

# May There be Victory: Government Election Performance and the World's Largest Public-Works Program

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## Abstract

A number of developing country governments have introduced ambitious anti-poverty programs in recent years, but the dynamic effects of these initiatives on governments' election performance remain poorly understood. Especially in contexts with low program implementation quality, public support for government interventions may be high initially but decline over time as citizens observe the actual program benefits. This paper analyzes the election impacts of the largest public-works program in the world, the Indian NREGS. Using a regression-discontinuity framework, the results suggest that length of program exposure and implementation quality matter: voter support in low implementation quality areas declines with longer program access. This effect is muted in well-implemented areas, where voter turnout is higher and incumbents of any party affiliation also benefit. The government payoff from implementing a large anti-poverty program may therefore be short-lived unless implementation challenges are resolved.

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

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# 1 Introduction

The percent of people below the poverty line remains high in many developing countries, and progress is often slow despite decades of government initiatives and international development aid. The lack of accountability of governments to their citizens has been advanced as one potential explanation for this pattern: If governments can be re-elected by making empty promises, appealing to ethnic ties or attracting votes by last-minute spending on particular groups rather than winning based on their overall performance, the incentive to implement ambitious anti-poverty programs is low.<sup>1</sup> But even if voters are willing to hold governments accountable for their actions, this may still be a disincentive for politicians to initiate development schemes if they expect to be unable or unwilling to implement the programs well. An analysis of how government policies affect election outcomes is therefore important to understand how governments trade off the benefits and costs of development initiatives and how they may be incentivized to exert more effort.

A developing country government that implemented an ambitious anti-poverty scheme is India. The Indian government introduced the world's largest public-works program, the National Rural Employment Guarantee Scheme (NREGS), across the country between 2006 and 2008 before standing for re-election in 2009. NREGS legally guarantees each rural household up to 100 days of manual public-sector work per year at the minimum wage and is supposed to be a demand-driven program under which households self-select into employment at any time during the year. While some benefits for the poor have been realized, a number of field studies and academic papers have highlighted substantial heterogeneity in the implementation quality of the program across India.<sup>2</sup> Despite these shortcomings, the main government party played up the success of the scheme in its campaign for the 2009 general election.<sup>3</sup>

This paper analyzes the impact of NREGS on election outcomes and whether voters held the

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<sup>1</sup>See e.g. Brender and Drazen (2005), Brender and Drazen (2008), Chandra (2004), Drazen and Eslava (2010), Finan and Schechter (2012), Moyo (2010). Despite the popularity of some of these strategies among governments around the world and the often held qualitative view that they help boost the incumbents' election performance, the evidence in developed countries is often mixed. In developing countries, on the other hand, most studies point to positive impacts.

<sup>2</sup>See e.g. Dutta et al. (2012) and Niehaus and Sukhtankar (2013b) for implementation issues with NREGS.

<sup>3</sup>The party manifesto stressed NREGS as one of the main successes of the UPA government, and the party's slogan during the election campaign was *Aam aadmi ke badhte kadam, har kadam par bharat buland* (The common man moves forward, and with his every step India prospers). See e.g. Khera (2010).

government accountable for differences in implementation quality. Based on the existing literature, it is unclear how NREGS should be expected to impact the government's re-election chances. Such programs are often expected to benefit the incumbent, either because they demonstrate the government's commitment to improving economic development through sound policies, or because they provide an opportunity to target spending to the poor in order to secure their votes.<sup>4</sup> At the same time, widespread implementation challenges and corruption make the actual program benefits small, and like many other developing countries India has a long history of failed development initiatives and empty promises during election campaigns. Disillusioned citizens may therefore be unwilling to vote for the government even after the introduction of a new policy initiative. The overall effect of an anti-poverty program like NREGS on the government's re-election chances is therefore an empirical question.

The empirical analysis in this paper exploits variation in the timing of the introduction of NREGS across the country. The Indian government rolled out the program in three phases between 2006 and 2008. Districts were assigned to implementation phases in a two-step process: 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 for Phase 1 and Phase 2 of the program, which can be exploited in a regression-discontinuity design. While all districts were treated at the time of the general election in 2009, districts had had access to NREGS between one and three years depending on their implementation phase. The analysis makes use of a newly digitalized dataset of polling-station wise election results in addition to election data at the parliamentary constituency level. This resolves concerns with measurement error since administrative and electoral constituency boundaries do not necessarily overlap.

The results show that votes for the government parties are lower in districts with longer exposure to the employment guarantee scheme at the treatment cutoffs, with the impact being concentrated in states with low implementation quality. A high implementation quality increases voter turnout and balances this effect out, with the additional votes coming at the expense of

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<sup>4</sup>See e.g. Brender and Drazen (2005), Brender and Drazen (2008), Drazen and Eslava (2010).

the main national opposition party.<sup>5</sup> Similar effects hold for constituency-level incumbents of any party affiliation. The results are robust across different levels of data aggregation and a number of different empirical specifications.

These results contribute to our understanding of the impact of government programs on election results in several ways. First, they suggest that the dynamic effects of program implementation are important, which so far have been largely ignored in the literature. While a number of papers analyze the impact of anti-poverty programs on voter preferences, almost all of them focus on short-run effects.<sup>6</sup> Second, while the existing literature mostly focuses on well-implemented programs, NREGS provides the often more realistic case of a government program that faces severe implementation issues, which seems to substantially affect electoral outcomes.<sup>7</sup> Third, the results and circumstantial evidence are consistent with an explanation of the results in which voters initially have high expectations of the anti-poverty initiative despite a history of failed development programs and adjust their expectations over time. While alternative explanations cannot be completely ruled out, this suggests that voters are willing and able to hold the government accountable for its performance, and that the typical voter is less disillusioned with the political process than sometimes suggested. Fourth, the results suggest that a well-implemented program benefits local incumbents of any party as well. This implies that it is not necessarily in an opposition politician’s interest to boycott the working of a national government program, which extends existing evidence that local politicians benefit from centrally funded programs in other contexts (Labonne, 2013; Pop-Eleches and Pop-Eleches, 2012). Fifth, the results in this paper contribute to the broader literature of how citizens vote in developing countries. The findings are consistent

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<sup>5</sup>I provide evidence below that the differential effects based on whether a state has been classified as a ‘star state’ with respect to NREGS implementation or not are consistent with a range of other results that suggest a more successful implementation of NREGS in these states.

<sup>6</sup>Existing papers typically compare treated to non-treated areas, finding sizable pro-incumbent effects. 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), and Uruguay (Manacorda et al., 2011). Pop-Eleches and Pop-Eleches (2012) analyze the impact of a voucher program in Romania. One notable exception is De la O (2013), who compares election effects for areas with longer and shorter exposure to the Mexican conditional cash transfer program Progresa, and finds that electoral support was higher among the early treatment group. But Progresa was arguably implemented well across the country, which is very different from the typical development program in developing countries that suffers from large-scale implementation challenges.

<sup>7</sup>The Indian results may therefore be helpful for a better understanding of the electoral consequences of similar programs in developing countries. See e.g. Subbarao et al. (2013) for an overview of public-works programs in developing countries.

with evidence that better informed voters increase the electoral accountability of governments and reduce malpractices.<sup>8</sup> Lastly, the paper contributes to a better understanding of the reasons for the unexpectedly clear victory of the government parties in the 2009 general election in the world’s largest democracy.<sup>9</sup> It also extends our understanding of the impacts of the Indian employment guarantee scheme and how it may have impacted the peoples’ relationship to the government.<sup>10</sup>

The rest of this paper is organized as follows: Section 2 provides some background information about the working of NREGS, the Indian electoral system, and the conceptual framework. Section 3 discusses the rollout of NREGS and the empirical estimation strategy. Section 4 presents the data sources and some summary statistics. Section 5 discusses the results. Section 6 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 Lok Sabha, the Indian parliament’s lower house.<sup>11</sup> During the period analyzed in this paper, coalition governments were common: The two big national parties, the Indian National Congress (INC) and the Bharatiya Janata Party (BJP), entered alliances with smaller parties to create working government coalitions (Yadav, 1999).<sup>12</sup>

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

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<sup>8</sup>See e.g. Pande (2011). Banerjee et al. (2011) find that voters in the slums of an Indian city who had randomly received information about the performance of the incumbent and two main other candidates had a higher voter turnout and were more likely to vote for more qualified candidates than those in control areas. While the literature has documented important characteristics of how voters make decisions, some papers have to rely on voter intentions rather than actual votes or on hypothetical scenarios to be able to achieve internal validity in a field experiment setup. This paper uses actual election results and one of the largest anti-poverty programs in the world.

<sup>9</sup>The main government party itself as well as some experts and members of the popular press believe that NREGS was one of the main reasons for the surprising landslide victory of the government parties in 2009, but this hypothesis has not been tested. See e.g. Khera (2010), Ramani (2009).

<sup>10</sup>See below for more details on the existing NREGS literature.

<sup>11</sup>This is also referred to as a plurality of the vote. It implies that candidates can be elected with much less than majority support.

<sup>12</sup>The 2014 general election in India, which resulted in an absolute majority for the BJP, is an important deviation from this trend.

and has the power to subject party behavior to a strict code of conduct in the weeks before the election (NES data).<sup>13</sup> The rules include specifications meant to level the playing field between the incumbent government and the opposition once elections have been called, for example prohibiting governments from implementing any program that could be 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 (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).<sup>14</sup>

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.<sup>15</sup> 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).

An alliance of political parties called United Progressive Alliance (UPA), led by the INC, won the 2004 general election and followed a BJP-led coalition government. In addition to the INC the coalition included 13 smaller parties with mostly regional strongholds.<sup>16</sup> Despite being a coalition government, the UPA government depended on external support from the Left Front (an alliance

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<sup>13</sup>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.

<sup>14</sup>Banerjee (2014) documents that election officials did typically 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.

<sup>15</sup>Banerjee (2014) documents, for example, that women wear their best saris on election day, which are otherwise reserved for very rare special occasions.

<sup>16</sup>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 (Times of India, 2006). 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 2009 elections, but I use the 2004 definition for my empirical analysis.

of left-wing parties) and two additional parties for a majority in the Lok Sabha.<sup>17</sup>

During the election campaign for the 2009 general election, the ECI prohibited the display of posters and murals in public spaces, with the intention of limiting expenditures and to incentivize campaign staff to interact directly with voters. An election study 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 (NES 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, such as through pamphlets and various forms of merchandise, paid news, text messages sent to voters, murals with candidate names and party symbols, street theater performances and trucks with installed loudspeakers. Parties also put on rallies and lunch and dinner meetings to attract poor potential voters (usually separated by caste and with tailored speeches) (Banerjee, 2014).<sup>18</sup>

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.<sup>19</sup> Voting took place at over 800,000 polling booths across the country.<sup>20</sup> The ECI ordered repolls in some polling booth locations, but incidents of suspected election fraud were rare.<sup>21</sup> The election was mostly peaceful, although there were a few violent incidents in some areas (Syed, 2009).<sup>22</sup>

Pre-polls had suggested a close race between the two coalitions with a slight edge for the UPA, so 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

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<sup>17</sup>The Left Front includes the Communist Party of India (Marxist), the Communist Party of India, the Revolutionary Socialist Party, and the All India Forward Bloc. The two additional parties are the Bahujan Samaj Party and the Samajwadi Party.

<sup>18</sup>See Online Appendix and Banerjee (2014) for more details.

<sup>19</sup>Please see Online Appendix for additional details on the 2009 election. Banerjee (2014) also 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.

<sup>20</sup>This was a 20 percent increase relative to the 2004 general election (Syed, 2009).

<sup>21</sup>In the first phase of the election, the ECI repolled 46 polling booths across 7 state out of 185,000 polling stations where elections were held (Syed, 2009).

<sup>22</sup>Maoist insurgents tried to disrupt the election process in some areas and killed 19 people (Syed, 2009).

INC winning 206 seats, an increase of 61 seats relative to the 2004 election results.<sup>23</sup> The BJP-led coalition, on the other hand, lost support and only won 159 seats (2004: 181 seats).<sup>24</sup> The Left Front also did much worse than predicted and won 79 seats.

## 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.<sup>25</sup> The scheme is based on the National Rural Employment Guarantee Act (NREGA) which was passed in the Indian parliament in August 2005 and which 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.<sup>26</sup> 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 implementing the scheme in April 2007 (Phase 2), and the remaining rural districts got NREGS in April 2008 (Phase 3) (Ministry of Rural Development, 2010).

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., 2012; Imbert and Papp, 2015). Zimmermann (2013) 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.<sup>27</sup>

A growing literature suggests that this is due to general implementation problems as well

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<sup>23</sup>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).

<sup>24</sup>24.63 percent of the votes (2004: 33.3 percent). The BJP won 116 seats (2004: 138).

<sup>25</sup>For more details on the scheme see e.g. Dey et al. (2006), Government of India (2009), Ministry of Rural Development (2010), and Zimmermann (2013).

<sup>26</sup>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.

<sup>27</sup>NREGS has also been credited with improving children's education outcomes. See e.g. Afridi et al. (2012).

as substantial heterogeneity in the effectiveness of NREGS across states. While the goal of the program was to improve local development through public-works projects in addition to creating employment, in practice the scheme focuses mostly on drought-proofing measures rather than infrastructure improvement.<sup>28</sup> Especially in poorer states, rationing of NREGS employment and corruption through ghost workers and wage underpayment is common (Dutta et al., 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 working of the employment guarantee scheme on the ground, 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 (2010)).

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. This discrepancy between theoretical and practical program benefits is much larger in states with poor implementation quality than in the so-called ‘star states’. If citizens were aware of the official benefits of the program, they had to lower their expectations over time as they experienced the actual NREGS benefits.

NREGS was introduced as the flagship program of the UPA government, but not without external pressures. Social activists, community organizations, workers’ organizations and other segments of civil society had actively campaigned for an employment guarantee program for years, since they believed that a safety net was necessary to improve the living conditions in rural areas. A first draft of an employment guarantee act finally became part of the national policy debate in 2004.<sup>29</sup> Social activists in particular stressed that what was needed was an Act which, in contrast

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<sup>28</sup>According to Ministry of Rural Development (2010), the breakdown of projects for the financial year 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.

<sup>29</sup>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

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.<sup>31</sup>

When NREGS was passed in parliament a year later and then implemented, it therefore differed importantly from past, failed government development initiatives with respect to its legal status, scope, and prominence in the governments agenda. Various tiers of government were involved in a large-scale awareness campaign for the program, but since NGOs, social activists and other organizations had campaigned for the employment guarantee, they, too, were active in providing information about the program details and worker rights to rural households.<sup>32</sup> 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.

Despite the mixed performance across states in the implementation of NREGS, the Indian National Congress (INC) stressed NREGS as one of the main successes of the UPA government in its party manifesto, and the party's slogan during the election campaign was *Aam aadmi ke badhte kadam, har kadam par bharat buland* (The common man moves forward, and with his every step India prospers). 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?'. This focus on the poor 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.<sup>33</sup> 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.<sup>34</sup> These provisions came into effect with the start of the election campaign.

The popular press as well as academic experts have advanced a number of hypotheses to explain

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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').<sup>30</sup>

<sup>31</sup>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>

<sup>32</sup>See Online Appendix for extensive qualitative evidence on the government advertisement campaign and the actions of NGOs and other players.

<sup>33</sup>See for example Khera (2010).

<sup>34</sup>See <http://www.righttofoodindia.org/data/ec2006nregacodeofconduct.jpg>.

the unexpectedly strong performance of the UPA, and INC in particular. These 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). Many commentators believe, however, that one important factor for the UPA's election success was its focus on welfare policies and other government programs, and specifically NREGS (see e.g. Ramani 2009). While such an election campaign strategy 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 situation of the poor, the fact that NREGS was an actual ambitious government program made such claims much more credible.<sup>35</sup> Nevertheless, one would expect NREGS to be perceived differently in districts with long rather than short exposure to the scheme, and to be different in well-implemented and poorly implemented areas.

### 2.3 Conceptual Framework

The impact of NREGS on the 2009 election is unclear a priori and depends on the relative strength of a number of potential channels and how their importance evolves over time with longer program exposure.

In a static framework, two assumptions need to be satisfied to expect an anti-poverty program to have any effect on voter preferences. First, voters need to be aware that the program exists, otherwise it will be irrelevant for the electoral outcome. Second, the program must be important enough to influence voter decisions. Especially during general elections, a number of topics typically come up during the election campaign, and if the introduction of a new anti-poverty scheme is only perceived to be a small and unimportant change relative to other more pressing issues, then voters are unlikely to be affected by the program in their voting decisions.

If the conditions of program awareness and salience in the election are met, the impact of the program on election outcomes may be either positive or negative. On the one hand, the

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<sup>35</sup>Indira Gandhi's election campaign slogan for the general elections in 1971 was *Garibi Hatao* (Eradicate poverty), for example. See for example the comments on the election results by political science professors Thachil at [casi.ssc.upenn.edu/iit/thachil](http://casi.ssc.upenn.edu/iit/thachil) and Kumbhar at [www.mainstreamweekly.net/article1382.html](http://www.mainstreamweekly.net/article1382.html).

introduction of an anti-poverty program may increase votes for the incumbent government for two reasons. First, a relatively new program may promise substantial future benefits, which incentivize voters to re-elect the government to actually experience these benefits. In this case, the ‘promise’ of development through a government program may be enough for electoral victory as long as the anticipated benefits are large and voters expect the program to function well enough for them to actually experience the benefits in the future. Second, a program that has been in operation for a while will lead to increased votes for the incumbent if voters have actually experienced the program benefits and either reward the government for the program implementation or re-elect the government to continue receiving the benefits in the future.

On the other hand, the introduction of an anti-poverty program could also lead to the loss of votes in the case of new and more established programs. In the case of a recent program, votes for the government may remain constant or decline if voters do not expect large future benefits from the program, for example due to a string of failed similar government initiatives in the past. The government program then becomes an empty promise, and expectations of government performance are low. In the case of a more established program, votes for the incumbent may drop if implementation quality is poor, since the experienced benefits are then small compared to the anticipated benefits, and voters hold the government accountable for its performance.

The overall effect of anti-poverty government initiatives on election outcomes is therefore an empirical question. In the existing literature, papers predominantly focus on government programs that are quite new and well implemented, and find that the short-run impacts of such initiatives for the incumbent are large and positive.<sup>36</sup> In the context of the framework above, these cases are likely to combine high levels of program awareness and salience with large actually realized benefits for program beneficiaries and/or expected future benefits for voters who have not yet experienced the program themselves.

In developing countries, high implementation quality is not necessarily realistic, however, and it is important to understand what will happen over time in the medium run once voters have had the opportunity to experience the downsides of a program or its poor implementation and may

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<sup>36</sup>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), and Uruguay (Manacorda et al., 2011).

have had to adjust their expectations. In such a case, the short run effects may differ substantially from the medium run effects, and may vary across areas with different levels of implementation quality where expectations need to be adjusted much more strongly in some areas than in others.

The Indian case of NREGS and the 2009 election allows us to study such a case. To analyze the dynamic impacts of NREGS, we would ideally want to observe how votes for the government in the same area change over time, which is typically impossible due to data constraints and other intervening variables. In this paper, I focus on the next best case: a staggered rollout of the employment guarantee scheme in India over three phases according to an algorithm leads to quasi-experimental variation in the length of exposure of districts to the program at the time of the 2009 general election, and can be analyzed using a regression-discontinuity design at two cutoffs.

### 3 NREGS Roll-out and Empirical Strategy

#### 3.1 NREGS Roll-out

The roll-out of NREGS across implementation phases proceeded according to an algorithm, which Zimmermann (2013) reconstructs using information on the NREGS roll-out and institutional knowledge about the implementation of development programs in India. The algorithm has two stages: First, the number of treatment districts that are allocated to a given state in a given phase is determined. It is proportional to the prevalence of poverty across states, which ensures inter-state fairness in program assignment. Second, the specific treatment districts within a state are chosen based on a development ranking, starting with the poorest districts.

I use this procedure for the empirical analysis. The ‘prevalence of poverty’ measure is the state headcount ratio times the rural state population, which provides an estimate of the number of below-the-poverty-line people per state. A state is assigned the percentage of treatment districts that is equal to the percentage of India’s poor in that state. For the calculations, I use headcount ratios calculated from 1993-1994 nationally representative National Sample Survey (NSS) data.<sup>37</sup>

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<sup>37</sup>I use the state headcount ratios from Planning Commission (2009), since the original headcount ratio calculations do not have estimates for new states that had been created since then. As official Planning Commission estimates, they are likely to be closest to the information the Indian government would have had access to at the time of NREGS implementation.

The development index used to rank districts within states comes from a Planning Commission report from 2003 that created an index of economic underdevelopment. The index was created from three outcomes for 17 major states: agricultural wages, agricultural productivity, and the district proportion of low-caste individuals (Scheduled Castes and Scheduled Tribes) (Planning Commission 2003).<sup>38</sup> Districts were ranked on their index values. In addition to the algorithm, the government had a separate list of 32 districts heavily affected by Maoist violence.<sup>39</sup> 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.<sup>40</sup>

The two-step algorithm results in state-specific treatment cutoffs. Since implementation proceeded in three phases, two cutoffs can be empirically identified: the cutoff between Phase 1 and Phase 2, and the cutoff between Phase 2 and Phase 3. These correspond to the Phase 1 and Phase 2 NREGS roll-out, respectively. I exploit both cutoffs in a regression discontinuity framework. Since the general elections took place in 2009 when all rural districts had access to the program, 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 that a district with a normalized state-specific rank of zero is the last program-eligible district in a state in a given phase.<sup>41</sup> This allows the easy pooling of data across states.

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.<sup>42</sup> This means that there is some slippage in treatment assignment in both phases, and considerable heterogeneity in the performance of the algorithm across states.<sup>43</sup>

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<sup>38</sup>Data on the outcome variables was unavailable for the remaining Indian states, and it is unclear whether a comparable algorithm using different outcome variables was used for them. I therefore restrict the empirical analysis to these 17 states.

<sup>39</sup>See e.g. Planning Commission (2005).

<sup>40</sup>The results are robust to including them and assigning them a predicted treatment status based on their economic development index values.

<sup>41</sup>Rank data in the 17 major states is complete for all rural districts. Rank data is available for 447 of 618 districts. Data for the index creation was unavailable in some states, in most cases because of internal stability issues during the early 1990s when most of the data was collected. We exclude these states from the analysis.

<sup>42</sup>Prediction success rates for Phase 2 are calculated after dropping Phase 1 districts.

<sup>43</sup>Please see the Online Appendix for details on how the political reality of Indian politics may explain the slippage and why it is unlikely that the fuzziness of the discontinuity creates problems for internal validity or the

Nevertheless, the algorithm performs quite well in almost all states and the prediction success rates are also considerably higher than the ones that 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.<sup>44</sup> Overall, this suggests that the proposed algorithm works well for predicting Phase 1 and Phase 2 district allocations.

The RD framework crucially relies on the assumption that beneficiaries were unable to perfectly manipulate their treatment status, so that observations close to the treatment cutoff differ only with respect to their treatment status, which in this case is the length of exposure to NREGS (Lee, 2008). In the case of the two-step RD, this means that districts should not have been able to manipulate the algorithm in either step. This seems 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 for districts to strategically misreport information. Additionally, the suggestion of the original Planning Commission report was to target 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 by which the development index was created.<sup>45</sup>

Figures 1a and 1b look more closely at 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. For most states, the poverty index values seem smooth at the cutoff of 0, again suggesting that manipulation is not a big concern.

Another way of analyzing whether manipulation is likely to be a problem is to test whether there are any discontinuities at the cutoffs in the baseline data, although this is only a relatively crude test in this case since the boundaries of the electoral constituencies were re-drawn before the 2009 general election so that there is no perfect correspondence between the 2009 election

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representativeness of the estimates reported in this paper.

<sup>44</sup>Part of the fuzziness of the treatment discontinuity is potentially due to measurement error in the headcount ratios if the Indian government used different values than the ones reported in Planning Commission (2009). Please see Online Appendix for details.

<sup>45</sup>This does not mean that actual treatment assignment was not subject to political pressures. It can be shown that deviations from the algorithm are correlated with party affiliation. Please see Online Appendix for details.

outcomes and the baseline election outcomes from 2004 at the parliamentary constituency level. Nevertheless, we should not find impacts in the baseline data if the only factor that is driving any outcome differences in 2009 is the introduction of NREGS. Appendix Tables A.12, A.13, and A.14 present the results of such an analysis for the main outcome variables used in this paper (the vote share and winning constituency variables for INC, UPA, the left front and the BJP, the voter turnout, and the incumbent won and vote share variables) for three different parametric specifications for the 2004 general elections for both cutoffs. They show that only three of 66 coefficients are statistically significant and that those are not robust across different parametric specifications. Overall, this test suggests again that manipulation is unlikely to be an important problem. Zimmermann (2014) and Khanna and Zimmermann (2014) also document that districts are also similar at baseline with respect to a number of other labor market and Maoist violence variables.<sup>46</sup>

Finally, we need to verify that there really is a discontinuity in the probability of receiving NREGS at the state-specific cutoff values. 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 outcome data for the 2009 general election from the Election Commission of India.<sup>47</sup> For each parliamentary constituency, the Election Commission lists all candidates, their party affiliation, and the number of votes received per candidate as well as some limited candidate background information like gender, age,

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<sup>46</sup>Please see the Online Appendix for details on how the political reality of Indian politics may explain the slippage and why it is unlikely that the fuzziness of the discontinuity creates problems for internal validity or the representativeness of the estimates reported in this paper.

<sup>47</sup>Data are publicly available at <http://eci.nic.in>. The Election Commission of India is an autonomous body that schedules and oversees elections.

and broad caste category. It also gives the number of eligible voters in a given constituency, which allows the calculation of voter turnout. Election results are mostly reported at the level of the parliamentary constituency since each constituency elects one member of the India parliament. In addition to parliamentary-constituency level election results, I have also digitalized polling-station wise election results from available information on the Election Commission of India website. The included information is mostly comparable to that available at higher levels of aggregation, with the exception of the number of eligible voters, where information is often missing.

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.<sup>48</sup> 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.<sup>49</sup> 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 are not directly comparable (Delimitation Commission of India 2008).

Since NREGS was rolled out at the district level, I match each parliamentary constituency to the closest appropriate district. The matching is done according to the name of the election constituency, which is usually a major city.<sup>50</sup> The procedure of using the constituency name introduces some measurement error since election constituencies can span parts of more than one district. Using the polling station data avoids this issue since each polling station can be exactly matched to one district. The main analysis reports the results for both aggregation levels.

To these datasets, 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

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<sup>48</sup>For more details, please see Delimitation Commission of India 2008.

<sup>49</sup>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.

<sup>50</sup>All electoral constituencies used in the empirical analysis can be matched non-ambiguously to one district. I use district boundaries from the 2001 Census to make these matches.

district's NREGS phase and some NREGS implementation quality information from the official government NREGS website.<sup>51</sup> This NREGS implementation quality information includes the number of individuals and households employed under NREGS in a given district, the number of households reaching the limit of 100 days, and the total person-days generated by NREGS. All these variables are for the financial year 2008-09, which is roughly the year before the general elections take place and the only time span in which districts from all phases had access to NREGS.<sup>52</sup> At the time of the general elections in April 2009, Phase 1 districts had had NREGS for three years, Phase 2 districts for two years, and Phase 3 districts for one year. As an alternative measure of the implementation quality of NREGS I also create an indicator variable equal to 1 if a constituency belongs to what has been called a 'star state', and 0 otherwise. Field reports on the working of NREGS in Dreze and Khera (2009) and Khera (2010) identify five states in which NREGS seems to be implemented better than in the rest of the country: Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan, and Tamil Nadu.

I create various outcome variables to measure the impact NREGS had on the general election results. Since India has a first-past-the-post system, an important outcome is the number of constituencies in which a party received the most votes, since this directly translates to seats won in the Lok Sabha. I therefore create index variables equal to 1 if a given party or alliance won a plurality of votes in a constituency, and 0 otherwise. At the polling-station level, the corresponding variable is equal to 1 if a candidate received the most votes at this polling station and 0 otherwise, which does not necessarily imply that the candidate won the complete parliamentary constituency seat. I also create variables of the received vote share of parties and alliances in a constituency or polling station. The empirical analysis focuses on the UPA government coalition and its main party the INC as well as the INC's main national competitor, the BJP, and the Left Front. I also look at voter turnout in the parliamentary constituency sample. In addition to these national level outcome variables, I focus on the election outcomes of incumbents. An incumbent here is an individual who won the 2004 general election in any electoral constituency in India and contested the elections again in 2009.

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<sup>51</sup>The NREGS website is <http://nrega.nic.in>.

<sup>52</sup>The financial year starts on April 1.

Table 1 shows some summary statistics for the primary variables of interest at the polling station and parliamentary constituency levels. While there are some minor differences between the results at both levels, the probability of a candidate from the Indian National Congress (INC), the main government party, to win its parliamentary constituency or polling station is about 30 percent. The corresponding victory likelihoods for the government coalition (any candidate from a party of the ruling coalition) is about 40 percent, for the main opposition party BJP it is about 20 percent, and for the Left Front, a group of left-wing socialist and communist parties, it is 2 percent. On average, an INC candidate receives about 30 percent of the vote and a government coalition candidate about 40 percent of the vote. Voter turnout in the average parliamentary constituency is 60 percent. This information comes from 432 parliamentary constituencies and 623,141 polling stations across all phases.

### 3.3 Empirical Specification

The state-specific district ranks of the algorithm can be used as a running variable in an RD framework.<sup>53</sup> Ideally, one would restrict the data to observations in the close neighborhood of the cutoff and estimate the treatment effect using local linear regressions. As the number of observations near the cutoff is limited, however, I use all available relevant observations: I drop Phase 3 districts in the analysis of the first phase of NREGS, and drop Phase 1 when analyzing the Phase 2 cutoff. Such a larger bandwidth will improve the precision of the estimates due to an increased sample size, but potentially introduces bias since observations far away from the cutoff can influence the estimates (Lee and Lemieux, 2010).

This concern is addressed in three ways: First, all result tables show the estimated coefficients for three different parametric specifications (linear, linear with slope of regression line allowed to differ on both sides of the cutoff, quadratic). The quadratic flexible specification is always outperformed statistically by the linear flexible specification, and using F-tests we cannot reject the null hypothesis that other higher-order polynomial terms are irrelevant.<sup>54</sup> Second, while the results

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<sup>53</sup>The results are also robust to using the poverty index values as the running variable.

<sup>54</sup>More flexible models also tend to be unstable in the second stage of the two-stage least squares estimation, although the coefficients are often qualitatively similar to the quadratic results. Gelman and Imbens (2014) discourage the use of higher-order polynomials.

use all districts of the treatment and control phase in a given specification, I test the robustness of the main estimates by varying the bandwidth and restricting the sample to observations closer to the cutoff. Third, Figures 2a to 2h show the non-parametric relationships between the main outcome variables and also plot linear polynomial regression curves.

I estimate the treatment effect at the discontinuity separately for the two cutoffs. For each cutoff the running variable is the state-specific rank variable for the corresponding implementation phase. I drop the 32 insurgency-affected districts that received NREGS in the first phase, since these received the program regardless of their poverty level. The middle category of Phase 2 districts is taken as the reference group, so that the coefficients for Phase 1 and Phase 3 directly provide the estimated treatment effect at the two cutoffs. It is important to note that since the RD design depends on observations being close to the cutoff for identification it is impossible to compare Phase 1 and Phase 3 districts directly, since these will be far apart from each other by design.

I run the regression equation below where  $f(\cdot)$  is a function of predicted NREGS receipt  $nregs$  and the district's rank based on the state-specific normalized index  $rank$ . Results are shown for linear, linear with flexible slopes and quadratic functions of  $f(\cdot)$ .

$$y_{ij} = \beta_0 + \beta_1 nregs_i + f(rank, nregs) + \beta_2 baseline y_i + \epsilon_{ij}$$

$y_{ij}$  is an outcome variable in parliamentary constituency  $i$  and district  $j$ , and the coefficient of interest is  $\beta_1$ . Standard errors are clustered at the district level. Regressions for the polling station level are adjusted appropriately. The specification estimates the intent-to-treat (ITT) effect since we have a fuzzy RD. The main results in the paper report the estimates from using a donut hole approach. One concern with the regression discontinuity design in this paper is that measurement error in the running variable may lead to the misclassification of some observations close to the cutoff. The donut-hole specifications drop districts with normalized state-specific ranks of -1, 0, and 1 to see whether this issue is a major concern for the estimates. The RD graphs show the results for the full sample, however, as do the corresponding tables in the appendix, which are similar to the main results.<sup>55</sup>

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<sup>55</sup>The validity of the RD design does not depend on the availability of baseline information, although including

## 4 Results

### 4.1 Main Results

Tables 2 to 11 analyze the impact of NREGS on the 2009 general election outcomes for the national parties as well as the local-level incumbents using a donut hole approach.<sup>56</sup>

Tables 2 and 3 present the overall impact of the employment guarantee scheme for the UPA coalition government and its main party, the INC, as well as for the two main competitor parties, the BJP and the Left Front. The outcome variables include indicator variables equal to 1 if a given party or coalition won in a parliamentary constituency, vote share variables that give the achieved share of the vote in a constituency in percent, and the voter turnout. The reference category in both tables are electoral constituencies in Phase 2 NREGS districts, and the results are reported for three different parametric specifications.

As can be seen from these results, the overall impact of the length of exposure to the employment guarantee scheme is relatively limited, although a number of coefficients are economically significant but imprecisely estimated. In Table 2, the estimated coefficients for the INC and UPA outcome variables are typically large and negative, although usually statistically insignificant, implying for example a reduction in the probability that the INC wins in electoral constituencies by about 18 percentage points in the first row for Phase 1 districts relative to Phase 2 districts. The Left Front parties, on the other hand, do consistently better in Phase 1 districts at the cutoff with an about 6 percentage point higher probability of winning a plurality of the votes. This effect is statistically significant at the 10 percent level. The results for the vote share outcome variables follow a similar pattern and the estimated coefficients typically have the same sign as their corresponding ‘won’ outcome variables but are imprecisely estimated.

A similar pattern emerges in Table 3 for Phase 3 districts relative to Phase 2 districts at the

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such variables as controls can improve the precision of the estimates. Since the electoral constituency boundaries were redrawn between the 2004 and 2009 general elections, and boundaries changed for 499 of the 543 constituencies, it is unclear whether the 2004 outcomes provide good control variables for the 2009 election results. Therefore, my main results do not include control variables.

<sup>56</sup>The donut-hole approach drops observations with normalized state-specific rank values of 0 and 1 due to concerns with measurement error right around the cutoff. Corresponding tables for the results for the full sample are reported in the appendix.

cutoff. Again, districts with a longer exposure to NREGS (2 years versus 1 year) tend to vote less for the government parties, with two out of three coefficients being statistically significant at the 5 percent level for the government coalition UPA's vote share, although the other coefficients are again imprecisely estimated. There is also some evidence for voter turnout being lower in Phase 3 districts than in Phase 2 districts.

Tables 4 and 5 reveal that the overall results mask important heterogeneity with respect to implementation quality, however. The main NREGS variable here is interacted with an indicator variable equal to 1 if the district is part of a so-called 'star state' where the employment guarantee scheme is relatively well implemented according to field studies by NGOs and social activists.<sup>57</sup> Table 4 shows that there is a large negative impact of NREGS on the winning probability for the government parties in Phase 1 non-star districts that is always statistically significant at at least the 10 percent level. This negative effect of longer exposure to the employment guarantee scheme is substantially reduced in Phase 1 star states. The reverse pattern is apparent for the main competitor of the government parties, the BJP, where votes in Phase 1 star-state districts are statistically significantly lower than those in non-star Phase 1 districts. Additionally, voter turnout is also statistically significantly higher in star states on the order of 12 percentage points.

These results suggest that citizens in Phase 1 districts, i.e. districts that have had access to NREGS for three years at the time of the elections, are less willing to reward the government parties for the anti-poverty program than citizens in Phase 2 districts unless the program works well. Additional votes for the government in Phase 1 star-state districts cut into the votes for the BJP, but also lead to a higher voter turnout than in non-star states.

The mirror image of this pattern emerges when comparing Phase 3 to Phase 2 districts in Table 5, which again implies that voters in districts with longer exposure to NREGS may overall be less willing to vote for the government parties than districts that received NREGS in Phase 3 (although the main effects are here typically imprecisely estimated), but that a high implementation quality in star-states reverses this effect. As in Table 4, star-state districts with longer exposure (Phase 2 districts) see an increase in voter turnout and lower votes for the BJP than non-star Phase 2

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<sup>57</sup>Awareness of the program and implementation quality tend to be much higher in star states than in the rest of the country (Dreze and Khera 2009, Khera 2011).

districts.

People in districts that had just received the program in the year prior to the elections therefore seem to be the ones most willing to vote for the government, whereas individuals in districts with longer access to the scheme care much more about implementation quality. These patterns are consistent with the idea that people initially may have high expectations of NREGS, leading them to support the government. The more time they have to experience the program themselves or hear about the implementation problems associated with it, however, the less positive they may feel about NREGS and the government.

The results so far focused on the parliamentary constituency level, but election results are also available at the polling station level. This resolves some measurement error issues since NREGS was introduced at the district level, which can only be mapped imperfectly to parliamentary constituencies, whereas an exact match is possible for more disaggregated data. Tables 6 to 9 therefore report the corresponding results for this more disaggregated level and show that the overall empirical patterns with the richer dataset are similar to the main results at the parliamentary constituency level.

Tables 10 and 11 extend the analysis for the national parties to the impacts for incumbents. An incumbent is defined as an individual who won a plurality of votes in an electoral constituency in the 2004 general elections and competed again in the 2009 general election in any electoral constituency. Table 10 shows that incumbents of any party affiliation are not statistically significantly more likely to win again in Phase 1 districts relative to Phase 2 districts or in Phase 3 relative to Phase 2 districts.

Table 11 reveals that implementation quality is again an important source of heterogeneity when comparing Phase 2 and Phase 3 districts, with star-state districts with longer exposure to NREGS being more likely to re-elect incumbents than non-star districts. This is similar to the corresponding impacts for the national parties in Tables 4 and 5, and again suggests that voters become more sensitive to implementation quality with longer exposure to the employment guarantee scheme. With the central government paying for most of the costs of NREGS, but with the local level being responsible for implementing the program, it makes sense that we find similar

patterns for incumbents and national parties.

Figures 2a through 2h show the main results graphically for star states and non-star states. Overall, the empirical results suggest that voters hold both the national government parties and the local-level incumbents responsible for the implementation of the employment guarantee scheme. While voters in the last implementation group (Phase 3) seem to be the most positive about NREGS, the people with long exposure to the program, who have presumably had time to experience the program themselves or hear about from others, are less likely to reward the responsible parties unless implementation quality is high.

## 4.2 Robustness Checks and Extensions

The robustness of the empirical results is tested in a number of robustness checks reported in the appendix. Tables A.15 to A.20 analyze the impact of NREGS on the 2009 general election outcomes for the national parties as well as the local-level incumbents without using the donut-hole approach, and show that the results are similar for the full sample. Tables A.21 to A.23 present the results using a probit specification instead of a linear probability model for the constituency won outcome variables. Tables A.24 to A.29 re-estimate the main results using a treated-on-the-treated (TOT) specification where actual receipt of NREGS is instrumented with predicted NREGS receipt according to the algorithm. Lastly, Table A.30 shows that the star-state results are also present when using a difference-in-difference approach to estimate the impact of NREGS on election outcomes.

Another potential concern with interpreting the main results is that the star-state heterogeneity may not actually reflect differences in implementation quality, but could be driven by other factors. To test whether there are indeed differences in implementation quality of NREGS between star states and other states Tables A.31 to A.33 use available information on the allocation of finances and labor-market outcomes at the district level. Table A.31 uses administrative information on the allocation of financial resources under NREGS in 2008/2009 on four dimensions: centrally released funds, total available funds, total expenditures, and administrative expenditures. The results show that star-state districts with longer exposure to NREGS do not spend statistically significantly

more money than other districts of the same implementation phase and are not allocated more money, although the interaction effects are positive and often economically significant. But star-states have statistically significantly higher administrative costs, which is consistent with the idea that star-state administrations implement the employment guarantee scheme more thoroughly.

Tables A.32 and A.33 use available data on worker outcomes from administrative data and from National Sample Survey household survey data from 2009/2010. Column 1 in both tables reveals that according to administrative data early star-state districts employ fewer people than other districts from the same implementation phase, which could be due to a lower number of ghost workers and less corruption in star states that lead to over-reporting of generated employment in other areas. The household-survey data in the remaining columns shows that individuals in star-state districts have higher wages and per-capita consumption. The interaction effect for public employment is also positive for longer-exposed star-state districts, although the coefficients are imprecisely estimated. Overall, Tables A.31 to A.33 are therefore consistent with the idea that star states really have a higher implementation quality of NREGS than districts in other states, although I cannot completely rule out that there are other differences unrelated to NREGS implementation quality between star states and other states that drive these differential effects.

## 5 Conclusion

This paper has analyzed the impact of a major government anti-poverty program in India, the National Rural Employment Guarantee Scheme (NREGS), on the government's performance in the next general elections. Using a regression discontinuity framework, I find that approval for the government parties seems to decline with the length of exposure to the program, with the effect concentrated in districts with low implementation quality. A high implementation quality, on the other hand, balances out this effect and is associated with a higher voter turnout. Votes for the government come at the expense of the main national opposition party, although incumbents of any party affiliation benefit from NREGS in well-implemented areas. The results are consistent with a story in which it takes some time for voters to learn about the implementation quality of NREGS, but where voters realize the practical limitations of the program after having had the scheme for

some time and become less enthusiastic about NREGS in areas with substantial implementation challenges.

Overall, the results show that there is an electoral benefit of implementing ambitious anti-poverty programs in India. At the same time, however, the empirical analysis suggests that such electoral payoffs may be relatively short-lived if the government is not really committed to a high-quality implementation of such programs. While election campaigns can serve to inform people about existing government policies and remind them of the benefits of the schemes, such a strategy may not be successful with voters in the longer run. Many voters seem to care about the actual benefits government initiatives like NREGS provide, and not just about a verbal commitment to the fight against poverty. This points to the rise of ‘programmatic politics’ where patronage networks alone are no longer sufficient to win elections and would therefore imply a deepening of democracy.<sup>58</sup>

While it is difficult to disentangle different theories of why citizens are more likely to vote for incumbents in areas where the government program works relatively well, the results are consistent with voters viewing the implementation of NREGS as a signal of competence and a commitment to the fight against poverty, which promise more benefits after the election (see e.g. Drazen and Eslava 2010). This seems to be a view implicitly held by a number of commentators on the election success of the Indian government who stressed the fact that NREGS marked the first time that a government had actually implemented a very ambitious anti-poverty program and not mostly relied on lip service of the importance of economic development. The empirical results can also be explained with a model of reciprocity, however, where voters simply reward the government for its past performance (see e.g. Finan and Schechter 2012).

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<sup>58</sup>See e.g. De la O (2013) for a similar conclusion for the election impacts of Progresa in Mexico.

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Table 1: Summary Statistics

|                  | <b>Polling Station<br/>Level</b> | <b>Parliamentary Constituency<br/>Level</b> |
|------------------|----------------------------------|---|
| INC win          | 0.3086                           | 0.3681                                      |
| UPA win          | 0.3969                           | 0.4375                                      |
| BJP win          | 0.2032                           | 0.2014                                      |
| Left Front win   | 0.0192                           | 0.0185                                      |
| INC vote share   | 38.05                            | 27.58                                       |
| UPA vote share   | 45.88                            | 35.95                                       |
| BJP vote share   | 21.90                            | 18.83                                       |
| Left Front share | 2.13                             | 1.97  |
| voter turnout    |                                  | 0.6023                                      |
| Observations     | 623,141                          | 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. The Left Front is an alliance of left-wing parties and includes the Communist Party of India (Marxist), the Communist Party of India, the Revolutionary Socialist Party, and the All India Forward Bloc.

Table 2: Election Results Phase 1 vs Phase 2

|                                    | won constituencies   |                       |                     |                     | vote share in percent |                   |                |                 |                     |
|------------------------------------|----------------------|-----------------------|---------------------|---------------------|-----------------------|-------------------|----------------|-----------------|---------------------|
|                                    | INC                  | UPA                   | Left                | BJP                 | INC                   | UPA               | Left           | BJP             | voter turnout       |
|                                    | (1)                  | (2)                   | (3)                 | (4)                 | (5)                   | (6)               | (7)            | (8)             | (9)                 |
| NREGS Phase 1<br>(Linear)          | -0.1830*<br>(0.0953) | -0.2057**<br>(0.0976) | 0.0552*<br>(0.0301) | -0.0616<br>(0.0740) | -7.90*<br>(4.06)      | -9.29**<br>(4.26) | 0.64<br>(1.95) | -2.38<br>(3.56) | -0.0343<br>(0.0330) |
| NREGS Phase 1<br>(Linear flexible) | -0.0915<br>(0.1019)  | -0.1118<br>(0.1044)   | 0.0657*<br>(0.0394) | -0.0741<br>(0.0761) | -3.91<br>(4.35)       | -6.14<br>(4.69)   | 1.76<br>(2.24) | -3.44<br>(3.67) | 0.0288<br>(0.0319)  |
| NREGS Phase 1<br>(Quadratic)       | -0.0672<br>(0.1071)  | -0.0646<br>(0.1096)   | 0.0710*<br>(0.0402) | -0.0707<br>(0.0788) | -2.35<br>(4.59)       | -3.45<br>(4.95)   | 1.79<br>(2.36) | -2.71<br>(3.82) | 0.0358<br>(0.0352)  |
| N                                  | 354                  | 354                   | 354                 | 354                 | 354                   | 354               | 354            | 354             | 354                 |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. The results use a donut-hole approach.

Table 3: Election Results Phase 2 vs Phase 3

|                                    | won constituencies  |                     |                     |                     | vote share in percent |                  |                 |                 | voter turnout          |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|------------------|-----------------|-----------------|------------------------|
|                                    | INC<br>(1)          | UPA<br>(2)          | Left<br>(3)         | BJP<br>(4)          | INC<br>(5)            | UPA<br>(6)       | Left<br>(7)     | BJP<br>(8)      |                        |
| NREGS Phase 3<br>(Linear)          | -0.0893<br>(0.0903) | -0.0487<br>(0.0934) | -0.0166<br>(0.0189) | 0.0375<br>(0.0761)  | -1.52<br>(3.73)       | 4.07<br>(3.61)   | -1.50<br>(1.38) | 0.24<br>(3.51)  | -0.1106***<br>(0.0282) |
| NREGS Phase 3<br>(Linear flexible) | -0.0126<br>(0.0996) | 0.0476<br>(0.1044)  | -0.0146<br>(0.0190) | 0.0199<br>(0.0892)  | 1.87<br>(4.09)        | 8.55**<br>(3.69) | -0.64<br>(1.47) | -1.63<br>(3.91) | -0.0483*<br>(0.0274)   |
| NREGS Phase 3<br>(Quadratic)       | 0.0209<br>(0.1084)  | 0.0924<br>(0.1131)  | 0.0034<br>(0.0187)  | -0.0184<br>(0.0991) | 1.80<br>(4.43)        | 9.72**<br>(4.01) | 0.25<br>(1.53)  | -4.41<br>(4.27) | -0.0227<br>(0.0295)    |
| N                                  | 375                 | 375                 | 375                 | 375                 | 375                   | 375              | 375             | 375             | 375                    |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. The results use a donut-hole approach.

Table 4: State Results Phase 1 vs Phase 2

|                    | won constituencies |            |           |          | vote share in percent |          |        |           |               |
|--------------------|--------------------|------------|-----------|----------|-----------------------|----------|--------|-----------|---------------|
|                    | INC                | UPA        | Left      | BJP      | INC                   | UPA      | Left   | BJP       | voter turnout |
|                    | (1)                | (2)        | (3)       | (4)      | (5)                   | (6)      | (7)    | (8)       | (9)           |
| NREGS Phase 1      | -0.2783***         | -0.3065*** | 0.0769*   | -0.0022  | -10.09**              | -11.71** | 0.18   | 1.84      | -0.0846**     |
| (Linear)           | (0.1022)           | (0.1036)   | (0.0399)  | (0.0845) | (4.53)                | (4.60)   | (2.38) | (3.79)    | (0.0377)      |
| NREGS Phase 1*star | 0.2451*            | 0.2330**   | -0.0604** | -0.1811* | 4.72                  | 4.11     | 1.75   | -13.47*** | 0.1467***     |
|                    | (0.1265)           | (0.1162)   | (0.0306)  | (0.0954) | (4.82)                | (4.71)   | (2.19) | (4.86)    | (0.0380)      |
| NREGS Phase 1      | -0.1941*           | -0.2299**  | 0.0974*   | -0.0058  | -5.99                 | -9.20*   | 1.67   | 1.17      | -0.0150       |
| (Linear flexible)  | (0.1102)           | (0.1118)   | (0.0539)  | (0.0877) | (5.06)                | (5.30)   | (2.88) | (3.99)    | (0.0383)      |
| NREGS Phase 1*star | 0.1981*            | 0.1902*    | -0.0719*  | -0.1791* | 2.43                  | 2.70     | 0.91   | -13.10*** | 0.1078***     |
|                    | (0.1284)           | (0.1192)   | (0.0376)  | (0.0948) | (4.99)                | (5.01)   | (2.41) | (4.92)    | (0.0375)      |
| NREGS Phase 1      | -0.1844            | -0.1994*   | 0.1044*   | -0.0001  | -4.95                 | -7.00    | 1.67   | 2.05      | -0.0144       |
| (Quadratic)        | (0.1153)           | (0.1169)   | (0.0546)  | (0.0905) | (5.29)                | (5.58)   | (2.99) | (4.18)    | (0.0418)      |
| NREGS Phase 1*star | 0.2108*            | 0.1938*    | -0.0705** | -0.1818* | 2.84                  | 2.39     | 1.20   | -13.55*** | 0.1210***     |
|                    | (0.1281)           | (0.1180)   | (0.0353)  | (0.0949) | (4.99)                | (4.96)   | (2.35) | (4.91)    | (0.0378)      |
| N                  | 354                | 354        | 354       | 354      | 354                   | 354      | 354    | 354       | 354           |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. Star state is an indicator variable equal to 1 if a state was identified as a high implementation quality state, and 0 otherwise. The five star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu. The results use a donut-hole approach.

Table 5: Star State Results Phase 2 vs Phase 3

|                    | won constituencies |          |          |          | vote share in percent |          |        |          |               |
|--------------------|--------------------|----------|----------|----------|-----------------------|----------|--------|----------|---------------|
|                    | INC                | UPA      | Left     | BJP      | INC                   | UPA      | Left   | BJP      | voter turnout |
|                    | (1)                | (2)      | (3)      | (4)      | (5)                   | (6)      | (7)    | (8)      | (9)           |
| NREGS Phase 3      | 0.0515             | 0.0617   | -0.0228  | -0.0102  | 4.66                  | 7.99*    | -1.38  | -4.11    | -0.0582*      |
| (Linear)           | (0.1022)           | (0.1061) | (0.0237) | (0.0849) | (4.19)                | (4.15)   | (1.76) | (3.86)   | (0.0346)      |
| NREGS Phase 3*star | -0.2804**          | -0.1237  | 0.0079   | 0.1323   | -12.51***             | -2.41    | -0.94  | 12.89*** | -0.1357***    |
|                    | (0.1187)           | (0.1176) | (0.0244) | (0.1005) | (4.72)                | (3.98)   | (1.55) | (4.85)   | (0.0358)      |
| NREGS Phase 3      | 0.1725             | 0.1821   | -0.0189  | 0.0725   | 10.62**               | 14.53*** | -0.14  | -0.01    | -0.0188       |
| (Linear flexible)  | (0.1174)           | (0.1217) | (0.0248) | (0.1016) | (4.84)                | (4.28)   | (1.99) | (4.60)   | (0.0334)      |
| NREGS Phase 3*star | -0.4431**          | -0.1831  | 0.0033   | -0.1300  | -21.56***             | -7.15    | -2.21  | -1.66    | -0.0894*      |
|                    | (0.1881)           | (0.1950) | (0.0270) | (0.1612) | (7.73)                | (5.63)   | (2.04) | (7.50)   | (0.0515)      |
| NREGS Phase 3      | 0.1276             | 0.1803   | -0.0041  | -0.0492  | 6.60                  | 12.97*** | 0.11   | -7.18    | 0.0095        |
| (Quadratic)        | (0.1165)           | (0.1199) | (0.0207) | (0.1027) | (4.66)                | (4.18)   | (1.77) | (4.38)   | (0.0337)      |
| NREGS Phase 3*star | -0.2483**          | -0.0738  | 0.0158   | 0.1159   | -11.69**              | -0.31    | -0.31  | 11.60**  | -0.1072***    |
|                    | (0.1194)           | (0.1172) | (0.0265) | (0.1000) | (4.94)                | (4.05)   | (1.58) | (4.94)   | (0.0350)      |
| N                  | 375                | 375      | 375      | 375      | 375                   | 375      | 375    | 375      | 375           |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. The results use a donut-hole approach.

Table 6: Election Results Phase 1 vs Phase 2 (Polling Station Level)

|                                    | won constituencies |                    |                    |                     | vote share in percent |                  |                  |                  |
|------------------------------------|--------------------|--------------------|--------------------|---------------------|-----------------------|------------------|------------------|------------------|
|                                    | INC                | UPA                | Left               | BJP                 | INC                   | UPA              | Left             | BJP              |
|                                    | (1)                | (2)                | (3)                | (4)                 | (5)                   | (6)              | (7)              | (8)              |
| NREGS Phase 1<br>(Linear)          | 0.0500<br>(0.0840) | 0.0143<br>(0.0856) | 0.0337<br>(0.0299) | -0.0305<br>(0.0640) | 37.00<br>(29.32)      | 33.57<br>(29.10) | 2.494<br>(2.976) | 6.259<br>(9.295) |
| NREGS Phase 1<br>(Linear flexible) | 0.0514<br>(0.0830) | 0.0202<br>(0.0842) | 0.0281<br>(0.0276) | -0.0301<br>(0.0653) | 36.91<br>(29.12)      | 33.86<br>(28.86) | 1.834<br>(2.815) | 6.426<br>(9.267) |
| NREGS Phase 1<br>(Quadratic)       | 0.0500<br>(0.0830) | 0.0169<br>(0.0846) | 0.0302<br>(0.0286) | -0.0319<br>(0.0648) | 35.45<br>(28.15)      | 32.27<br>(27.95) | 2.096<br>(2.875) | 5.851<br>(9.056) |
| N                                  | 303803             | 303803             | 303803             | 303803              | 302678                | 303803           | 303803           | 302710           |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is a polling station in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a polling station, and 0 otherwise. The results use a donut-hole approach.

Table 7: Election Results Phase 2 vs Phase 3 (Polling Station Level)

|                                    | won constituencies  |                    |                     |                     | vote share in percent |                    |                  |                   |
|------------------------------------|---------------------|--------------------|---------------------|---------------------|-----------------------|--------------------|------------------|-------------------|
|                                    | INC                 | UPA                | Left                | BJP                 | INC                   | UPA                | Left             | BJP               |
|                                    | (1)                 | (2)                | (3)                 | (4)                 | (5)                   | (6)                | (7)              | (8)               |
| NREGS Phase 3<br>(Linear)          | 0.0107<br>(0.0633)  | 0.101<br>(0.0649)  | 0.00462<br>(0.0167) | -0.0226<br>(0.0601) | 2.948<br>(5.114)      | 10.05**<br>(4.963) | 0.225<br>(1.792) | -2.423<br>(4.915) |
| NREGS Phase 3<br>(Linear flexible) | 0.00640<br>(0.0650) | 0.0933<br>(0.0658) | 0.00490<br>(0.0176) | -0.0242<br>(0.0600) | 2.589<br>(5.208)      | 9.449*<br>(5.022)  | 0.231<br>(1.873) | -2.594<br>(4.915) |
| NREGS Phase 3<br>(Quadratic)       | 0.00920<br>(0.0643) | 0.0976<br>(0.0654) | 0.00464<br>(0.0172) | -0.0228<br>(0.0600) | 2.812<br>(5.172)      | 9.783*<br>(4.989)  | 0.219<br>(1.830) | -2.449<br>(4.908) |
| N                                  | 339742              | 339742             | 339742              | 339742              | 338803                | 339742             | 339742           | 338856            |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is a polling station in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a polling station, and 0 otherwise. The results use a donut-hole approach.

Table 8: State Results Phase 1 vs Phase 2 (Polling Station Level)

|                                 | won constituencies   |                     |                      |                       | vote share in percent |                   |                  |                   |
|---------------------------------|----------------------|---------------------|----------------------|-----------------------|-----------------------|-------------------|------------------|-------------------|
|                                 | INC                  | UPA                 | Left                 | BJP                   | INC                   | UPA               | Left             | BJP               |
|                                 | (1)                  | (2)                 | (3)                  | (4)                   | (5)                   | (6)               | (7)              | (8)               |
| NREGS Phase 1 (Linear)          | -0.0118<br>(0.0876)  | -0.0741<br>(0.0911) | 0.0393<br>(0.0361)   | 0.0222<br>(0.0669)    | -8.966<br>(20.99)     | -13.92<br>(21.00) | 2.547<br>(3.509) | -2.300<br>(7.196) |
| NREGS Phase 1*star              | 0.0635<br>(0.0722)   | 0.150*<br>(0.0761)  | -0.00233<br>(0.0220) | -0.218***<br>(0.0775) | 102.9<br>(103.9)      | 107.9<br>(101.1)  | 1.275<br>(2.288) | 13.17<br>(29.77)  |
| NREGS Phase 1 (Linear flexible) | -0.00958<br>(0.0860) | -0.0690<br>(0.0882) | 0.0366<br>(0.0340)   | 0.0208<br>(0.0674)    | -7.787<br>(19.75)     | -12.53<br>(19.70) | 2.237<br>(3.314) | -2.004<br>(6.899) |
| NREGS Phase 1*star              | 0.0718<br>(0.0707)   | 0.169**<br>(0.0735) | -0.0127<br>(0.0236)  | -0.223***<br>(0.0803) | 107.3<br>(108.0)      | 113.1<br>(105.1)  | 0.112<br>(2.284) | 14.27<br>(30.91)  |
| NREGS Phase 1 (Quadratic)       | -0.0113<br>(0.0867)  | -0.0730<br>(0.0892) | 0.0387<br>(0.0351)   | 0.0215<br>(0.0674)    | -8.895<br>(20.82)     | -13.80<br>(20.79) | 2.479<br>(3.394) | -2.308<br>(7.175) |
| NREGS Phase 1*star              | 0.0705<br>(0.0712)   | 0.167**<br>(0.0744) | -0.0123<br>(0.0235)  | -0.228***<br>(0.0803) | 104.0<br>(105.7)      | 109.8<br>(102.9)  | 0.205<br>(2.303) | 13.03<br>(30.31)  |
| N                               | 303803               | 303803              | 303803               | 303803                | 302678                | 303803            | 303803           | 302710            |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is a polling station in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a polling station, and 0 otherwise. Star state is an indicator variable equal to 1 if a state was identified as a high implementation quality state, and 0 otherwise. The five star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu. The results use a donut-hole approach.

Table 9: Star State Results Phase 2 vs Phase 3 (Polling Station Level)

|                                 | won constituencies    |                     |                      |                      | vote share in percent |                    |                    |                     |
|---------------------------------|-----------------------|---------------------|----------------------|----------------------|-----------------------|--------------------|--------------------|---------------------|
|                                 | INC                   | UPA                 | Left                 | BJP                  | INC                   | UPA                | Left               | BJP                 |
|                                 | (1)                   | (2)                 | (3)                  | (4)                  | (5)                   | (6)                | (7)                | (8)                 |
| NREGS Phase 3 (Linear)          | 0.0931<br>(0.0613)    | 0.149**<br>(0.0635) | 0.00494<br>(0.0174)  | -0.0802<br>(0.0679)  | 9.350*<br>(5.182)     | 13.49**<br>(5.207) | 0.0795<br>(2.038)  | -7.286<br>(5.350)   |
| NREGS Phase 3*star              | -0.178***<br>(0.0632) | -0.0173<br>(0.0561) | -0.00514<br>(0.0173) | 0.172***<br>(0.0598) | -15.19***<br>(5.084)  | -2.240<br>(4.215)  | -0.141<br>(1.698)  | 15.12***<br>(5.146) |
| NREGS Phase 3 (Linear flexible) | 0.0890<br>(0.0640)    | 0.135**<br>(0.0666) | 0.00558<br>(0.0189)  | -0.0874<br>(0.0686)  | 8.996*<br>(5.311)     | 12.39**<br>(5.449) | 0.0884<br>(2.196)  | -7.970<br>(5.426)   |
| NREGS Phase 3*star              | -0.172***<br>(0.0651) | 0.00283<br>(0.0581) | -0.00607<br>(0.0165) | 0.183***<br>(0.0628) | -14.67***<br>(5.265)  | -0.642<br>(4.420)  | -0.154<br>(1.721)  | 16.13***<br>(5.395) |
| NREGS Phase 3 (Quadratic)       | 0.0921<br>(0.0633)    | 0.140**<br>(0.0662) | 0.00504<br>(0.0185)  | -0.0840<br>(0.0684)  | 9.220*<br>(5.279)     | 12.74**<br>(5.411) | 0.0563<br>(2.156)  | -7.642<br>(5.402)   |
| NREGS Phase 3*star              | -0.176***<br>(0.0654) | 0.00158<br>(0.0585) | -0.00535<br>(0.0165) | 0.180***<br>(0.0633) | -14.93***<br>(5.311)  | -0.739<br>(4.456)  | -0.0943<br>(1.723) | 15.84***<br>(5.425) |
| N                               | 339742                | 339742              | 339742               | 339742               | 338803                | 339742             | 339742             | 338856              |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is a polling station in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. The won variables are indicator variables equal to 1 if a given party received a plurality of the votes in a polling station, and 0 otherwise. The results use a donut-hole approach.

Table 10: Incumbent Results

|                            | incumbent Phase 1 vs 2 |                   | incumbent Phase 2 vs 3 |                   |
|----------------------------|------------------------|-------------------|------------------------|-------------------|
|                            | won<br>(1)             | vote share<br>(2) | won<br>(3)             | vote share<br>(4) |
| NREGS<br>(Linear)          | 0.1184<br>(0.0833)     | 1.34<br>(3.49)    | 0.0256<br>(0.0821)     | -1.42<br>(3.71)   |
| NREGS<br>(Linear flexible) | 0.1361<br>(0.0900)     | 2.51<br>(3.81)    | 0.0504<br>(0.0913)     | 0.18<br>(4.05)    |
| NREGS<br>(Quadratic)       | 0.1588*<br>(0.0928)    | 3.12<br>(4.02)    | 0.0594<br>(0.1014)     | -0.76<br>(4.40)   |
| N                          | 354                    | 354               | 375                    | 375               |

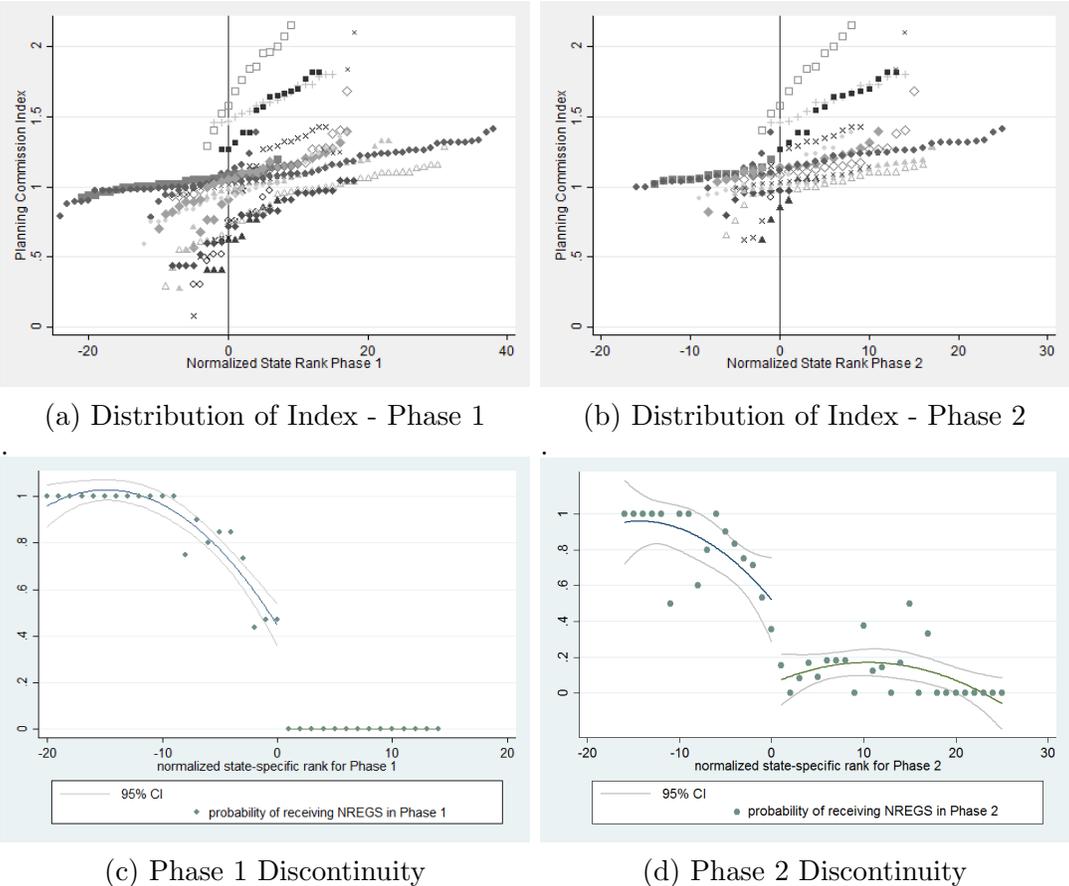
Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. An incumbent is an individual who won a plurality of votes in his/her constituency in the 2004 general elections and who contested the 2009 elections in any constituency. The results use a donut-hole approach.

Table 11: Incumbent Star Results

|                            | incumbent Phase 1 vs 2 |                   | incumbent Phase 2 vs 3 |                    |
|----------------------------|------------------------|-------------------|------------------------|--------------------|
|                            | won<br>(1)             | vote share<br>(2) | won<br>(3)             | vote share<br>(4)  |
| NREGS<br>(Linear)          | 0.0557<br>(0.0895)     | 0.28<br>(3.85)    | 0.1761*<br>(0.0938)    | 2.12<br>(4.15)     |
| NREGS*star                 | 0.1888<br>(0.1247)     | 3.24<br>(4.99)    | -0.4036***<br>(0.1083) | -9.67**<br>(4.77)  |
| NREGS<br>(Linear flexible) | 0.0533<br>(0.0987)     | 0.80<br>(4.38)    | 0.1791<br>(0.1103)     | 5.79<br>(4.63)     |
| NREGS*star                 | 0.3220<br>(0.2711)     | 11.82<br>(9.91)   | -0.4227**<br>(0.1739)  | -17.47**<br>(8.09) |
| NREGS<br>(Quadratic)       | 0.0898<br>(0.1011)     | 2.20<br>(4.49)    | 0.1712<br>(0.1088)     | 1.86<br>(4.67)     |
| NREGS*star                 | 0.1764<br>(0.1266)     | 2.53<br>(5.02)    | -0.4057***<br>(0.1099) | -9.78**<br>(4.87)  |
| N                          | 354                    | 354               | 375                    | 375                |

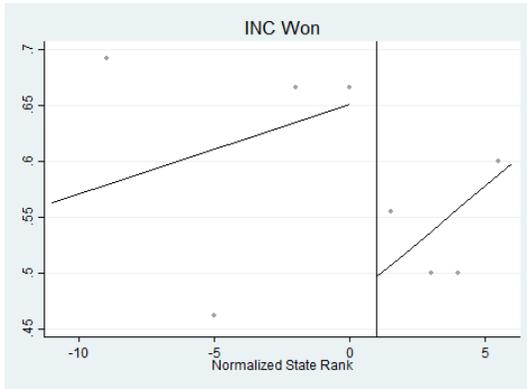
Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. The results use a donut-hole approach.

Figure 1: Distribution of Index and Discontinuities by Phase

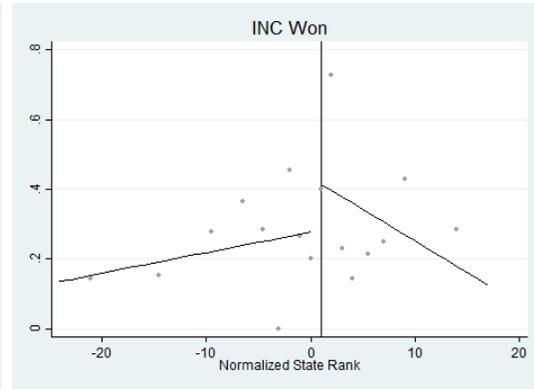


Note: First row plots the distribution of the index by state. Second row shows the treatment discontinuities for each phase, dropping the phase far away from the cutoff (Phase 3 in (c), Phase 1 in (d)). Negative and zero normalized state rank numbers are districts that should have received NREGS based on the government algorithm, whereas positive numbers are assigned to districts that should have been ineligible.

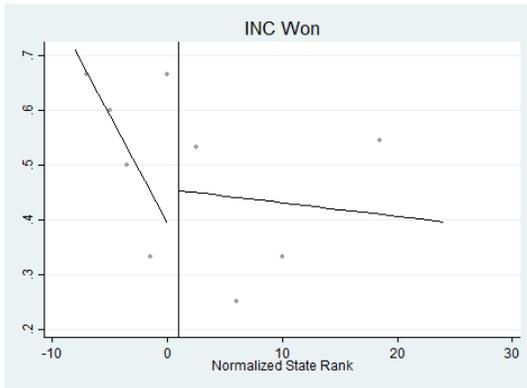
Figure 2: Discontinuities for Main Variables



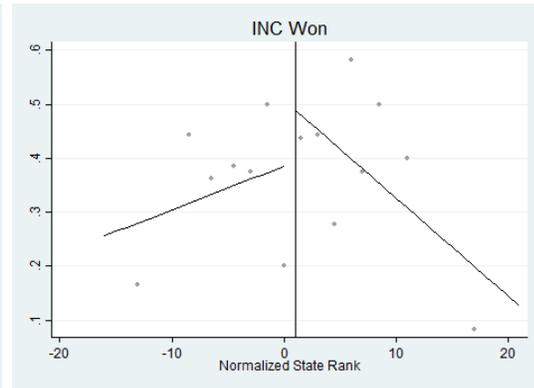
(a) INC Won Star-State Phase 1



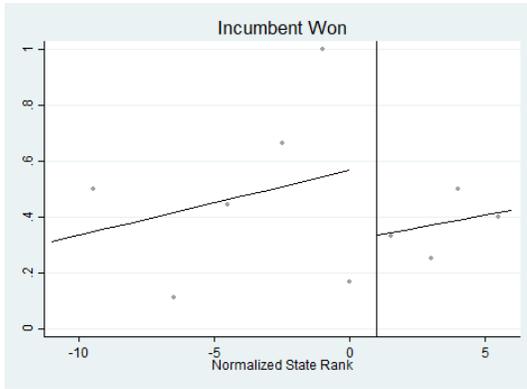
(b) INC Won Non-Star-State Phase 1



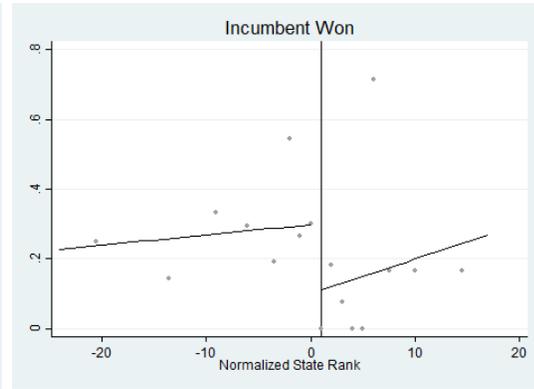
(c) INC Won Star-State Phase 2



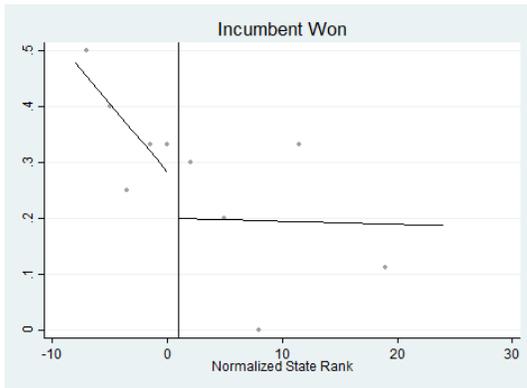
(d) INC Won Non-Star-State Phase 2



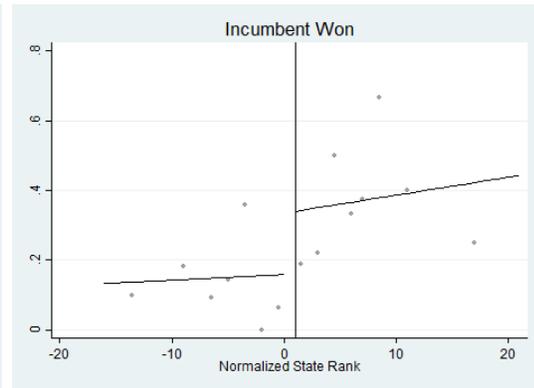
(e) Incumbent Won Star-State Phase 1



(f) Incumbent Won Non-Star-State Phase 1



(g) Incumbent Won Star-State Phase 2



(h) Incumbent Won Non-Star-State Phase 2

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

# A Appendix

Table A.12: Baseline Pre-Treatment Results (Phase 1 vs Phase 2)

|                                    | won constituencies  |                     |                    |                     | vote share in percent |                   |                |                 |                     |
|------------------------------------|---------------------|---------------------|--------------------|---------------------|-----------------------|-------------------|----------------|-----------------|---------------------|
|                                    | INC                 | UPA                 | Left               | BJP                 | INC                   | UPA               | Left           | BJP             | voter turnout       |
|                                    | (1)                 | (2)                 | (3)                | (4)                 | (5)                   | (6)               | (7)            | (8)             | (9)                 |
| NREGS Phase 1<br>(Linear)          | -0.0673<br>(0.0819) | -0.0711<br>(0.0865) | 0.0212<br>(0.0340) | -0.0390<br>(0.0731) | -7.20*<br>(3.75)      | -7.48**<br>(3.64) | 0.38<br>(1.74) | -0.51<br>(3.21) | -0.0327<br>(0.0247) |
| NREGS Phase 1<br>(Linear flexible) | -0.0372<br>(0.0821) | -0.0474<br>(0.0880) | 0.0275<br>(0.0348) | -0.0344<br>(0.0729) | -4.42<br>(3.71)       | -5.01<br>(3.69)   | 0.76<br>(1.79) | -0.89<br>(3.23) | -0.0151<br>(0.0250) |
| NREGS Phase 1<br>(Quadratic)       | -0.0039<br>(0.0854) | -0.0108<br>(0.0921) | 0.0315<br>(0.0368) | -0.0140<br>(0.0741) | -1.55<br>(3.86)       | -1.74<br>(3.82)   | 1.05<br>(1.88) | -0.34<br>(3.35) | -0.0038<br>(0.0265) |
| N                                  | 378                 | 378                 | 378                | 378                 | 378                   | 378               | 378            | 378             | 378                 |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 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. Vote shares are given in percent. 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 A.13: Baseline Pre-Treatment Results (Phase 2 vs Phase 3)

|                                    | won constituencies  |                     |                     |                     | vote share in percent |                 |                 |                 | voter turnout          |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|-----------------|-----------------|-----------------|------------------------|
|                                    | INC                 | UPA                 | Left                | BJP                 | INC                   | UPA             | Left            | BJP             |                        |
|                                    | (1)                 | (2)                 | (3)                 | (4)                 | (5)                   | (6)             | (7)             | (8)             | (9)                    |
| NREGS Phase 3<br>(Linear)          | -0.0202<br>(0.0813) | -0.0016<br>(0.0895) | -0.0189<br>(0.0266) | -0.0383<br>(0.0766) | -4.38<br>(3.37)       | -3.64<br>(3.16) | -0.40<br>(1.44) | 1.52<br>(3.47)  | -0.0685***<br>(0.0225) |
| NREGS Phase 3<br>(Linear flexible) | 0.0692<br>(0.0883)  | 0.0990<br>(0.0949)  | -0.0076<br>(0.0301) | -0.0424<br>(0.0898) | 1.35<br>(3.76)        | 2.77<br>(3.26)  | 0.53<br>(1.64)  | 0.36<br>(3.83)  | -0.0312<br>(0.0225)    |
| NREGS Phase 3<br>(Quadratic)       | 0.0805<br>(0.0932)  | 0.1279<br>(0.0997)  | 0.0110<br>(0.0294)  | -0.0658<br>(0.0973) | 1.32<br>(3.97)        | 4.02<br>(3.43)  | 1.43<br>(1.62)  | -1.55<br>(4.12) | -0.0092<br>(0.0236)    |
| N                                  | 378                 | 378                 | 378                 | 378                 | 378                   | 378             | 378             | 378             | 378                    |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  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. Vote shares are given in percent. 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. Star state is an indicator variable equal to 1 if a state was identified as a high implementation quality state, and 0 otherwise. The five star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu.

Table A.14: Baseline Pre-Treatment Results Incumbent

|                            | incumbent Phase 1 vs 2 |                | incumbent Phase 2 vs 3 |                 |
|----------------------------|------------------------|----------------|------------------------|-----------------|
|                            | won                    | vote share     | won                    | vote share      |
|                            | (1)                    | (2)            | (3)                    | (4)             |
| NREGS<br>(Linear)          | 0.0791<br>(0.0817)     | 0.96<br>(3.35) | -0.0525<br>(0.0833)    | -3.03<br>(3.45) |
| NREGS<br>(Linear flexible) | 0.0797<br>(0.0842)     | 1.21<br>(3.40) | -0.0488<br>(0.0943)    | -3.08<br>(3.92) |
| NREGS<br>(Quadratic)       | 0.0966<br>(0.0879)     | 1.52<br>(3.53) | -0.0671<br>(0.1003)    | -3.71<br>(4.19) |
| N                          | 406                    | 406            | 406                    | 406             |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  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. Vote shares are given in percent. 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. An incumbent is an individual who won a plurality of votes in his/her constituency in the 2004 general elections and who contested the 2009 elections in any constituency.

Table A.15: Election Results Phase 1 vs Phase 2 (Full Sample)

|                                    | won constituencies  |                      |                      |                     | vote share in percent |                  |                |                 |                     |
|------------------------------------|---------------------|----------------------|----------------------|---------------------|-----------------------|------------------|----------------|-----------------|---------------------|
|                                    | INC                 | UPA                  | Left                 | BJP                 | INC                   | UPA              | Left           | BJP             | voter turnout       |
|                                    | (1)                 | (2)                  | (3)                  | (4)                 | (5)                   | (6)              | (7)            | (8)             | (9)                 |
| NREGS Phase 1<br>(Linear)          | -0.1272<br>(0.0818) | -0.1382*<br>(0.0836) | 0.0459**<br>(0.0228) | -0.0595<br>(0.0630) | -5.45<br>(3.48)       | -6.84*<br>(3.51) | 0.35<br>(1.47) | -2.77<br>(3.06) | -0.0297<br>(0.0288) |
| NREGS Phase 1<br>(Linear flexible) | -0.0823<br>(0.0834) | -0.0942<br>(0.0852)  | 0.0485*<br>(0.0258)  | -0.0656<br>(0.0632) | -3.63<br>(3.56)       | -5.58<br>(3.58)  | 0.67<br>(1.53) | -3.14<br>(3.05) | -0.0015<br>(0.0284) |
| NREGS Phase 1<br>(Quadratic)       | -0.0460<br>(0.0871) | -0.0426<br>(0.0888)  | 0.0529*<br>(0.0274)  | -0.0658<br>(0.0651) | -1.74<br>(3.72)       | -3.16<br>(3.77)  | 0.88<br>(1.62) | -2.94<br>(3.16) | 0.0148<br>(0.0304)  |
| N                                  | 406                 | 406                  | 406                  | 406                 | 406                   | 406              | 406            | 406             | 406                 |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.16: Election Results Phase 2 vs Phase 3 (Full Sample)

|                                    | won constituencies  |                     |                     |                     | vote share in percent |                 |                 |                 |                        |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|-----------------|-----------------|-----------------|------------------------|
|                                    | INC                 | UPA                 | Left                | BJP                 | INC                   | UPA             | Left            | BJP             | voter turnout          |
|                                    | (1)                 | (2)                 | (3)                 | (4)                 | (5)                   | (6)             | (7)             | (8)             | (9)                    |
| NREGS Phase 3<br>(Linear)          | -0.0473<br>(0.0819) | -0.0150<br>(0.0841) | -0.0111<br>(0.0152) | -0.0032<br>(0.0712) | -0.75<br>(3.33)       | 2.04<br>(3.13)  | -1.51<br>(1.20) | -0.02<br>(3.20) | -0.0916***<br>(0.0247) |
| NREGS Phase 3<br>(Linear flexible) | 0.0346<br>(0.0901)  | 0.0751<br>(0.0934)  | -0.0114<br>(0.0153) | -0.0127<br>(0.0809) | 2.90<br>(3.59)        | 6.24*<br>(3.23) | -0.89<br>(1.25) | -1.23<br>(3.56) | -0.0405*<br>(0.0244)   |
| NREGS Phase 3<br>(Quadratic)       | 0.0619<br>(0.0957)  | 0.1129<br>(0.0988)  | 0.0056<br>(0.0145)  | -0.0571<br>(0.0884) | 2.53<br>(3.83)        | 6.22*<br>(3.42) | -0.14<br>(1.30) | -3.66<br>(3.80) | -0.0166<br>(0.0253)    |
| N                                  | 406                 | 406                 | 406                 | 406                 | 406                   | 406             | 406             | 406             | 406                    |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.17: Star State Results Phase 1 vs Phase 2 (Full Sample)

|                                    | won constituencies     |                        |                     |                      | vote share in percent |                   |                 |                    | voter turnout         |
|------------------------------------|------------------------|------------------------|---------------------|----------------------|-----------------------|-------------------|-----------------|--------------------|-----------------------|
|                                    | INC                    | UPA                    | Left                | BJP                  | INC                   | UPA               | Left            | BJP                |                       |
|                                    | (1)                    | (2)                    | (3)                 | (4)                  | (5)                   | (6)               | (7)             | (8)                | (9)                   |
| NREGS Phase 1<br>(Linear)          | -0.2375***<br>(0.0868) | -0.2383***<br>(0.0898) | 0.0550*<br>(0.0288) | -0.0058<br>(0.0714)  | -8.34**<br>(3.83)     | -8.72**<br>(3.88) | -0.35<br>(1.79) | 0.85<br>(3.24)     | -0.0753**<br>(0.0336) |
| NREGS Phase 1*star                 | 0.2913***<br>(0.1129)  | 0.2399**<br>(0.1062)   | -0.0248<br>(0.0316) | -0.1656*<br>(0.0895) | 6.78<br>(4.28)        | 2.80<br>(4.00)    | 2.36<br>(1.87)  | -11.54**<br>(4.57) | 0.1324***<br>(0.0347) |
| NREGS Phase 1<br>(Linear flexible) | -0.1922**<br>(0.0885)  | -0.1971**<br>(0.0918)  | 0.0603*<br>(0.0333) | -0.0100<br>(0.0717)  | -6.40<br>(4.00)       | -7.64*<br>(4.04)  | 0.08<br>(1.91)  | 0.56<br>(3.25)     | -0.0406<br>(0.0343)   |
| NREGS Phase 1*star                 | 0.2559**<br>(0.1132)   | 0.2077*<br>(0.1076)    | -0.0290<br>(0.0327) | -0.1623*<br>(0.0889) | 5.26<br>(4.34)        | 1.96<br>(4.15)    | 2.02<br>(1.93)  | -11.31**<br>(4.59) | 0.1052***<br>(0.0352) |
| NREGS Phase 1<br>(Quadratic)       | -0.1700*<br>(0.0918)   | -0.1601*<br>(0.0955)   | 0.0661*<br>(0.0351) | -0.0078<br>(0.0737)  | -4.99<br>(4.18)       | -5.62<br>(4.29)   | 0.30<br>(2.01)  | 0.87<br>(3.38)     | -0.0293<br>(0.0365)   |
| NREGS Phase 1*star                 | 0.2638**<br>(0.1132)   | 0.2081*<br>(0.1068)    | -0.0293<br>(0.0326) | -0.1648*<br>(0.0889) | 5.41<br>(4.36)        | 1.54<br>(4.15)    | 2.09<br>(1.92)  | -11.55**<br>(4.58) | 0.1136***<br>(0.0350) |
| N                                  | 406                    | 406                    | 406                 | 406                  | 406                   | 406               | 406             | 406                | 406                   |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. Star state is an indicator variable equal to 1 if a state was identified as a high implementation quality state, and 0 otherwise. The five star states are Andhra Pradesh, Chhattisgarh, Madhya Pradesh, Rajasthan and Tamil Nadu.

Table A.18: Star State Results Phase 2 vs Phase 3 (Full Sample)

|                    | won constituencies |          |          |          | vote share in percent |          |        |          | voter turnout |
|--------------------|--------------------|----------|----------|----------|-----------------------|----------|--------|----------|---------------|
|                    | INC                | UPA      | Left     | BJP      | INC                   | UPA      | Left   | BJP      |               |
|                    | (1)                | (2)      | (3)      | (4)      | (5)                   | (6)      | (7)    | (8)      | (9)           |
| NREGS Phase 3      | 0.0717             | 0.0681   | -0.0151  | -0.0475  | 4.56                  | 4.72     | -1.42  | -4.19    | -0.0444       |
| (Linear)           | (0.0926)           | (0.0957) | (0.0191) | (0.0798) | (3.76)                | (3.62)   | (1.54) | (3.54)   | (0.0296)      |
| NREGS Phase 3*star | -0.2576**          | -0.1104  | 0.0061   | 0.1270   | -11.77***             | -2.02    | -0.70  | 12.69*** | -0.1281***    |
|                    | (0.1144)           | (0.1125) | (0.0224) | (0.0973) | (4.46)                | (3.81)   | (1.45) | (4.67)   | (0.0338)      |
| NREGS Phase 3      | 0.1798*            | 0.1795   | -0.0141  | 0.0262   | 10.02**               | 11.02*** | -0.49  | -0.70    | -0.0117       |
| (Linear flexible)  | (0.1066)           | (0.1100) | (0.0201) | (0.0931) | (4.31)                | (3.83)   | (1.71) | (4.18)   | (0.0294)      |
| NREGS Phase 3*star | -0.3495**          | -0.1599  | 0.0026   | -0.0799  | -17.68***             | -6.87    | -1.64  | 1.91     | -0.0915**     |
|                    | (0.1711)           | (0.1718) | (0.0238) | (0.1470) | (6.62)                | (5.05)   | (1.80) | (6.90)   | (0.0458)      |
| NREGS Phase 3      | 0.1481             | 0.1700   | 0.0003   | -0.0866  | 6.54                  | 8.11**   | -0.24  | -6.56*   | 0.0132        |
| (Quadratic)        | (0.1032)           | (0.1056) | (0.0164) | (0.0926) | (4.05)                | (3.63)   | (1.53) | (3.90)   | (0.0283)      |
| NREGS Phase 3*star | -0.2230*           | -0.0643  | 0.0131   | 0.1093   | -10.88**              | -0.49    | -0.17  | 11.61**  | -0.1020***    |
|                    | (0.1149)           | (0.1120) | (0.0243) | (0.0971) | (4.63)                | (3.90)   | (1.48) | (4.74)   | (0.0332)      |
| N                  | 406                | 406      | 406      | 406      | 406                   | 406      | 406    | 406      | 406           |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.19: Incumbent Results (Full Sample)

|                            | incumbent Phase 1 vs 2 |                   | incumbent Phase 2 vs 3 |                   |
|----------------------------|------------------------|-------------------|------------------------|-------------------|
|                            | won<br>(1)             | vote share<br>(2) | won<br>(3)             | vote share<br>(4) |
| NREGS<br>(Linear)          | 0.1455**<br>(0.0724)   | 1.65<br>(3.15)    | 0.0396<br>(0.0718)     | 0.47<br>(3.32)    |
| NREGS<br>(Linear flexible) | 0.1524**<br>(0.0755)   | 2.19<br>(3.32)    | 0.0349<br>(0.0797)     | 1.35<br>(3.63)    |
| NREGS<br>(Quadratic)       | 0.1719**<br>(0.0784)   | 2.81<br>(3.51)    | 0.0579<br>(0.0856)     | 1.26<br>(3.85)    |
| N                          | 406                    | 406               | 406                    | 406               |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. An incumbent is an individual who won a plurality of votes in his/her constituency in the 2004 general elections and who contested the 2009 elections in any constituency.

Table A.20: Incumbent Star Results (Full Sample)

|                   | incumbent Phase 1 vs 2 |                   | incumbent Phase 2 vs 3 |                   |
|-------------------|------------------------|-------------------|------------------------|-------------------|
|                   | won<br>(1)             | vote share<br>(2) | won<br>(3)             | vote share<br>(4) |
| NREGS             | 0.0767                 | 0.43              | 0.1822**               | 3.45              |
| (Linear)          | (0.0779)               | (3.51)            | (0.0811)               | (3.71)            |
| NREGS*star        | 0.1987*                | 3.40              | -0.3884***             | -8.05*            |
|                   | (0.1117)               | (4.65)            | (0.1034)               | (4.61)            |
| NREGS             | 0.0662                 | 0.42              | 0.1433                 | 5.17              |
| (Linear flexible) | (0.0828)               | (3.82)            | (0.0961)               | (4.21)            |
| NREGS*star        | 0.2901*                | 7.70              | -0.3549**              | -11.42            |
|                   | (0.1702)               | (7.31)            | (0.1558)               | (7.27)            |
| NREGS             | 0.0960                 | 1.57              | 0.1705*                | 3.57              |
| (Quadratic)       | (0.0854)               | (3.95)            | (0.0914)               | (4.10)            |
| NREGS*star        | 0.1908*                | 2.94              | -0.3937***             | -8.00*            |
|                   | (0.1132)               | (4.70)            | (0.1051)               | (4.69)            |
| N                 | 406                    | 406               | 406                    | 406               |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.21: Election Results: Probit specification won constituencies

|                              | Phase 1 vs Phase 2  |                      |                      |                     | Phase 2 vs Phase 3  |                     |                     |                     |
|------------------------------|---------------------|----------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
|                              | INC                 | UPA                  | Left                 | BJP                 | INC                 | UPA                 | Left                | BJP                 |
|                              | (1)                 | (2)                  | (3)                  | (4)                 | (5)                 | (6)                 | (7)                 | (8)                 |
| NREGS<br>(Linear)            | -0.1271<br>(0.0810) | -0.1381*<br>(0.0829) | 0.0521*<br>(0.0293)  | -0.0603<br>(0.0633) | -0.0506<br>(0.0820) | -0.0178<br>(0.0843) | -0.0166<br>(0.0222) | -0.0042<br>(0.0703) |
| x NREGS<br>(Linear flexible) | -0.0783<br>(0.0819) | -0.0916<br>(0.0841)  | 0.0503**<br>(0.0254) | -0.0682<br>(0.0653) | 0.0303<br>(0.0884)  | 0.0710<br>(0.0925)  | -0.0117<br>(0.0213) | -0.0106<br>(0.0762) |
| NREGS<br>(Quadratic)         | -0.0394<br>(0.0869) | -0.0372<br>(0.0888)  | 0.0491*<br>(0.0255)  | -0.0679<br>(0.0675) | 0.0609<br>(0.0940)  | 0.1110<br>(0.0975)  | 0.0454*<br>(0.0264) | -0.0485<br>(0.0811) |
| N                            | 406                 | 406                  | 406                  | 406                 | 406                 | 406                 | 406                 | 406                 |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.22: Star State Results: Probit specification won constituencies

|             |                   | Phase 1 vs Phase 2 |            |          |          | Phase 2 vs Phase 3 |          |          |
|-------------|-------------------|--------------------|------------|----------|----------|--------------------|----------|----------|
|             |                   | INC                | UPA        | Left     | BJP      | INC                | UPA      | BJP      |
|             |                   | (1)                | (2)        | (3)      | (4)      | (5)                | (6)      | (7)      |
| x.          | NREGS             | -0.2413***         | -0.2343*** | 0.0532*  | -0.0061  | 0.0681             | 0.0649   | -0.0471  |
|             | (Linear)          | (0.0871)           | (0.0869)   | (0.0307) | (0.0698) | (0.0924)           | (0.0932) | (0.0772) |
|             | NREGS*star        | 0.2804***          | 0.2379**   | 0.1178** | -0.1778* | -0.2443**          | -0.1087  | 0.1224   |
|             |                   | (0.1056)           | (0.1059)   | (0.0487) | (0.0981) | (0.1050)           | (0.1104) | (0.0924) |
|             | NREGS             | -0.1861**          | -0.1880**  | 0.0502*  | -0.0102  | 0.1763*            | 0.1760*  | 0.0260   |
|             | (Linear flexible) | (0.0881)           | (0.0885)   | (0.0260) | (0.0716) | (0.1034)           | (0.1053) | (0.0894) |
|             | NREGS*star        | 0.2380**           | 0.2007*    | 0.1117** | -0.1743* | -0.3365**          | -0.1597  | -0.0579  |
|             |                   | (0.1051)           | (0.1068)   | (0.0459) | (0.0977) | (0.1557)           | (0.1692) | (0.1420) |
|             | NREGS             | -0.1611*           | -0.1476    | 0.0502*  | -0.0073  | 0.1415             | 0.1625   | -0.0777  |
| (Quadratic) | (0.0932)          | (0.0931)           | (0.0262)   | (0.0736) | (0.0989) | (0.0996)           | (0.0851) |          |
| NREGS*star  | 0.2431**          | 0.1964*            | 0.1244**   | -0.1772* | -0.2049* | -0.0563            | 0.1055   |          |
|             | (0.1053)          | (0.1058)           | (0.0489)   | (0.0976) | (0.1059) | (0.1116)           | (0.0933) |          |
| N           |                   | 406                | 406        | 406      | 406      | 406                | 406      | 406      |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.23: Probit Incumbent Main and Star Results won constituencies

|                            | incumbent Phase 1 vs 2 |                     | incumbent Phase 2 vs 3 |                        |
|----------------------------|------------------------|---------------------|------------------------|------------------------|
|                            | main<br>(1)            | star<br>(2)         | main<br>(3)            | star<br>(4)            |
| NREGS<br>(Linear)          | 0.1460**<br>(0.0716)   | 0.0783<br>(0.0794)  | 0.0397<br>(0.0719)     | 0.1809**<br>(0.0809)   |
| NREGS*star                 |                        | 0.1794*<br>(0.1038) |                        | -0.3767***<br>(0.0988) |
| NREGS<br>(Linear flexible) | 0.1513**<br>(0.0731)   | 0.0683<br>(0.0836)  | 0.0350<br>(0.0791)     | 0.1452<br>(0.0920)     |
| NREGS*star                 |                        | 0.2549*<br>(0.1501) |                        | -0.3461**<br>(0.1585)  |
| NREGS<br>(Quadratic)       | 0.1715**<br>(0.0767)   | 0.0983<br>(0.0862)  | 0.0578<br>(0.0852)     | 0.1689*<br>(0.0907)    |
| NREGS*star                 |                        | 0.1719<br>(0.1047)  |                        | -0.3823***<br>(0.1002) |
| N                          | 406                    | 406                 | 406                    | 406                    |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.24: Election Results Phase 1 vs Phase 2 (TOT)

|                                    | won constituencies  |                     |                     |                     | vote share in percent |                    |                |                   | voter turnout       |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|--------------------|----------------|-------------------|---------------------|
|                                    | INC                 | UPA                 | Left                | BJP                 | INC                   | UPA                | Left           | BJP               |                     |
|                                    | (1)                 | (2)                 | (3)                 | (4)                 | (5)                   | (6)                | (7)            | (8)               | (9)                 |
| NREGS Phase 1<br>(Linear)          | -0.3332<br>(0.2239) | -0.3621<br>(0.2283) | 0.1201*<br>(0.0626) | -0.1559<br>(0.1717) | -14.28<br>(9.83)      | -17.93*<br>(10.12) | 0.92<br>(3.82) | -7.25<br>(8.29)   | -0.0778<br>(0.0768) |
| NREGS Phase 1<br>(Linear flexible) | -0.2581<br>(0.2543) | -0.2933<br>(0.2596) | 0.1442*<br>(0.0797) | -0.1944<br>(0.1989) | -11.34<br>(11.13)     | -17.02<br>(11.58)  | 1.91<br>(4.48) | -9.28<br>(9.53)   | -0.0122<br>(0.0854) |
| NREGS Phase 1<br>(Quadratic)       | -0.1573<br>(0.3002) | -0.1457<br>(0.3044) | 0.1809*<br>(0.1018) | -0.2248<br>(0.2419) | -5.94<br>(12.97)      | -10.80<br>(13.46)  | 3.01<br>(5.44) | -10.04<br>(11.52) | 0.0508<br>(0.1030)  |
| N                                  | 406                 | 406                 | 406                 | 406                 | 406                   | 406                | 406            | 406               | 406                 |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.25: Election Results Phase 2 vs Phase 3 (TOT)

|                                    | won constituencies  |                     |                     |                     | vote share in percent |                  |                 |                   | voter turnout          |
|------------------------------------|---------------------|---------------------|---------------------|---------------------|-----------------------|------------------|-----------------|-------------------|------------------------|
|                                    | INC                 | UPA                 | Left                | BJP                 | INC                   | UPA              | Left            | BJP               |                        |
|                                    | (1)                 | (2)                 | (3)                 | (4)                 | (5)                   | (6)              | (7)             | (8)               | (9)                    |
| NREGS Phase 3<br>(Linear)          | -0.1348<br>(0.2358) | -0.0429<br>(0.2400) | -0.0315<br>(0.0431) | -0.0090<br>(0.2021) | -2.13<br>(9.46)       | 5.82<br>(8.80)   | -4.30<br>(3.45) | -0.06<br>(9.10)   | -0.2611***<br>(0.0805) |
| NREGS Phase 3<br>(Linear flexible) | 0.1128<br>(0.2559)  | 0.2296<br>(0.2648)  | -0.0324<br>(0.0440) | -0.0380<br>(0.2317) | 8.90<br>(10.45)       | 18.53*<br>(9.72) | -2.45<br>(3.61) | -3.71<br>(10.17)  | -0.1068<br>(0.0765)    |
| NREGS Phase 3<br>(Quadratic)       | 0.2343<br>(0.3648)  | 0.4272<br>(0.3832)  | 0.0211<br>(0.0554)  | -0.2161<br>(0.3322) | 9.56<br>(15.01)       | 23.54<br>(14.45) | -0.54<br>(4.88) | -13.85<br>(14.54) | -0.0627<br>(0.0955)    |
| N                                  | 406                 | 406                 | 406                 | 406                 | 406                   | 406              | 406             | 406               | 406                    |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.26: Star State Results Phase 1 vs Phase 2 (TOT)

|                    | won constituencies |           |          |          | vote share in percent |          |        |          | voter turnout |
|--------------------|--------------------|-----------|----------|----------|-----------------------|----------|--------|----------|---------------|
|                    | INC                | UPA       | Left     | BJP      | INC                   | UPA      | Left   | BJP      |               |
|                    | (1)                | (2)       | (3)      | (4)      | (5)                   | (6)      | (7)    | (8)      | (9)           |
| NREGS Phase 1      | -0.5399**          | -0.5550** | 0.1360*  | -0.0574  | -19.85*               | -21.82** | -0.31  | -0.75    | -0.1611*      |
| (Linear)           | (0.2488)           | (0.2501)  | (0.0697) | (0.1791) | (10.68)               | (10.68)  | (4.32) | (8.24)   | (0.0909)      |
| NREGS Phase 1*star | 0.4715**           | 0.3824**  | -0.0354  | -0.2875* | 10.58                 | 3.64     | 4.03   | -19.86** | 0.2188***     |
|                    | (0.1943)           | (0.1794)  | (0.0572) | (0.1695) | (7.51)                | (7.63)   | (3.11) | (8.86)   | (0.0617)      |
| NREGS Phase 1      | -0.5137*           | -0.5442*  | 0.1725*  | -0.0863  | -18.41                | -23.05*  | 0.80   | -2.17    | -0.0993       |
| (Linear flexible)  | (0.2931)           | (0.2964)  | (0.0922) | (0.2113) | (12.61)               | (12.83)  | (5.29) | (9.69)   | (0.1061)      |
| NREGS Phase 1*star | 0.4610**           | 0.3781**  | -0.0499  | -0.2759  | 10.01                 | 4.13     | 3.59   | -19.30** | 0.1942***     |
|                    | (0.2004)           | (0.1876)  | (0.0601) | (0.1697) | (7.83)                | (7.99)   | (3.31) | (8.81)   | (0.0658)      |
| NREGS Phase 1      | -0.4849            | -0.4750   | 0.2217*  | -0.1027  | -15.29                | -19.28   | 2.01   | -2.15    | -0.0526       |
| (Quadratic)        | (0.3507)           | (0.3504)  | (0.1195) | (0.2581) | (14.98)               | (15.40)  | (6.47) | (11.89)  | (0.1254)      |
| NREGS Phase 1*star | 0.4589**           | 0.3642*   | -0.0550  | -0.2771  | 9.54                  | 3.06     | 3.50   | -19.54** | 0.1940***     |
|                    | (0.2027)           | (0.1885)  | (0.0654) | (0.1712) | (7.86)                | (8.00)   | (3.39) | (8.85)   | (0.0671)      |
| N                  | 406                | 406       | 406      | 406      | 406                   | 406      | 406    | 406      | 406           |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.27: Star State Results Phase 2 vs Phase 3 (TOT)

|                                    | won constituencies    |                     |                     |                     | vote share in percent |                    |                 |                   | voter turnout          |
|------------------------------------|-----------------------|---------------------|---------------------|---------------------|-----------------------|--------------------|-----------------|-------------------|------------------------|
|                                    | INC                   | UPA                 | Left                | BJP                 | INC                   | UPA                | Left            | BJP               |                        |
|                                    | (1)                   | (2)                 | (3)                 | (4)                 | (5)                   | (6)                | (7)             | (8)               | (9)                    |
| NREGS Phase 3<br>(Linear)          | 0.1304<br>(0.2470)    | 0.1617<br>(0.2543)  | -0.0412<br>(0.0503) | -0.0987<br>(0.2164) | 9.60<br>(10.16)       | 12.79<br>(9.59)    | -4.22<br>(4.07) | -8.28<br>(9.86)   | -0.1620**<br>(0.0804)  |
| NREGS Phase 3*star                 | -0.4330**<br>(0.1925) | -0.1753<br>(0.1836) | 0.0065<br>(0.0360)  | 0.2102<br>(0.1647)  | -19.44***<br>(7.33)   | -2.26<br>(6.09)    | -1.63<br>(2.33) | 21.15**<br>(8.36) | -0.2373***<br>(0.0877) |
| NREGS Phase 3<br>(Linear flexible) | 0.3244<br>(0.2691)    | 0.4188<br>(0.2785)  | -0.0421<br>(0.0506) | -0.0998<br>(0.2418) | 18.21<br>(11.29)      | 25.54**<br>(10.46) | -2.72<br>(4.10) | -8.99<br>(10.82)  | -0.0435<br>(0.0858)    |
| NREGS Phase 3*star                 | -0.3862**<br>(0.1907) | -0.1134<br>(0.1843) | 0.0063<br>(0.0355)  | 0.2099<br>(0.1654)  | -17.36**<br>(7.62)    | 0.81<br>(6.90)     | -1.27<br>(2.27) | 20.97**<br>(8.60) | -0.2087***<br>(0.0758) |
| NREGS Phase 3<br>(Quadratic)       | 0.4235<br>(0.3776)    | 0.6052<br>(0.4045)  | 0.0092<br>(0.0558)  | -0.2609<br>(0.3393) | 18.05<br>(15.59)      | 30.46**<br>(15.37) | -1.01<br>(5.17) | -17.69<br>(15.18) | -0.0133<br>(0.1065)    |
| NREGS Phase 3*star                 | -0.3270<br>(0.1994)   | -0.0149<br>(0.1962) | 0.0247<br>(0.0414)  | 0.1515<br>(0.1695)  | -16.38**<br>(8.22)    | 4.13<br>(7.75)     | -0.47<br>(2.20) | 17.74**<br>(8.58) | -0.1835**<br>(0.0727)  |
| N                                  | 406                   | 406                 | 406                 | 406                 | 406                   | 406                | 406             | 406               | 406                    |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.28: Incumbent Results (TOT)

|                            | incumbent Phase 1 vs 2 |                   | incumbent Phase 2 vs 3 |                   |
|----------------------------|------------------------|-------------------|------------------------|-------------------|
|                            | won<br>(1)             | vote share<br>(2) | won<br>(3)             | vote share<br>(4) |
| NREGS<br>(Linear)          | 0.3812**<br>(0.1939)   | 4.32<br>(8.22)    | 0.1130<br>(0.2076)     | 1.34<br>(9.48)    |
| NREGS<br>(Linear flexible) | 0.4534*<br>(0.2319)    | 6.40<br>(9.74)    | 0.0989<br>(0.2310)     | 4.00<br>(10.54)   |
| NREGS<br>(Quadratic)       | 0.5876**<br>(0.2989)   | 9.61<br>(12.07)   | 0.2189<br>(0.3383)     | 4.76<br>(14.85)   |
| N                          | 406                    | 406               | 406                    | 406               |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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. An incumbent is an individual who won a plurality of votes in his/her constituency in the 2004 general elections and who contested the 2009 elections in any constituency.

Table A.29: Incumbent Star Results (TOT)

|                   | incumbent Phase 1 vs 2 |            | incumbent Phase 2 vs 3 |            |
|-------------------|------------------------|------------|------------------------|------------|
|                   | won                    | vote share | won                    | vote share |
|                   | (1)                    | (2)        | (3)                    | (4)        |
| NREGS             | 0.2490                 | 1.97       | 0.4067*                | 7.51       |
| (Linear)          | (0.1875)               | (8.54)     | (0.2411)               | (10.25)    |
| NREGS*star        | 0.3545                 | 5.95       | -0.6325***             | -13.20*    |
|                   | (0.2259)               | (8.08)     | (0.1753)               | (7.68)     |
| NREGS             | 0.3075                 | 3.98       | 0.3149                 | 8.46       |
| (Linear flexible) | (0.2320)               | (10.54)    | (0.2589)               | (11.21)    |
| NREGS*star        | 0.3312                 | 5.15       | -0.6547***             | -12.97*    |
|                   | (0.2265)               | (8.22)     | (0.1822)               | (7.83)     |
| NREGS             | 0.4281                 | 6.91       | 0.4025                 | 8.60       |
| (Quadratic)       | (0.2940)               | (13.10)    | (0.3695)               | (15.29)    |
| NREGS*star        | 0.3136                 | 4.82       | -0.6341***             | -12.81     |
|                   | (0.2371)               | (8.38)     | (0.1871)               | (8.29)     |
| N                 | 406                    | 406        | 406                    | 406        |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.30: Star State Results DID Specification

|                                    | won constituencies  |                      |                    |                        | vote share in percent |                    |                  |                   | voter turnout          |
|------------------------------------|---------------------|----------------------|--------------------|------------------------|-----------------------|--------------------|------------------|-------------------|------------------------|
|                                    | INC<br>(1)          | UPA<br>(2)           | Left<br>(3)        | BJP<br>(4)             | INC<br>(5)            | UPA<br>(6)         | Left<br>(7)      | BJP<br>(8)        |                        |
| NREGS Phase 1<br>(Linear)          | -0.0567<br>(0.0647) | -0.1398*<br>(0.0725) | 0.0023<br>(0.0146) | 0.0860*<br>(0.0513)    | -7.90***<br>(2.32)    | -6.56***<br>(2.37) | 1.18<br>(1.17)   | -4.16**<br>(2.09) | -0.0287***<br>(0.0098) |
| NREGS Phase 1*star                 | 0.1635<br>(0.1036)  | 0.1283<br>(0.1061)   | 0.0101<br>(0.0089) | -0.1506**<br>(0.0685)  | 13.55***<br>(2.97)    | 14.59***<br>(3.08) | 0.29<br>(1.68)   | -4.24<br>(3.28)   | 0.0772***<br>(0.0134)  |
| NREGS Phase 3<br>(Linear flexible) | -0.0512<br>(0.0737) | 0.0373<br>(0.0823)   | 0.0023<br>(0.0207) | 0.0278<br>(0.0508)     | 5.37**<br>(2.33)      | 1.02<br>(2.24)     | -0.98<br>(0.96)  | 2.54<br>(2.28)    | 0.0028<br>(0.0085)     |
| NREGS Phase 3*star                 | 0.1171<br>(0.1189)  | 0.1768<br>(0.1155)   | 0.0117<br>(0.0186) | -0.2648***<br>(0.0952) | 1.80<br>(3.65)        | 12.03***<br>(2.84) | -1.42*<br>(0.72) | 9.32**<br>(3.71)  | 0.0226<br>(0.0153)     |
| N                                  | 784                 | 784                  | 784                | 784                    | 784                   | 784                | 784              | 784               | 784                    |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported. Vote shares are given in percent. 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 A.31: Financial Allocation Star State Results (2008/2009)

|                   | Phase 1 vs Phase 2 |            |           |            | Phase 2 vs Phase 3 |            |           |             |
|-------------------|--------------------|------------|-----------|------------|--------------------|------------|-----------|-------------|
|                   | centr. rel.        | tot. funds | tot. exp. | admin exp. | centr. rel.        | tot. funds | tot. exp. | admin exp.  |
|                   | (1)                | (2)        | (3)       | (4)        | (5)                | (6)        | (7)       | (8)         |
| NREGS             | 2303.70***         | 2535.78*** | 2137.52** | 22.41      | 307.07             | -184.96    | 2.87      | 18.02       |
| (Linear)          | (794.32)           | (956.14)   | (841.97)  | (25.83)    | (778.10)           | (895.54)   | (746.14)  | (26.05)     |
| NREGS*star        | 1120.88            | 1312.40    | 1167.04   | 163.83**   | -756.08            | -795.74    | -655.54   | -119.57**   |
|                   | (1857.55)          | (1943.82)  | (1742.40) | (76.55)    | (1869.02)          | (1979.81)  | (1817.03) | (59.50)     |
| NREGS             | 1917.42**          | 2124.01**  | 1795.82*  | 13.87      | -626.69            | -1144.67   | -838.37   | 1.32        |
| (Linear flexible) | (896.50)           | (1071.19)  | (971.13)  | (29.70)    | (684.78)           | (805.31)   | (628.04)  | (23.69)     |
| NREGS*star        | 1423.22            | 1634.69    | 1434.48   | 170.52**   | 790.59             | 844.24     | 310.89    | -124.78*    |
|                   | (1851.20)          | (1954.21)  | (1760.59) | (76.83)    | (2813.59)          | (2988.33)  | (2709.40) | (71.26)     |
| NREGS             | 1717.51*           | 1861.14    | 1576.65   | 4.51       | 93.71              | -296.26    | -243.04   | 19.97       |
| (Quadratic)       | (974.02)           | (1146.35)  | (1049.06) | (31.66)    | (949.88)           | (1064.40)  | (888.01)  | (27.30)     |
| NREGS*star        | 1359.73            | 1587.28    | 1395.56   | 171.13**   | -852.70            | -846.14    | -766.90   | -118.6815** |
|                   | (1860.2)           | (1956.87)  | (1757.97) | (76.70)    | (1911.18)          | (2029.08)  | (1866.33) | (59.59)     |
| N                 | 406                | 406        | 406       | 406        | 406                | 406        | 406       | 406         |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported.

Table A.32: Other Star State Results Phase 1 vs Phase 2

|                                    | pers.empl 1<br>(1)         | pub empl<br>(2)     | priv<br>(3)         | fam<br>(4)          | log wage<br>(5)      | per cap cons<br>(6)    |
|------------------------------------|----------------------------|---------------------|---------------------|---------------------|----------------------|------------------------|
| NREGS Phase 1<br>(Linear)          | 72364.88**<br>(35931.21)   | 0.0009<br>(0.0041)  | 0.0093<br>(0.0261)  | 0.0189<br>(0.0271)  | -0.0921*<br>(0.0536) | -0.1654***<br>(0.0440) |
| NREGS Phase 1*star                 | -132107.3***<br>(41397.96) | 0.0135<br>(0.0094)  | -0.0245<br>(0.0387) | -0.0146<br>(0.0424) | 0.1829**<br>(0.0794) | 0.1188**<br>(0.0600)   |
| NREGS Phase 1<br>(Linear flexible) | 85938.63**<br>(41308.33)   | -0.0031<br>(0.0047) | 0.0268<br>(0.0279)  | -0.0076<br>(0.0287) | -0.0790<br>(0.0566)  | -0.1377***<br>(0.0463) |
| NREGS Phase 1*star                 | -142731.3***<br>(44070.06) | 0.0167*<br>(0.0096) | -0.0384<br>(0.0387) | 0.0065<br>(0.0422)  | 0.1722**<br>(0.0808) | 0.0969<br>(0.0615)     |
| NREGS Phase 1<br>(Quadratic)       | 87078.83**<br>(44201.16)   | -0.0041<br>(0.0053) | 0.0285<br>(0.0291)  | -0.0148<br>(0.0300) | -0.0737<br>(0.0590)  | -0.1160**<br>(0.0484)  |
| NREGS Phase 1*star                 | -138102.6***<br>(43097.58) | 0.0158*<br>(0.0095) | -0.0332<br>(0.0389) | 0.0007<br>(0.0424)  | 0.1744**<br>(0.0806) | 0.0964<br>(0.0610)     |
| N                                  | 406                        | 418                 | 418                 | 418                 | 418                  | 418                    |

Note: \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported.

Table A.33: Other Star State Results Phase 2 vs Phase 3

|                                    | pers.empl<br>(1)           | pub empl<br>(2)     | priv<br>(3)         | fam<br>(4)          | log wage<br>(5)        | per cap cons<br>(6)   |
|------------------------------------|----------------------------|---------------------|---------------------|---------------------|------------------------|-----------------------|
| NREGS Phase 3<br>(Linear)          | -73588.23***<br>(24819.73) | 0.0029<br>(0.0041)  | -0.0176<br>(0.0261) | -0.0080<br>(0.0280) | 0.1730***<br>(0.0535)  | 0.1274***<br>(0.0435) |
| NREGS Phase 3*star                 | 134425.6***<br>(35612.88)  | -0.0078<br>(0.0069) | -0.0274<br>(0.0380) | 0.0691*<br>(0.0412) | -0.2445***<br>(0.0761) | -0.1356**<br>(0.0545) |
| NREGS Phase 3<br>(Linear flexible) | -77555.1***<br>(22451.19)  | -0.0010<br>(0.0035) | -0.0029<br>(0.0295) | -0.0263<br>(0.0310) | 0.1621***<br>(0.0604)  | 0.1757***<br>(0.0499) |
| NREGS Phase 3*star                 | 175921.2***<br>(48846.17)  | -0.0053<br>(0.0084) | -0.0127<br>(0.0572) | 0.0242<br>(0.0635)  | -0.1964*<br>(0.1154)   | -0.1396*<br>(0.0808)  |
| NREGS Phase 3<br>(Quadratic)       | -61627.13***<br>(22504.39) | 0.0010<br>(0.0037)  | 0.0010<br>(0.0289)  | -0.0397<br>(0.0307) | 0.1679***<br>(0.0594)  | 0.1533***<br>(0.0468) |
| NREGS Phase 3*star                 | 139842.1***<br>(37054.97)  | -0.0092<br>(0.0071) | -0.0139<br>(0.0391) | 0.0461<br>(0.0425)  | -0.2480***<br>(0.0783) | -0.1168**<br>(0.0564) |
| N                                  | 406                        | 406                 | 406                 | 406                 | 406                    | 406                   |

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Standard errors clustered at the district level in parentheses. An observation is an election constituency in the 2009 general election. Parametric regressions with different levels of flexibility are reported.