Political Economy of Information Disclosure: Evidence from Indian Rural Road Quality Audits

Chi Man Cheung*

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Abstract

Despite a growing literature on the importance of keeping voters informed about politicians' actions, independent and impartial information disclosure systems are exceptions rather than norms in low-capacity states. This research documents the political influence in distorting road quality audits in PMGSY, a nationwide rural road-building program in India. Comparing state-level road quality audit reports around the 2015 Bihar election, I estimate a 7.4 pp reported quality differential by party alignment between legislative constituency and state ruling government (over the sample average satisfactory rate of 64.9%). One-third of the differential can be explained by the assignment of auditors of different leniency. I also find evidence consistent with politicians delaying the inspections of roads of unsatisfactory quality in aligned constituencies until after the election. The same patterns are not observed in the national-level audits, which state-level governments have no control over. The results taken together suggest that out of electoral concerns, the state ruling party manipulates the reporting of audit outcomes, against the hypothesis of resource targeting to improve actual public good provision.

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1. Introduction

Poor governance is widespread in low-income democratic countries (UNDP, 2002). Two dominant theories attempt to explain this phenomenon of ill-functioning democracy. One theory is that a country's institution co-determines both governance and political development (Acemoglu et al., 2001; Acemoglu, 2010). It hypothesizes poor governance as a deterministic outcome of weak institutions: elections held in countries with a weak institution are doomed to electoral malfeasance of various kinds, ranging from electoral fraud to elite capture. Institutions, in turn, are determined by historical incidents that cause institutional reforms.

Another theory is that a well-functioning democratic system requires voters to be well-informed and politically active such that politicians can be held accountable (Przeworski et al., eds, 1999; Besley, 2007). This theory is somewhat more empathetic as it provides clear and unambiguous policy prescriptions. Empirically, it is supported by a growing literature that takes advantage of exogenous variation in information disclosures to study their influence on electoral accountability (Ferraz and Finan, 2008; Banerjee et al., 2011; Bobonis et al., 2016; Fisman et al., 2019). However, independent and impartial information disclosure systems are exceptions rather than norms in reality, especially in low-capacity states.

This research integrates insights from both theories and highlights the importance of understanding political dynamics in designing any information disclosure system. I show that the ruling party uses an audit system aimed at providing voters with information about the outcome of public good provision as a tool of political economy to help aligned politicians and harm non-aligned politicians at the local level. To that end, I document the influence of politics in distorting information disclosure in a nationwide rural road construction program in India. A unique multi-tier quality monitoring system is in place to ensure the quality of roads built under the program is up to standard. The state-level audits are managed by a state-level agency headed by a supposedly politically neutral civil service bureaucrat, which in practice

is often subject to manipulation of the state ruling party due to career concerns. On the other hand, the national-level audits are coordinated centrally and carried out by external engineers, and thus insulated from local politicians' influence.

I estimate the impact on road quality audit reporting of the constituency being represented by a politician aligned with the state ruling party. I refer these constituencies as aligned constituencies.[1] I use a difference-in-difference (DID) research design based on over 7,000 state-level road quality audits one year before and after the 2015 Bihar election. Unlike a standard DID design, we do not have a clearly defined control unit during the one-year pre-election treatment period, since the state ruling party has the incentive to favorably treat aligned constituencies and unfavorably treat non-aligned constituencies. I define the positive (negative) treatment group as constituencies represented by a politician (not) aligned with the state ruling party before the election. Note that this definition of treatment groups by pre-election party affiliation is time-invariant, although the alignment status post-election might have changed due to turnovers of either the state ruling party or the local politicians. The one-year post-election period, where the alignment status might have changed and the next election is remote, is used as the control period. I show that under the standard parallel trend assumption, the interaction coefficient estimate from a standard difference-in-difference regression framework identifies the differential quality report effect by alignment status.[2] This DID approach only requires that either treatment group is not treated during the control period and imposes no assumption on whether the quality audit scores have to be the same between the positive and negative treatment groups during the control period.

I do not find any differential alignment impact in terms of the extensive margin – roads in aligned constituencies are not differentially more likely to be audited. In contrast, there is an

[1] Blocks and constituencies are administrative and political regions within districts. Their boundaries might overlap. Due to data constraints, I consider the set of blocks that are entirely aligned or entirely non-aligned. Hence, blocks and constituencies are used interchangeably. The matching procedure is detailed in section 3.3.

[2] It is effectively the cross-alignment difference in the pre-post differences.

economically significant intensive margin. I estimate a 7.4 pp reported quality differential by alignment status (over the sample average passing rate of 64.9%). The same pattern is not observed when I run the same specification using a sample of national quality audits. It bolsters that proposed explanation of audit report manipulation rather than aligned politicians exerting more efforts or being allocated more resources to improve actual public good provision. I provide evidence on two potential mechanisms: auditor assignment and manipulation of audit timing. To test for the auditor assignment mechanism, I use the auditor information associated with each quality audit to estimate auditor fixed effects, which can be interpreted as the leniency of the auditors. The estimation is based on a sample not restricted to only one year before and after the election, alleviating concerns that the predicted fixed effects do not consistently estimate auditors' leniency. Consistent with the information manipulation hypothesis, I find that roads in aligned constituencies are differentially assigned more lenient auditors right before the election. On the timing manipulation mechanism, roads that turn out to fail the audits are more likely to be audited before the election in non-aligned constituencies than in aligned constituencies. It suggests that the state ruling party precisely manipulated the audit timing to release unfavorable information after the election.

Although this paper does not take a stance on whether voters are aware of such manipulation, the information manipulation hypothesis is built upon the premise that voters do take into account the audit outcome when casting their votes. Thus, I provide suggestive evidence that these quality reports matter to voters: the state ruling party is more likely to win as the reported audit outcome is better. Also, the effect is restricted to reports released before the election but not after, highlighting the role of audit information in influencing voters' choices.

My work serves as a cautionary tale in relations to the empirical investigations that document improved voters' access to information enhances electoral accountability (Ferraz and Finan, 2008; Snyder and Strömberg, 2010; Banerjee et al., 2011; Bobonis et al., 2016; Fisman et al., 2019), reduces corruption and improves public good provision (Olken, 2007; Djankov et al.,

2010; Reinikka and Svensson, 2011; Avis et al., 2018; Banerjee et al., 2018, 2020). This literature exploits either quasi-experimental variation or experimental variation in studying the consequences of improving voters' access to information. My context-specific finding shows that audit programs can be subject to the manipulation of local politicians. In this regard, the most closely related paper is Fisman and Wang (2017), which shows Chinese bureaucrats at the local level underreport workplace-related accidental deaths to satisfy promotion requirements set by the upper-level government. My paper investigates politicians' misbehavior out of electoral motives in a weak democracy, suggesting that the problem of misreporting is universal across the spectrum of political regimes.

Relatedly, my paper contributes to the literature studying the effectiveness of policies to rectify the problem of misreporting. Duflo et al. (2013) finds that auditors chosen and paid by the firms they audit systematically under-report plant emissions and shows that randomly assigning third-party auditors reduces misreporting and reduces actual emissions as a downstream effect. Vannutelli (2020) finds that shifting control over municipal budget auditor assignments away from local politicians improves Italian municipalities' fiscal performance, demonstrating the importance of independence in auditing. My paper differs from these two settings in that neither the auditors nor the politicians are from the private sector.[3]

2. Institutional Background

2.1 PMGSY

According to the 2001 census, over half of 600,000 rural villages in India were unconnected to a road. Pradhan Mantri Gram Sadak Yojana (PMGSY), a nationwide program introduced in 2000 by the then prime minister Atal Bihari Vajpayee, aims to provide paved "all-weather" rural roads to all previously unconnected villages. As of February 2021, 161,709 road projects have

[3]In Duflo et al. (2013), both the auditors and the firms are private sector players. In Vannutelli (2020), the auditors are private practice Certified Public Accountants.

been completed under PMGSY, translating into 652,403 km of constructed roads. It started as a 100% centrally sponsored scheme. From 2015 November onwards, the funding contribution is shared between the center and the state in a ratio of 60:40.[4]

The program's enormous scale and wide geographical coverage have attracted massive interest both from policymakers and academic researchers to study its welfare impact.[5] Instead of studying yet another dimension of the program's welfare impact, this study explores the inner working of the program's quality monitoring system. In particular, I document the complicit involvement of politicians in influencing quality reporting. To provide a more detailed discussion of the political dynamics, I focus on the Eastern state of Bihar, the single largest beneficiary of the PMGSY program, with 17,023 road works completed connecting 53,678 km. It is also one of the BIMARU states - an acronym standing for Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh, which are singled out for corruption and dysfunction.[6]

At the central level, the Ministry of Rural Development, which oversees the PMGSY program, has set up the National Rural Roads Development Agency (NRRDA) to provide state-level implementation units with operational and management support.[7] The implementation of PMGSY is decentralized at the state level. When the program was launched in 2000, each state government would identify a pre-existing agency that has established records in executing road construction works to be the "Nodal Department", which assumes the overall responsibility of implementation in the state. The Nodal Department then identifies a "State Rural Road Development Agency (SRRDA)" under its control as the agency dedicated to rural roads.[8] The Secretary in charge of the Nodal Department shall be the Chief Executive of the SRRDA. In

[4]This took place during the sample period. However, due to the long time lag between road construction approval and quality inspection, none of the sample audits are carried out on roads approved under the new funding sharing scheme.

[5]Asher and Novosad (2020) shows that PMGSY rural road access has a small effect on the village economies relative to its cost. Adukia et al. (2020) found a positive effect on education attainment.

[6]The Hindi word "bimar" means "sick". Bihar has a population of 99 million and the lowest per capita income of INR 13,482 (USD 185) amongst 33 Indian states and union territories, one-third of the national average.

[7]Part II Section 14, PMGSY Programme Guidelines (April 2012)

[8]Part II Section 7, PMGSY Programme Guidelines (April 2012)

Bihar, the Nodal Department and the SRRDA are Rural Works Department (RWD) and Bihar Rural Roads Development Agency (BRRDA). As in all state-level government departments in India, RWD is headed by a minister from the state ruling coalition. Below the minister is the Secretary of RWD, a politically neutral officer in the Indian Administrative Service (IAS), the government bureaucracy's elite layer with less than 5,000 members. Another IAS officer is appointed to the dual role of Additional Chief Executive of BRRDA and Additional Secretary of RWD.[9]

There is a three-tier quality monitoring system in place to ensure a satisfactory quality of the road works. The NRRDA issued the general guidelines on quality control and compiled a quality control handbook to be followed by all three tiers of the quality control system. The first and the most local level of quality control concerns quality management of the input of the road construction (e.g., materials and workmanship). On the other hand, both the second level (state) and the third level (national) focus on the outcome's quality. They are therefore directly comparable and are the subjects of this study. At the state level, each state government appoints a senior Engineer to be the State Quality Coordinator (SQC). The SQC, under the SRRDA, is in charge of coordinating State Quality Monitors (SQM), the auditors who carry out regular inspections and collect samples of materials for testing. On the other hand, national-level audits are coordinated centrally by the NRRRDA – the selection of roads to be audited is randomized according to the program guidelines. They are carried out by National Quality Monitors (NQM), who are mainly retired engineers from other states.[10] To summarize, state quality audits as managed by state-level bureaucrats are subject to politicians' capture. In contrast, the centrally managed national quality audits are less prone to such capture.

[9] https://rwdbihar.gov.in/ContactUS.aspx
[10] Part II Section 15, Programme Guidelines (April 2012)

2.2 Roles of MLAs in PMGSY

The state of Bihar has a bicameral legislature. Members of the Legislative Assembly (MLA) are representatives elected to the state-level legislature's lower house. An electoral term lasts for 5 years, and the election runs on a first-past-the-post basis. The three most recent MLA elections in Bihar were 2010, 2015, and 2020. Despite a parliamentary system, Bihar has followed the 5-year electoral cycle closely since 1985. Thus, we can treat the election timing as exogenous.

Under the PMGSY program guidelines, MLAs are granted practically no role in the implementation of PMGSY. Their scope of involvement is restricted to the initial planning stage. In particular, they have no official functions in the state and national levels of the quality monitoring system.[11] Thus, any systematic relationship between electoral cycles and the reported outcome under the quality control system can be interpreted as evidence for political intervention. In particular, I document in the main analyses a systematic relationship between electoral cycles and state quality monitoring, but not national quality monitoring.

In fact, there are many accounts that MLAs often exercise their power beyond right. Chopra (1996) shows that although MLAs' official function is to represent their constituents in state legislative assemblies, only 3 percent of the MLAs surveyed report assembly work as the task they spend the most time on. According to Jensenius (2013), state assemblies meet as few as 10 times a year, and "much more important to the MLAs are all their unofficial tasks of delivering pork, blessing occasions, and helping people out with their individual problems". In the context of PMGSY, Lehne et al. (2018) document MLAs' influence in intervening in the contracting procedure on behalf of members of their private network. Regarding the impact of alignment with the ruling party on road construction, Bohlken (2018) shows that alignment facilitates access to a PMGSY road. Yet, road construction in constituencies of senior aligned politicians is rated lower quality than in the constituencies of ordinary legislators aligned with

[11] Part II Sections 4.1, 4.6, and 15.10.2, PMGSY Programme Guidelines (April 2012)

the ruling party and non-aligned constituencies.[12]

As described above, it is the IAS bureaucrats, instead of politicians, who have direct control over the state-level quality monitoring. Iyer and Mani (2012) proposes a mechanism that leads to the convergence of their interest: the chief minister, the de facto head of the state government formed by the state ruling coalition, can control bureaucrats by reassigning them to positions of varying importance. Besides, transfers across states are infrequent, so bureaucrats with career concerns have a strong incentive to comply with the chief minister's commands. Iyer and Mani (2012) also documents that as a new chief minister comes in, there are more frequent transfers in districts with less aligned politicians, consistent with the explanations of tightening political control out of electoral concerns rather than efficiency-driven motivations.

3. Data

3.1 PMGSY audit data

I obtain administrative data on road length, road costs, reported quality associated with each PMGSY audits carried out in Bihar between January 2014 and December 2017 from the official PMGSY website (http://omms.nic.in). To isolate the influence of the electoral incentive around election, the main analyses are based on audits taken place one year before and one year after the polling date of the 2015 Bihar election, October 12th. As a result, our final dataset covers 7,404 state quality audits and 914 national quality audits.

Table 1 shows the summary statistics of sample state-level audits. The tables report the binarily measured audit outcome, budgeted cost of construction, and budgeted length of audited

[12] Bohlken (2018) does not distinguish the two levels of audits and takes inspection outcome from either level of audits as impartial measures of road quality. In light of the main conclusion of this paper – state-level audit results are subject to politicians' manipulation, the results from Bohlken (2018) should be interpreted with cautions.

roads. These budgets are determined by the NRRDA based on pre-determined rules and not malleable by the state-level bureaucracy or politicians. A given road can be audited multiple times and can be audited before the construction is completed. I code a first inspection dummy that indicates the first audit on any given road, and a completion upon instruction dummy that indicates the road construction is completed upon inspection.

The numbers of observations in Columns 2 and 3 indicate state-level audits are more likely to happen right before elections. More importantly, right before elections, roads are more likely to fail state quality audits. Figure 1 graphically presents this finding on a binscatter plot. Interestingly, the same pattern is not observed in national-level audits. However, despite the narrow time window we focus on, these observations cannot be interpreted as evidence of manipulation. For example, it can be due to the newly elected state government imposing a different set of quality monitoring guidelines which affects quality audits in both aligned and non-aligned constituencies homogeneously. In the main empirical analyses, I will further cut the data by pre-election alignment status and explore differential quality reporting.

3.2 Bihar state assembly election data

I use Bihar 2010 and 2015 state election data made available by the Trivedi Centre for Political Data. In each election, for each of the 243 assembly constituencies, I have information on the winning candidate's party affiliation and his/her winning margin. The 2010 election data is treated as pre-determined in the analyses. In particular, I use the party affiliation of the winning candidate in 2010 to assign constituencies to different treatment groups: if a candidate winning in 2010 belongs to Janata Dal-United (JDU), the party of the chief minister, his/her constituency is assigned to the positive treatment group; otherwise, to the negative treatment group.

3.3 Probabilistic matching

The PMGSY audit dataset contains location information on the administrative block, but not the assembly constituency.[13] To compare audits in aligned constituencies and non-aligned constituencies, I probabilistically match blocks and constituencies as follows. Within the state of Bihar, there are 38 districts. Below the districts are 534 blocks and 243 legislative assembly constituencies, of which the boundaries often overlap. Even though a block is on average smaller than a constituency, the former does not necessarily fit within the latter. Blocks and constituencies are composed of villages. I match constituencies and blocks using a correspondence that links each village (the administrative unit below block) to a constituency. If all villages in a given block belong to constituencies aligned with JDU, the chief minister's party, the block is defined as an aligned block. If all villages in a given block belong to constituencies that are non-aligned, the block is defined as a non-aligned block. To mitigate the measurement issues and ease interpretation, I restrict the sample to 315 blocks that are entirely aligned or non-aligned (out of 534).

4. Empirical Design

4.1 Potential outcome framework in the absence of pure controls

I build upon the potential outcome framework to elaborate on the difference-in-difference (DID) identification strategy and prove that under the standard parallel trend assumption, the coefficient estimate on the interaction term identifies the differential reporting effect of the aligned blocks relative to the non-aligned blocks. Note that the treatment groups are defined by pre-election party affiliation, hence a time-invariant classification even though the alignment status post-election might have changed due to turnovers of either the state ruling party

[13] Administrative block is the administrative level below district designated for the purpose of rural development.

or the local politicians.

This setting diverges from a standard DID setting in two ways. First, the treatment period is defined as the period before the election, $t = 0$, instead of the post period, $t = 1$. Second and more importantly, there is no clearly defined control units in the treatment period. Both aligned (A) and non-aligned (NA) blocks are treated in the pre-election period, albeit in different directions. The aligned blocks are treated favorably by the ruling party, while the non-aligned blocks are treated unfavorably. Thus, for every unit i in period t, there are three potential outcomes, $z_{it} \in \{-1, 0, 1\}$, which denote unfavorable treatment, control, and favorable treatment respectively. The treatment status can be summarized as follows: $z_{i0}(A) = 1, z_{i1}(A) = 0, z_{i0}(NA) = -1, z_{i1}(NA) = 0$. Let $Y_{it}(z_{it})$ be the potential outcome for unit i in period t when receiving a treatment status z_{it}.

Given the absence of a pure control group, we cannot separately identify $E[Y_{it}(1) - Y_{it}(0)|A]$ and $E[Y_{it}(-1) - Y_{it}(0)|NA]$, namely the positive treatment effect on the aligned blocks and the negative treatment effect on the non-aligned blocks.

However, we can identify another parameter of interest, the manipulation effect of the aligned blocks relative to the non-aligned blocks. It is given by $\tau = E[Y_{i0}(1) - Y_{i0}(0)|A] - E[Y_{i0}(-1) - Y_{i0}(0)|NA] = E[Y_{i0}(1)|A] - E[Y_{i0}(-1)|NA] + E[Y_{i0}(0)|NA] - E[Y_{i0}(0)|A]$, where the last two terms are missing potential outcomes that are unobserved by us econometricans. By making the standard parallel trend assumption, $E[Y_{i0}(0) - Y_{i1}(0)|A] = E[Y_{i0}(0) - Y_{i1}(0)|NA]$, we can replace the last two terms with population moments as follows. $\tau = E[Y_{i0}(1)|A] - E[Y_{i0}(-1)|NA] + E[Y_{i1}(0)|NA] - E[Y_{i1}(0)|A] = E[Y_{i0}(1) - Y_{i1}(0)|A] - E[Y_{i0}(-1) - Y_{i1}(0)|NA]$, of which the sample analog and its standard error can be estimated directly using a standard DID regression framework.

To summarize, even though alignment status is clearly not randomly assigned, to the extent that there is no time-varying cofounding, the coefficient estimate from the standard DID re-

gression specification can be interpreted as the differential reporting effect by alignment status.

4.2 Empirical specification

Suppose the hypothesis of audit manipulation holds. In that case, we should observe that blocks with aligned politicians (belonging to Janata Dal (United), the state ruling party of Bihar) have a higher average reported road quality right before elections (relative to after). In contrast, the non-aligned blocks have a lower reported quality. The regression specification to test for such heterogeneous effects is as follows.

$$Audit\_outcome_{ibt} = \beta_1 Before\_poll_t + \beta_2 Alignment_b \times Before\_poll_t + \lambda X'_{ibt} + \alpha_b + \varepsilon_{ibt}$$

$Audit\_outcome_{ibt}$ is the binary outcome measure of audit i taken place in block b and period t, which takes the value of 1 if the audit outcome is satisfactory. $Alignment_b$ indicates whether the MLA winning the 2010 election in block b shares the same party affiliation with the chief minister. $Before\_poll_t$ is an indicator variable for inspection taken place before the election. X'_{ibt} are controls of pre-determined observable road characteristics. α_b captures block fixed effect. ε_{ibt} represents idiosyncratic error. The sample is restricted to audits taken place 365 days before and after the 2015 MLA election in Bihar. Throughout, we report standard errors clustered at the block level, the level the treatment is assigned.

To the extent that the chief minister manipulates audit outcomes to help aligned blocks against non-aligned blocks, I expect the audit outcomes to be differentially better in aligned blocks relative to the non-aligned blocks, thereby $\beta_2 > 0$.

5. Secondary Findings

To help interpret the main results on differential quality reporting before the election, I first describe two sets of secondary findings.

5.1 No differential extensive margin

To the extent that reporting manipulation is electorally beneficial, the ruling party might have the incentive to ramp up the frequency of audits before the election. However, since the occurrence of an audit does not necessarily send a positive or negative signal to the voters, it is ex-ante unclear whether the ruling party would allocate more audits to aligned or non-aligned blocks. Column 1 shows that the frequency of audits indeed increases right before the election. To detect the differential effect, I ran the main specification at the block-period level, replacing the dependent variables by $ln(N\_audit_{bt})$. Table 2 shows that there is no differential targetting in terms of audit occurrence. Two explanations consistent with the null differential in the extensive margin are as follows: (1) technological constraint in targetting by alignment status, and (2) an indifferent net gain in manipulating audits in aligned and non-aligned blocks.

5.2 No differential targetting on observables

If there is any feature of a road associated with lower quality, the ruling party will tend to audit more roads with those features in the non-aligned blocks, and less in the aligned blocks. To detect such differential effect, I ran the main specification replacing the dependent variables with various observable road characteristics. Table 3 shows that there is no differential targetting based on observables. To the extent that these variables are pre-determined, I include them as controls in alternative specifications when examining the main results. The main results are virtually unchanged.

6. Main Results: Differential Quality Reporting

Table 4 present the main findings. The main statistic of interest is the coefficient estimate on the interaction term, which represents differential quality reporting between aligned and non-aligned blocks. Columns 1 and 2 indicate a differential reporting effect of 7.5pp. It represents an effect size of 10.7% relative to the sample average satisfactory rate of 69%, or a 0.16 standard deviation effect given the sample standard deviation of 46.3%.

Two distinct hypotheses can rationalize this result: (i) politicians target resources to aligned blocks to improve the actual road quality (resource targetting), and (ii) politicians influence the reporting of audit outcome without improving the actual quality (information manipulation).

To rule out the resource targeting explanation, I use national audits, which are insulated from state-level politicians' influence, as an impartial measure of actual quality. To the extent that the resource targeting explanation is valid, we should see the two tiers of quality audits displaying differential reporting of the same sign. Column 3 suggests otherwise – the differential reporting on national audits has an opposite sign to the state audits and is insignificant. This discrepancy between state quality reporting and national quality reporting rejects the resource targeting in favor of the information manipulation hypothesis. A concern that remains legitimate is that by the same logic, BJP, the national ruling party and a major opposition party in Bihar, might manipulate the national audits. Yet, this concern is not consistent with the null interaction term presented in Column 4.[14] In sum, the suspicious pattern of differential reporting observed only in state-level audits, but not in national-level audits, lends strong support to the local politicians' information manipulation hypothesis.[15]

[14]The full set of analyses based on national audits are in the online appendix, including summary statistics (Table A1) and differential targetting. In sum, there appears to be no differential effect between blocks aligned with the BJP and those that are not.

[15]Ideally, we would compare results from the two levels of audits that are carried out on the same road, to precisely identify the within-road discrepancy in reporting. However, the small number of national audits in the sample period results in a lack of overlap and insufficient power to conduct a within-road analysis.

6.1 Mechanism #1: auditor assignment

The main results are estimated using a sample of 7,404 audits restricted within a one-year bandwidth of the 2015 election. In the unrestricted sample from 2011 to 2018, there are 32,836 audits carried out by 171 unique auditors, of which 55 audited at least one road in the sample period. By residualizing audit outcome by a set of block fixed effects and inspection year fixed effects, I predict a fixed effect for every auditor, which can be interpreted as their time-invariant leniency. The auditor fixed effect estimation is based on the unrestricted sample, beyond the narrow one-year window. It addresses the concern that the predicted fixed effects reflect the endogenous assignment of roads of different actual quality, rather than the auditors' leniency.

The interaction in Column 1 in Table 5 suggests that right before the election, aligned blocks are assigned more lenient auditors that are on average 2.9pp more likely to pass the state quality audit. To gauge the quantitative importance of the assignment of auditors of different leniency, I include in the third column the predicted auditor fixed effects. A comparison between the second and the third column suggests that auditor assignment explains one-third of the differential reporting. Together with the null results on national quality audits presented earlier, it provides compelling evidence that the differential reporting is driven by audit report manipulation instead of actual resource targetting.

6.2 Mechanism #2: manipulation of audit timing

The auditor assignment mechanism suggests that politicians are capable of manipulating the audit outcomes, conditional on the actual quality of the roads. Another mechanism consistent with the main results is politicians manipulating the timing of audits, conditional on the audit outcomes. Assuming the state ruling party has private information on the road quality even prior to the inspections, they can strategically accelerate inspections of roads of satisfac-

tory quality and delay inspections of roads of unsatisfactory quality in aligned blocks and do the opposite in the non-aligned blocks, such that information in its (dis)advantage is released before (after) the election, vice versa in non-aligned blocks. To test this mechanism of audit timing manipulation, I use data on the construction completion date of roads to compute a measure of inspection lag, defined as the number of days between the date of road construction completion and the date of audit. Considering the set of roads completed before the election, in the absence of manipulation, roads of similar quality should have an equal chance to be inspected before the election in either aligned or non-aligned blocks. Figure 2 suggests the opposite. While for roads that turn out to be satisfactory, there is no discernable difference in the share of roads being inspected before the election by alignment status, unsatisfactory roads are 4.2pp more likely to be inspected before the election in non-aligned than in aligned blocks. It is consistent with the state ruling party delaying audits of roads of unsatisfactory quality in aligned blocks. The same observation can be rationalized by the acceleration of audits of roads of unsatisfactory quality in non-aligned blocks. The bottom line is either explanation points towards manipulation of audit timing on the part of the state ruling party.

6.3 Robustness: parallel trend after election

To better understand the dynamics around the election, I extend the sample to two years before and two years after the election, and split it into eight six-month bins, with the first six months after the election serving as the benchmark period. Figure 3 presents the results of this event study specification. The insignificant interaction terms in the post-period (control period) are reassuring, suggesting that parallel trend assumption holds in the absence of treatment.

In addition, the differential reporting is concentrated during the 18 to 6 month period leading up to the election, while the interaction effect is insignificant during the 6 months immediately

before the election.[16] It indicates that the ruling party time the audit report release precisely such that it has enough time to distribute the information to the voters during its re-election campaign.

6.4 Heterogeneity by political competitivenss

I explore the differential reporting heterogeneity by two dimensions of political competitiveness in Table 6. Firstly, I consider the heterogeneity by whether JDU puts on a candidate in the block (Columns 1 and 2). Consistent with the hypothesis that the differential reporting is aimed at gaining political support, the effect is more substantial in blocks where JDU did put on a candidate in the 2015 election. Although this finding is consistent with the theory, a caveat is that it cannot be interpreted as causal because whether JDU put on a candidate is an endogenous choice.[17]

Secondly, I investigate the heterogeneity by cutting the sample by block-level winning margins in the previous 2010 state election. Interestingly, the differential reporting effect is neither observed in the least competitive blocks nor the most competitive blocks, appearing inconsistent with politicians influencing pivotal voters to change the electoral outcomes or consolidating electoral strongholds. It can be explained by the incumbency disadvantage that characterizes Indian state-level politics. In my sample, only 70, out of 193 aligned blocks in 2010, were able to defend their seats in 2015. Therefore, it might be reasonable for the ruling party to concentrates its limited manipulative capacity on the blocks where its action has the best potential of swaying the electoral outcomes.

[16] The general election, which elects members of the parliament and the president, took place in 2014 April. Thus, the insignificant term during the 24 to 18 month period leading up to 2015 December Bihar state election, can be explained by the different political dynamics before the general election.

[17] For example, the causal chain can go in the opposite direction: the JDU has less control over the bureaucracy in a given block and thus decides to opt out of running in this block. Proving the causality requires a study of policies that give rise to exogenous variation in candidate eligibility, such as the quota system by caste in India (Pande, 2003). This is a work in progress.

7. Voter Responses

To complete the story, I present in Table 7 suggestive evidence that voters do take into account the inspection outcome when casting their votes. In aligned blocks, the ruling party's probability of winning the election is positively correlated with audit outcomes released before the election, but not those released after (Column 1). It is consistent with voters positively responding to favorable inspection results.[18] Moreover, relative to the road completion date, inspections are lagged by a median of 316 days. Given the narrow one-year window sample, to the extent that voters are rewarding completion of high-quality roads, the lag in inspection in reflecting road quality predicts a positive sign on favorable reporting released even after the election. However, the coefficient on post-election reporting is insignificant. It implies that voters derive information from (potentially biased) audit reports, rather than actual policy outcomes, when making a voting decision, and politicians strategically respond.[19]

The results are robust to applying analytical weights that correspond to the number of audits at the block level (Column 2). Results on the non-aligned blocks are insignificant (Columns 3 and 4).

8. Conclusions

Using a newly collected dataset that contains information on the universe of state-level quality audits of PMGSY, a rural road-building program in India, I estimate a 7.4pp reported quality differential by alignment status in the state of Bihar. The reduced form results can be explained by two mechanisms: endogenous auditor assignment and manipulation of audit timing. One-

[18] This specification is in the spirit of Ferraz and Finan (2008), which compare the electoral outcomes of Brazilian municipalities audited before versus after the 2004 elections. However, my results cannot be interpreted as causal since the audit timings are not exogenously determined. A potential indirect test is to explore the interaction between report release and block-level media availability - voters should be more responsive to audit reports if such information is readily available (Besley and Burgess, 2002). This is a work in progress.

[19] This finding is related to experimental studies in India that explore the electoral response to information treatment on policy outcomes Banerjee et al. (2011, 2018) or candidates' criminal background (George et al., 2019).

third of the effect can be explained by the assignment of auditors of different innate leniency, suggesting the ruling party manipulating the quality reports by exerting pressure on the state level auditors. On the other hand, roads that are completed before the election and turn out to be unsatisfactory are 4.2pp more likely to be inspected before the election in non-aligned regions than in aligned regions. It points towards audit timing manipulation that electorally benefits the aligned politicians and harms the non-aligned ones.

The same patterns are not observed in the national audits, where the state-level politicians have absolutely no control, either formally or informally. The results of the two levels of quality audits taken together favor the information manipulation hypothesis, rather than the resource targetting hypothesis. The heterogeneity analysis shows that the effect is not concentrated in the constituencies that are the most competitive in the previous election, confirming the importance of using the proposed DID identification strategy over a regression discontinuity design using close elections.

The literature that studies the consequence of audits leverage either experimental variation or randomized variation in natural experiments. This paper extends this literature by providing a more nuanced view on the determinants of the audit processes. The results suggest that we cannot always take audits as taking place in a vacuum. It highlights the importance of understanding the political dynamics in affecting information disclosure.

There are several issues I neglect in the analysis. One issue concerns the complicated relationship between bureaucrats and politicians. While I present anecdotal evidence that describes the illicit exchange between the bureaucrats and politicians both in PMGSY and other contexts, I assume their interests are perfectly aligned in the analyses, effectively treating them as a single entity. Future research can model it as a principal-agent problem and provide a more involved discussion about under what circumstances bureaucrats would be more responsive to politicians' demands. Another issue concerns the responses of the voters. This paper only

provides suggestive correlational evidence on voters' responses to the information, albeit biased in favor of the ruling party. An extension could elaborate on voters' belief updating, particularly whether voters' responses to the information take into account that it is potentially biased. It requires exogenous variation in information provision and represents a possible direction in future research.

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9. Tables

Table 1: SUMMARY STATISTICS BEFORE AND AFTER ELECTION - STATE QUALITY MONITOR

	(1)	(2)	(3)	(4)
Variable	Full Sample	Before	After	Difference
Reported quality (binary)	0.69	0.63	0.80	-0.17***
	(0.46)	(0.48)	(0.40)	(0.00)
Road sanctioned cost (INR 100,000)	160.83	162.12	158.38	3.75
	(136.79)	(140.16)	(130.12)	(0.25)
ln(cost)	4.83	4.83	4.84	-0.01
	(0.69)	(0.70)	(0.65)	(0.39)
Road sanctioned length (km)	2.81	2.94	2.55	0.39***
	(2.55)	(2.69)	(2.26)	(0.00)
ln(length)	0.77	0.80	0.70	0.10***
	(0.70)	(0.72)	(0.66)	(0.00)
Sanctioned cost per km (INR 100,000)	60.41	58.22	64.59	-6.37***
	(15.28)	(15.91)	(13.01)	(0.00)
ln(cost per km)	4.07	4.03	4.14	-0.12***
	(0.27)	(0.28)	(0.24)	(0.00)
First inspection of the road (binary)	0.52	0.64	0.28	0.36***
	(0.50)	(0.48)	(0.45)	(0.00)
Completion of the roads upon inspection (binary)	0.49	0.52	0.42	0.10***
	(0.50)	(0.50)	(0.49)	(0.00)
Observations	7,404	4,856	2,548	7,404

Parentheses in Column 1 and Column 2 include standard deviations. Parentheses in Column 3 include robust standard errors.

All analyses use inspection data 365 days before and after 2015 MLA election in Bihar

$^{*}p < 0.10,^{**} p < 0.05,^{***} p < 0.01$

Table 2: AUDIT FREQUENCY AROUND ELECTION

	SQM	NQM
	(1)	(2)
Dependent Variable	ln(audit frequency)	
Before election	0.640***	-0.419**
	(0.062)	(0.188)
Before election x CM alignment (2010)	-0.018	
	(0.088)	
Before election x BJP (2010)		0.086
		(0.318)
Mean dep. var (untransformed)	11.465	2.174
S.D.	9.745	1.328
Block F.E.	Yes	Yes
Obs.	630	264
R-squared	0.804	0.570

Standard errors clustered at the block level

Table 3: STATE AUDIT TARGETTING AROUND ELECTION

	ln(cost)	ln(length)	ln(cost per km)	First inspection	Construction completed
	(1)	(2)	(3)	(4)	(5)
Before election	0.011	0.119***	-0.107***	0.399***	0.067**
	(0.024)	(0.027)	(0.013)	(0.030)	(0.030)
Before election x CM alignment (2010)	-0.042	-0.048	0.006	-0.012	0.026
	(0.031)	(0.034)	(0.017)	(0.043)	(0.038)
Block F.E.	Yes	Yes	Yes	Yes	Yes
Obs.	7403	7403	7403	7403	7403
R-squared	0.226	0.183	0.319	0.239	0.169

Standard errors clustered at the block level

Table 4: AUDIT REPORT AROUND ELECTION

	(1)	(2)	(3)	(4)
Dependent Variable	SQM Audit Outcome		NQM Audit Outcome	
Before election	-0.207***	-0.105***	0.078	0.027
	(0.021)	(0.022)	(0.086)	(0.054)
Before election x CM alignment (2010)	0.075**	0.074**	-0.068	
	(0.032)	(0.031)	(0.102)	
Before election x BJP (2010)				0.038
				(0.109)
Mean dep. var	0.690	0.690	0.570	0.570
S.D.	0.463	0.463	0.495	0.495
Control	No	Yes	Yes	Yes
Block F.E.	Yes	Yes	Yes	Yes
Obs.	7403	7403	838	838
R-squared	0.165	0.224	0.365	0.364

Controls: first inspection, completion upon inspection, ln(sanctioned cost per km)

Standard errors clustered at the block level

Table 5: STATE AUDIT MANIPULATION MECHANISM

	(1)	(2)	(3)
Dependent Variable	Pred. monitor FE	SQM Audit Outcome	
Before election	-0.004	-0.105***	-0.102***
	(0.011)	(0.022)	(0.021)
Before election x CM alignment (2010)	0.029**	0.074**	0.049*
	(0.014)	(0.031)	(0.029)
Predicted monitor FE			0.872***
			(0.046)
Mean dep. var	-0.000	0.690	0.690
S.D.	0.154	0.463	0.463
Control	Yes	Yes	Yes
Block F.E.	Yes	Yes	Yes
Obs.	7403	7403	7403
R-squared	0.204	0.224	0.291

Controls: first inspection, completion upon inspection, ln(sanctioned cost per km)

Standard errors clustered at the block level

Table 6: STATE AUDIT REPORT: HETEROGENEITY

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	SQM Audit Outcome				
	JDU candidate in 2015		2010 Winning margin		
	No	Yes	Small	Middle	Large
Before election	-0.107***	-0.103***	-0.078**	-0.186***	-0.032
	(0.029)	(0.035)	(0.034)	(0.034)	(0.045)
Before election x CM alignment (2010)	0.043	0.081*	0.034	0.183***	-0.013
	(0.051)	(0.042)	(0.053)	(0.055)	(0.053)
Control	Yes	Yes	Yes	Yes	Yes
Block F.E.	Yes	Yes	Yes	Yes	Yes
Obs.	3107	4296	2671	2419	2313
R-squared	0.231	0.218	0.243	0.214	0.225

Controls: first inspection, completion upon inspection, ln(sanctioned cost per km)

Standard errors clustered at the block level

Table 7: VOTER RESPONSE TO INSPECTION OUTCOME

	(1)	(2)	(3)	(4)
Dependent Variable	JDU winning in 2015			
	CM Alignment (in 2010)			
	Yes		No	
Avg audit outcome before election	0.414***	0.455**	0.054	0.005
	(0.138)	(0.190)	(0.088)	(0.151)
Avg audit outcome after election	-0.001	-0.076	0.029	-0.016
	(0.144)	(0.196)	(0.136)	(0.164)
Weight	No	Yes	No	Yes
Obs.	168	168	138	138
R-squared	0.052	0.044	0.003	0.000

Robust standard errors. Weights refer to the analytical weights by the total number of audits at the block level.

10. Figures

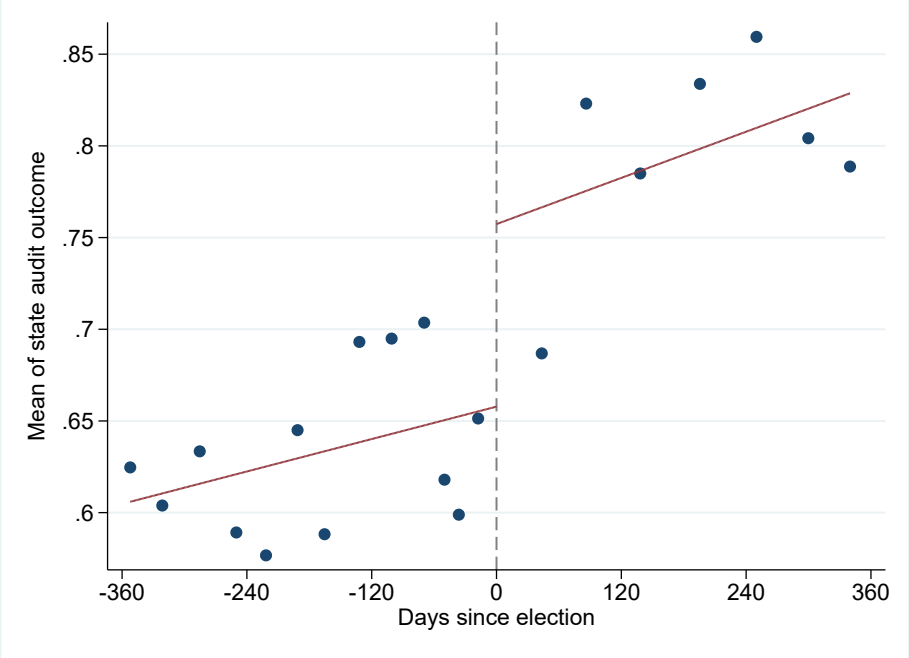

Figure 1: State Audit Results Before and After 2015 Bihar Election

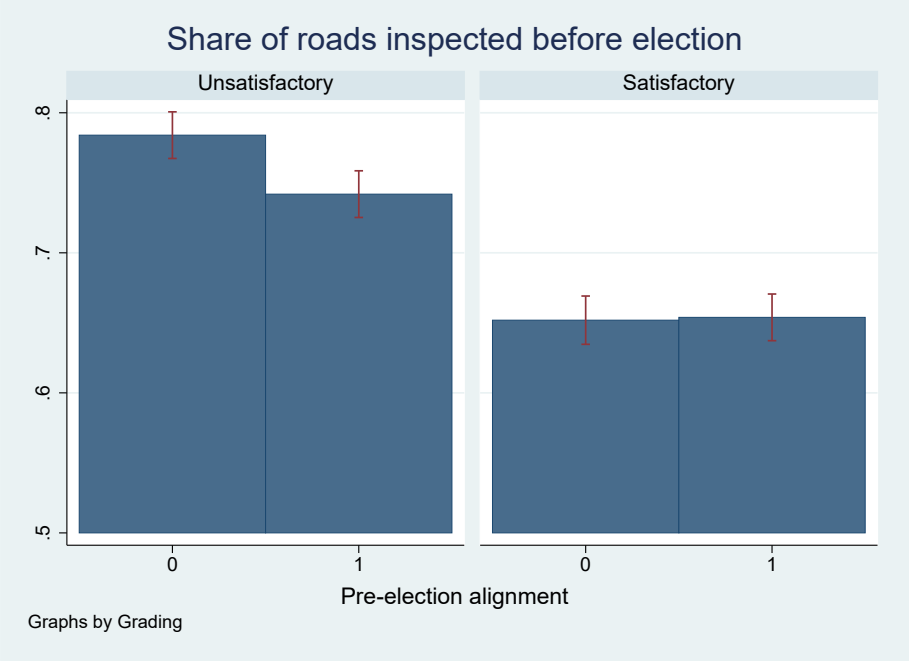

Figure 2: Shares of roads inspected before election by inspection outcomes

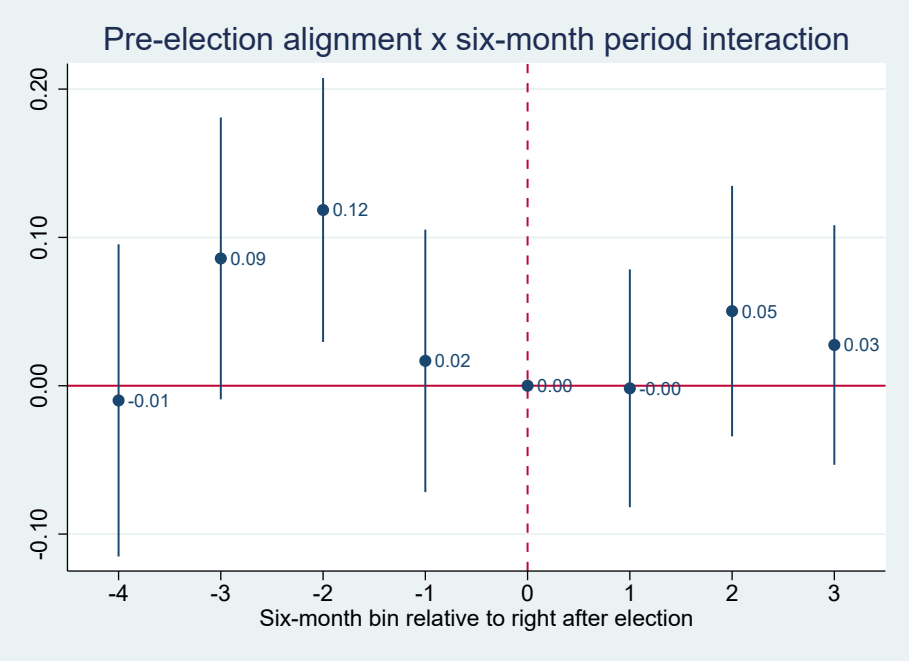

Figure 3: Event Study Plot