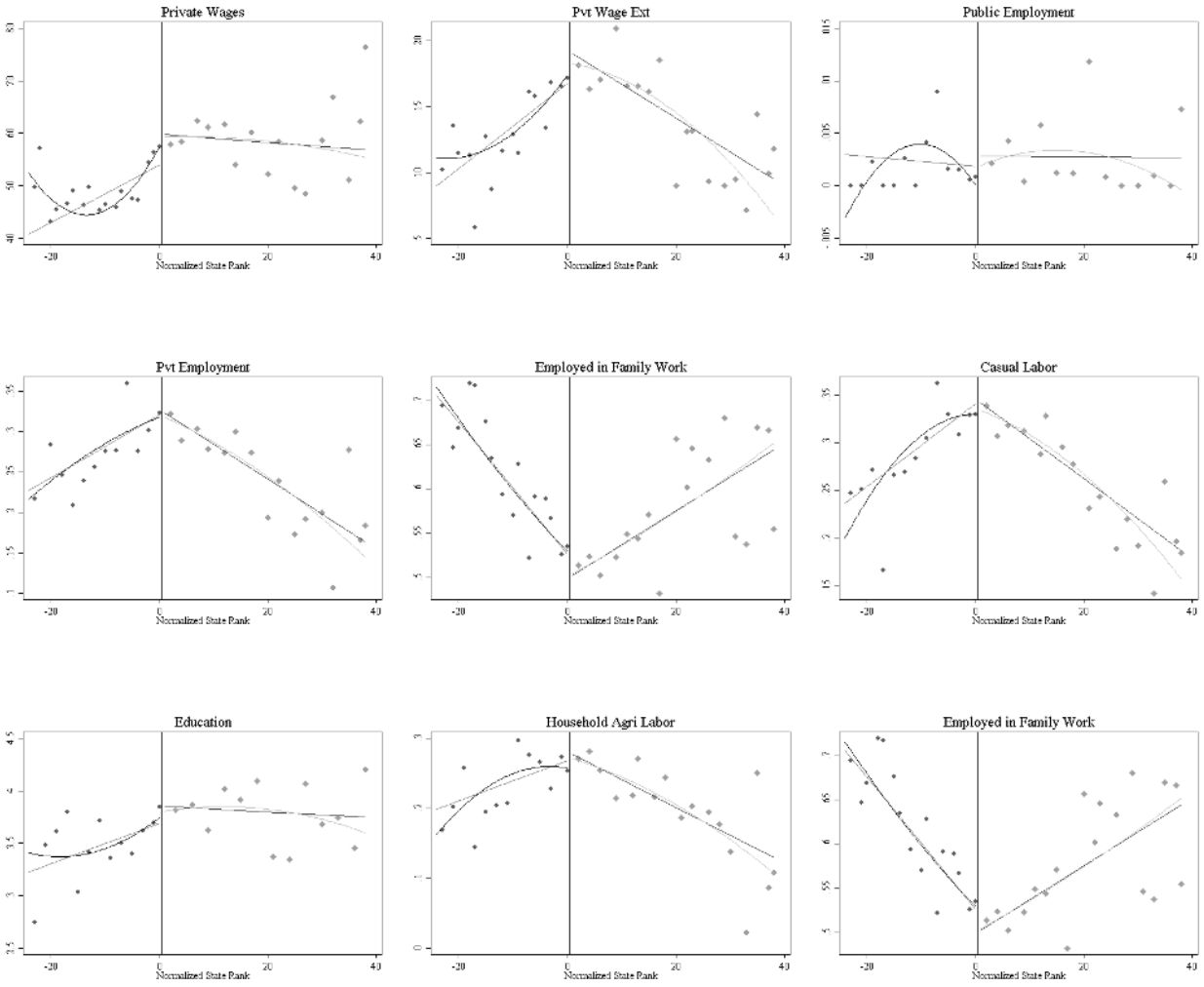


Figure C.3: UPA Won Phase 1 Polling Station

Note: Histogram shows density of districts across running variable values. The vertical line denotes the first set of observations that should not receive NREGS in Phase 1 according to the algorithm, which corresponds to a state-specific normalized rank of 1.

Figure C.4: Discontinuities for Non-Outcome Variables at Baseline



Figures taken from Khanna and Zimmermann (2017). Data source: National Sample Survey of India (2004-5) - Employment and Unemployment Module. Dependent Variables: District-level averages in 2004/05 for male, working age workers (18-60 years) in rural areas. HH agri labor is proportion of households engaged in agricultural labor, education is years of schooling, pvt wage is private daily casual wage in past 7 days in rupees, pvt wage ext is the private daily casual wage for everyone with a positive wage and 0 for everyone with a missing wage, pvt emp, public emp, and emp in family work are the proportion of workers working in public, private casual, and family employment during last week

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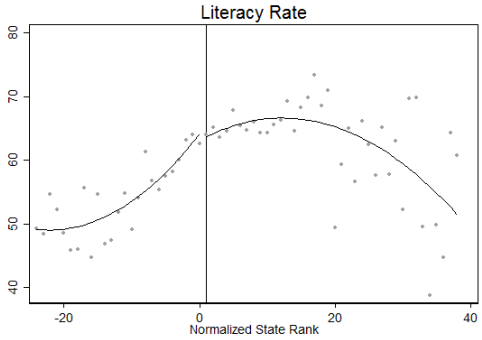
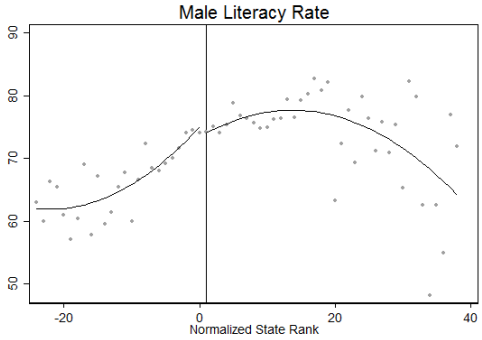
Figure C.5: Baseline Variables (Demographic)

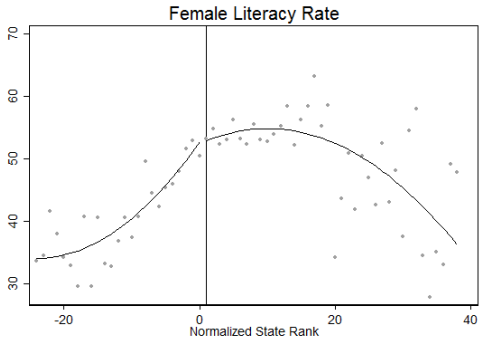
(a) Literacy Rate



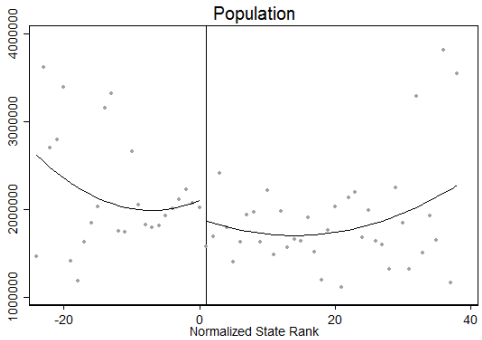
(b) Literacy Rate (Male)



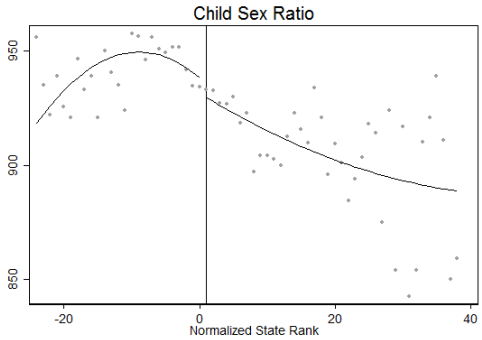
(c) Literacy Rate (Female)



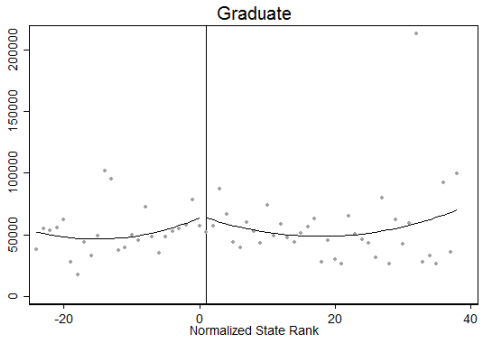
(d) Population



(e) Child (0 to 6) sex ratio



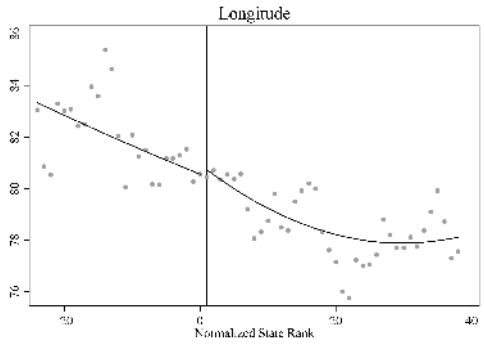
(f) Number of Graduates



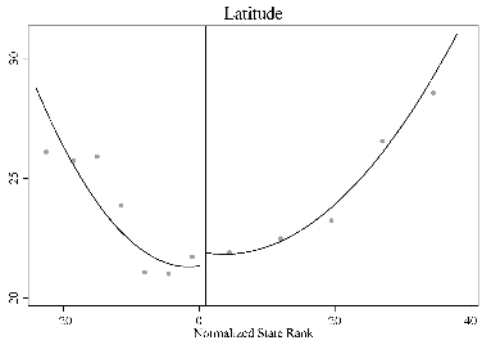
Demographic Variables measured using Census data. Literacy Rates (male, female, total) calculated as ratio of literate individuals over population. Graduates are number of persons with a college degree.

Figure C.6: Baseline Variables (Geographic)

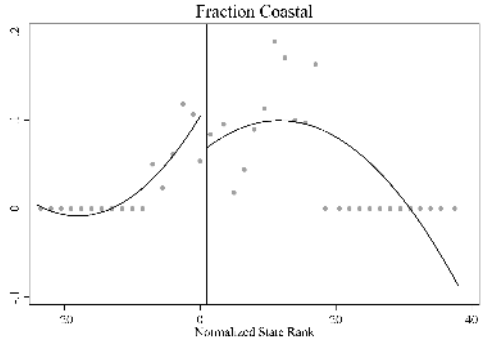
(a) Longitude



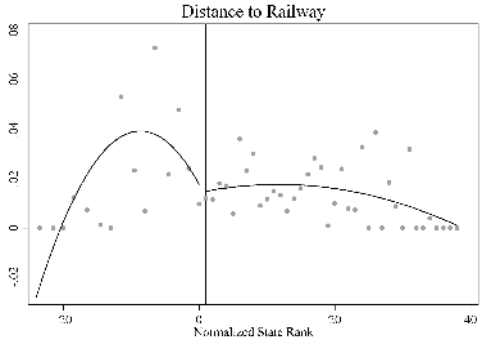
(b) Latitude



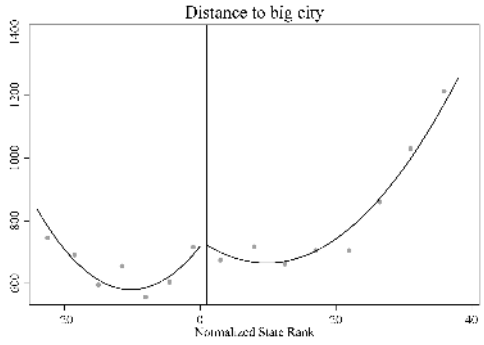
(c) Fraction of District Coastal



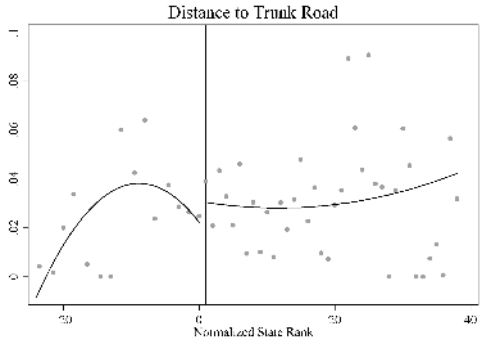
(d) Distance to Railway



(e) Distance to Big City

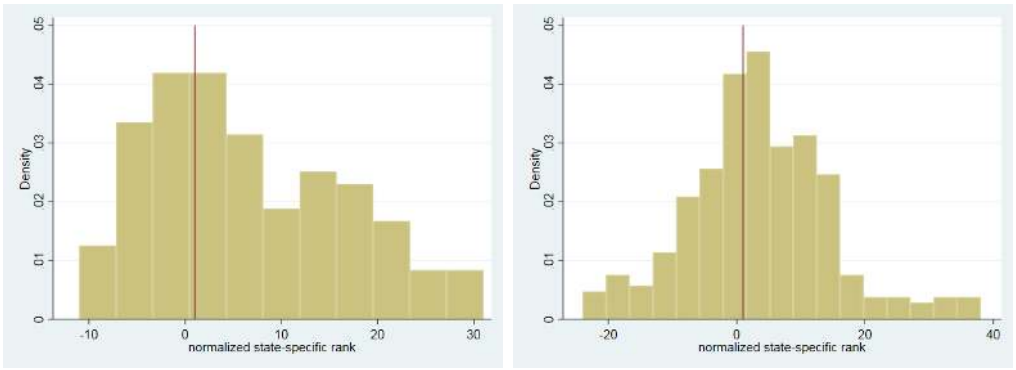


(f) Distance to Trunk Road



Geographic Variables measured using shapefiles. Fraction Coastal is the fraction of sub-districts within a district that lie on the coast. Distance to Railway captures shortest distance from anywhere in the district to the any of the nearest railway line. Distance to Big City captures shortest distance from closest point in the district to either Mumbai, Delhi, Calcutta, or Chennai. Distance to Trunk Road is shortest distance from anywhere in the district to nearest national highway (NH).

Figure C.7: Manipulation of Running Variable



(a) Star State Sample (b) Non-Star State Sample

Note: Histogram shows density of districts across running variable values. The vertical line denotes the first set of observations that should not receive NREGS in Phase 1 according to the algorithm, which corresponds to a state-specific normalized rank of 1.