Does NOTA Affect Voter Turnout? Evidence from State Legislative Elections in India

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Abstract: This paper explores the impact of introduction of the 'None of the Above' (NOTA) option in Indian legislative elections. NOTA was introduced as a ballot option following the Supreme Court ruling in 2013 based on the argument that more choices to voters will enhance voter participation. We take advantage of the state-time variation in introduction of NOTA option in state legislative assembly electionsin 2013 to study its impact on voter turnout. Using election data from five major Indian states between 2008 and 2013, we find evidences suggesting that NOTA may not have led to increased voter participation. However, our results are not conclusive.

Introduction

In July 2013, the Supreme Court of India, in response to a public interest litigation (PIL) filed by the People's Union for Civil Liberties (PUCL), ruled that voters should be given the choice to reject all candidates who are competing for being elected in their respective constituencies. Based on the perception that more voting choices will likely result in higher voter turnout, the Supreme Court,accordingly directed the Election Commission of India to include the option "None of the Above" (also popularly known as NOTA) in the electronic voting machines and ballot papers.The Supreme Court asserted that NOTA will specifically encourage those voters to

cast their ballots, who otherwise would not vote because they were not satisfied with any of the candidates contesting in the election. The Supreme Court furthernoted that the NOTA option might alsoaid in cleansing the Indian political system to some extent. According to the then Chief Justice of India, P Sathasivam, *"Negative voting will lead to a systemic change in polls and political parties will be forced to project clean candidates. If the right to vote is a statutory right, then the right to reject a candidate is a fundamental right of speech and expression under the Constitution."*(Chauhan 2013). Thus by exercising NOTA option, the electorate can send a strong message to the political parties that some people are unhappy with the parties' choice of nominatedcandidates. This,in turn, can be expected to put immense moral pressure on political parties for fieldingonly those candidates who are generally more acceptable to the electorate. Moreover, empoweringvoters with the option of rejecting all candidates would also likely lead to a "systemic change" in the entire electoral process.

Besides the mere logical anticipations following the introduction of the NOTA option, NOTA should undoubtedly have profound theoretical and practical implications in the realm of social choice and voting procedure. Following the July 2013 decision by the apex court, NOTA option appeared first in state legislative elections held during the second half of 2013. Major states where NOTA was implemented in 2013 were Delhi, Rajasthan, Madhya Pradesh and Chhattisgarh. Compared to 2008 state legislative elections, in 2013 voter turnout in these states increased by an average of 6.79 percentage points. The increase in voter turnout ranged from 2.97 percentage pointsin Madhya Pradesh to 9.18 percentage points in Rajasthan. Despite the substantial increase in voter turnout in 2013 elections following the implementation of the NOTA option, all of thisincrease cannot be purely attributed to the introduction of NOTA alone. Over time, India has experienced wide variations in voter participation. Voter turnout as percentage of eligible voters in national elections have ranged between 55%and 70% since the first general elections of 1952. In the state of Karnataka, where state legislative elections were held during the first half of 2013 prior to the introduction of NOTA, a 6.23 percentage point increase in voter turnout was observed compared to the 2008 elections. Hence it is reasonableto comprehend that there can be amyriad of factors besides NOTA that might have caused the significant increase in voter turnout in 2013 compared to the 2008 elections.

The legislative elections held in the states of Madhya Pradesh, Rajasthan, Karnataka, Delhi and Chhattisgarh during 2008 and 2013 present us witha unique opportunity to test the hypothesis

whether voter turnout really increased due to the introduction of NOTA in 2013. In 2008, all the above mentioned states had state legislative elections without NOTA option while in 2013 these states exceptKarnataka incorporatedNOTA in their election ballots. Since the Supreme Court decision regarding NOTA was not influenced by the upcoming state elections, we can safely assume that states where NOTA was implemented were randomly chosen. Hence, byexploiting the variation in the timing of the reform, we use a differences-in-difference methodology to test the hypothesis whether NOTA increased voter turnout in state legislative elections. The remainder of the paper is organized as follows. Related literature, although very scarce, will be discussed in the next section. In the following section we overview the data and present some descriptive statistics.Then we report and discuss our empirical findings. Final sectionconcludes the paper.

Related Literature and Contextualization of the Issue

According to Fiorina and Shepsley(1989), "Negative voting occurs when voters respond more strongly to political actions or outcomes that they oppose than to comparable actions or outcomes they favor". Therefore, NOTA can be viewed as an instance of negative voting since it is a vote of disapproval. This disapproval can be a reflection of public discontent with both the choice of contesting candidates as well as the political parties'advocated policies. The general theory predicts that a negative voting option would give disgruntled voters an opportunity to demonstrate their dissatisfaction and hence will naturally increase electoral participation. In the case of NOTA, higher voter dissatisfaction might also induce political parties reconsider their choice of candidates and this eventually will bring more accountability in the overall electoral process.

Existing academic literature exploring the linkage between negative voting and voter participation is extremely rare. Katju (2013) examines electoral participation by investigating voter turnout figures in countries which have the option of negative voting. In Sweden where voters have the option of casting a negative vote in form of a blank vote, voter turnouts have been as high as 85%, whereas the blank vote countshave remained around less than 1%. Greece and Brazil, both countries with the provision of casting negative votes also report high voter turnouts, but unlike Sweden, they both implement a system of compulsory voting. The first general electionsheld in Bangladeshwith the no vote option in 2008 witnessed a significant

increase in voter turnout. Although the voter turnout figures in Bangladesh reached a staggering 78.93% mark, the no vote figure failed to merely cross 1%.

Prior research documenting electoral participation in India and analyzing its underlying patterns is limited. Diwakar (2008) studied the factors determining voter turnout in Indian general elections over the period 1951 to 2004. She finds turnout tends to be higher in states with higher literacy rates and in instances where elections are closely fought. In addition, both a larger electorate and states with a higher proportion of urban population correspond to lower turnout percentages.The author asserts that her findings are consistent with the established "rational-voter model[1]", according to which the chance of casting the pivotal vote that can affect anoverall electoral outcome is extremely miniscule from an individual voter's perspective. Yadav (2000) disaggregates voter turnout statistics in India in terms of regions and prominent social groups to understand the changing nature of political participation among Indian voters in the 1990s. Yadav's key thesis is that although overall turnout figures have not increased dramatically (in the 1990s), the composition of those who vote has undergone a major change. In particular, the author notes that there is a democratic upsurge among the socially underprivileged groups – the Scheduled Castes and Scheduled Tribes, while the increase in participation rates has not been observed in some other disadvantaged groups, for instance Muslims and women. McMillan (2005) focusses on the effect of electoral reservation of constituencies for candidates from Scheduled Castes and Scheduled Tribes on voter turnout. He uses evidence from survey data to conclude that although voters in Scheduled Tribe constituencies are less likely to vote, there is no clear indication that Scheduled Tribes themselves vote significantly differently to other voters. He reports similar results for Scheduled Caste constituencies and finds that electoral reservation has little impact on turnout behavior of members of the Scheduled Castes. Furthermore, turnout in reserved and general seats have shown a clear pattern of convergence over time.

To the best of our knowledge,Chatterjee et al. (2016) is the only study which studies the impact NOTA on voter turnout rates in India. Specifically, the authors use consumption utility models of voting found evidences that NOTA increasedvoting. Their study indicates that substitution from

[1]The "rational-votermodel" is due to Downs (1957) which contends that for an individual voter, the costsassociated with voting exceed the expected benefits.

candidate votes to NOTA is minimal. Instead, most NOTA votes are cast by new voters who turn out to vote specifically for this option.

Assembly Elections in India – A Background

India is a federal parliamentary democratic republic in which the President of India is the head of state and the Prime Minister of India is the head of government. India follows the dual polity system, i.e. a double government which consists of the central authority at the center and the states at the periphery. The constitution defines the organization, powers and limitations of both central and state governments, and it is well-recognized, rigid and considered supreme; i.e. laws of the nation must conform to it. The governments, union or state, are formed through elections held every five years (unless otherwise specified), by parties that claim a majority of members in their respective lower houses (Lok Sabha in center and Vidhan Sabha in states). The party or coalition that wins the mostnumber of seats in an assembly forms the state government headed by a Chief Minister andhis council of ministers. In 2013, 8 out of the 29 Indian states and the National CapitalTerritory of Delhi held assembly elections, in different months.All elections in India are conducted by the Election Commission of India under thesupervision of the chief election commissioner. Since independence, the Commission hasemerged as a highly regarded institution with a large degree of autonomy (McMillan, 2010).

India follows a quota based affirmative action policy called “Reservation”. Scheduled Castes (SC), Scheduled Tribes (ST) and Other Backward Classes (OBC), and in some states Backward Classes among Muslims under a category called BC(M), are the primary beneficiaries of the reservation policies under the Constitution – with the objective of ensuring a fair inclusiveness in the society. In the system of political reservation, some constituencies are also designated as Scheduled Caste(SC) and some as Scheduled Tribe (ST), in which only candidates from these given castes can runfor office. However, to win, they must still obtain a plurality of all votes regardless of voter’scaste. The reservedstatus of SC and ST constituencies is set at the same time as the electoral boundaries aredrawn. The current electoral constituencies were set in April 2008 by a delimitation commission working under the Election Commission.

Participation rates in Indian elections tend to be high. In our state election data for 2008average turnout was 68% and only 3% of the constituencies had turnout lower than 50%.

Empirical Strategy

Our goal is to estimate the effects of NOTA on voter participation as measured by percentage of votes polled. One straightforward way to achieve this is to compare the change in mean percentage of votes polledbetween pre and post NOTA periods– for states impacted by NOTA with the potential mean changes in percentage of votes polled if they were not affected by NOTA. Since it is not possible to observe how voting would have evolved without NOTA, we exploit the unequal effects of NOTA by including those states where NOTA was not implemented in the comparison set but still resemble the counterfactual scenario as closely as possible. Following standard program evaluation literature, we postulate two states of nature: one where percentage of votes polled is not affected by the introduction of NOTA and the other in which NOTA affected the percentage of votes polled. We then estimate the effect of NOTA on votes polled by comparing the changes in percentage of votes polled between these two competitive states. To quantify the change that results from the introduction of NOTA, we apply a difference-in-differences (DID hereafter) approach. The principle of a DID analysis is based upon the comparison of the average effect of a treatment (here the states with NOTA) on an outcome (here the percentage of votes polled), between two groups: the treatment group that includes subjects exposed to the treatment (T = 1) and the complementary group, called the control group, that includes subjects unexposed to the treatment (T = 0). Let $Y_{it}(0)$ be the percentage of votes polled in state i at time t in a non-treated state and $Y_{it}(1)$ be the percentage of votes polled under treatment, respectively. The average treatment effect (ATE) to be estimated can be expressed as $E[Y_{it1}(1) - Y_{it0}(1)|T=1] - E[Y_{it1}(0) - Y_{it0}(0)|T=0]$ where t0 and t1 are the pre and post treatment times, respectively. The simple estimate of the average treatment effect is derived by computing an unconditional difference-in-differences. The key identification assumption here is that, in the absence of NOTA, the percentage of votes polled would have evolved identically between the two groups.

Data and descriptive analysis

Our main data source is the Election Commission of India. Poll data for 2008 and 2013 state assembly elections are collected for each constituency in Karnataka, Rajasthan, Madhya Pradesh, Delhi and Chhattisgarh[2]. Primary variables of interest are – voter turnout measured by number of actual votes as percentage of the total eligible voting population in a constituency reported for a particular election, reservation status of the constituency (e.g. SC, ST or General)and votes polled under NOTA.

Figure 1 shows the histogram of voter turnout across districts over the two assembly elections between 2008 and 2013. The curve shown represents kernel density, which resembles a normal distribution in this case thus implying a well-spread-out distribution around the mean. There is a large concentration of points between 60% and 80%, with the mean and median valueslying around 70% and 71.5%, respectively.

Panel A in Figure 2 shows a box plot of voter turnout trends across constituencies in 2008 and 2013 state legislativeelections. Each box represents the turnout in a particular election year at the constituency level, and also shows the range of inter-constituency variation in that particular year. The boxes are drawn in a manner that their lower and the upper bounds represent the 25th and 75th percentile values of the distribution respectively within a particular year. Similarly, the upper and lower bounds of the two whiskers represent almost the whole distribution, while the points outside the whiskers show the outliers. The line drawn inside each box shows the median turnout in a particular election. It is evident from Panel A in Figure 2 that turnoutclearly varied across the constituencies. Panel A also depicts that across all states, votes polled is substantially higher is 2013 compared to 2008. In 2013, average votes polled was 73.5% across all five states considered in this paper, whereas, in 2008 it was 67%. Votes polled also varied largely across states, as can be seen from Table 1 where we present summary statistics of voter turnout by state. In 2013, the polling rate was 77.5% in Chhattisgarh compared to 57.8% in Delhi. Except for Delhi, voterturnout also tends to be lower in constituencies reserved for SC compared to General or ST category. Panel B in Figure 2 shows the box plot for voter turnout across states.

During the 2013 legislative elections in the states of Rajasthan, Chhattisgarh, Madhya Pradesh and Delhi, about 1.4% of total votes polled were for NOTA. However, this number varied widely

[2] In 2013, state legislative elections also took place in the states of Tripura, Meghalaya and Nagaland. We left out these states since almost all the seats in these states are reserved for Scheduled Tribes.

across states ranging from 0.6% in Delhi to 3.1 % in Chhattisgarh (see Panel C in Figure 2). It is also visible that within states, share of votes polled for NOTA is higher in constituencies reserved for SC/ST compared to general constituencies (see Panel D in Figure 2 and Figure 3). For example, in Chhattisgarh, share of votes polled under NOTA in SC and ST reserved constituencies were 2.75% and 4.71% respectively, compared to 2.38% in general constituencies. In contrast in Delhi, which is an urban area, only 0.61% of votes polled for NOTA were in general constituencies and 0.78% were cast in constituencies reserved for SC. It is to be noted that Delhi does not have any constituency reserved for ST category.

The primary purpose of having a NOTA option in the ballot was to give more choices to the voter, which in turn was expected to increase voter participation in the electoral process. Though share of votes polled increased substantially across all the state elections where NOTA was introduced, however, it is not conclusive that the increase was primarily driven by the introduction of the NOTA option.

Econometric analysis

In order to decipher the impact of NOTA on voting, we will exploit a policy break in the introduction of NOTA during the 2013 legislative elections. Following the Supreme Court judgement, NOTA was introduced in September 2013 for elections in the states of Delhi, Chhattisgarh, Madhya Pradesh and Rajasthan. However, in May 2013, state legislative election was conducted in Karnataka when NOTA option was not implemented. This break in policy introduction allows us to make use of a natural experiment scenario with Delhi, Chhattisgarh, Madhya Pradesh and Rajasthan being the treatment group and Karnataka as the control, a crucial underlying assumption being that Karnataka represents a good control group for our experiment.

Among the states under study, Delhi and Chhattisgarh have smaller population compared to the other states. Delhi also has an extremely small rural population and negligible Scheduled Tribe population. This is expected since Delhi is primarily an urban city which was declared a separate state only in 1993. Delhi also has the highest per capita income that is larger by a factor of 3-4 compared to the other states considered in this study. Apart from Delhi, all the other states are similar in terms of demography and economy. To ensure the robustness of our results, we will estimate our econometric model using different combination of states. However, Karnataka will remain our only control state.

For the DID estimator to identify and consistently estimate the average effect, one may assume that assignment to treatment is independent of the outcome. Based on natural-experiment terminology, this means that assignment to the treatment group is not confounded with the outcome (also known as the *unconfoundedness assumption*, see Rosenbaum and Rubin, 1983). This estimate will be biased if factors that could affect outcome variables vary significantly across the treated and the comparison groups. For our particular case, the unconfoundedness assumption is easy to sustain since the treatment assignment is random. The Supreme Court decision to implement NOTA came after the Karnataka election and these two events are not related. According to standard DID approach, the effects of NOTA on votes polled is approximated by the following Ordinary Least Squares (OLS) regression

$$Y_{it} = \beta_0 + \beta_1 NOTA_i + \beta_2 PostNOTA_t + \beta_3 NOTA_i \times PostNOTA_t + \delta' Z_{it} + \varepsilon_{it}$$

where $Y_{it}$is the percentage of voter turnout in state i in time period t, $PostNOTA_t$is a dummy variable that identifies post NOTA period, i.e. $PostNOTA_t$=1 if year is 2013 and 0 otherwise. $NOTA_i$is a dummy variable such that $NOTA_i$ =1 if state i belongs to the treatment group. The average effect of introduction of NOTA is captured through the coefficient vector β_3. In addition, we have a set of control variables Z_{it}.

Results

Our main results are reported in Table 3. The dependent variable is the percentage of votes polled in state i in time period t and the explanatory variables are a set of dummy variables. We have included a dummy variable $Reserved_{it}$ which takes value 1 if a particular seat is reserved for SC/ST. We have also interacted this dummy variable with $PostNOTA_t$and $NOTA_i$ to tease out any possible interaction effects. Our parameter of interest is coefficient β_3 associated with the variable $NOTA_i$x $PostNOTA_t$(this variable takes value 1 if a particular state is part of the treatment group and the period is 2013) that isolates the effect of NOTA on percentage of votes polled.

Multiple model specifications are tested and the results are presented in columns (1) – (4) of Table 3. In all model specifications, our coefficient of interest $\beta_3$turned out to be negative but insignificant. The variables $PostNOTA_t$(which captures the time period when NOTA was implemented i.e. 2013) turned out to be significant and positive. This is expected since there was a significant increase in voter turnout in 2013 state legislative elections compared to 2008

elections. The variable $NOTA_i$ (which captures if a state had NOTA implemented) turned out to be positive but insignificant. Based on the regression estimates it seems that NOTA overall had no significant impact on voter turnout. Our results remained consistent even after inclusion of reservation dummies and various interactions with reservation dummies. Though the coefficient of the Reservation dummy *($Reserved_{it}$)* turned out to be negative, but the coefficients remained insignificant in all model specifications. It seems that voter turnout in the reserved constituencies were not significantly different from the non-reserved constituencies. Based on our estimation results, we find that compared to our control state Karnataka, introduction of NOTA has no significant impact on percentage of votes polled. This clearly cuts into the argument that NOTA is expected to increase voter turnout.

Our results in Table 3 may be biased by the fact that we are dealing with extreme differences in the nature of states under consideration. For example, demographics and history of each state under consideration are significantly different. Hence, we decided to compare each of the states where NOTA was implemented individually with Karnataka. Tables 4 – 7 shows our estimation resultscomparing Karnataka with each of the four states separately.

Results in Tables 4 – 7 varies considerably from state to state. Again our coefficient of interest is the one associated with the variable $NOTA_i$x $PostNOTA_t$. Results in Rajasthan and Delhi (Tables 6 and 7) show evidences which supports the idea that NOTA increased voter participation. Whereas in Madhya Pradesh (Table 4) we find evidences which rejects the positive association between NOTA and voter participation. Rather we find that NOTA might have discouraged people to cast their votes. In Chhattisgarh we find no significant positive or negative relationship between NOTA and voter participation.

Results presented in the analysis above are definitely not conclusive. Though overall we find no evidence that NOTA might have increased voter participation, however, individual state level analysis shows mixed outcomes. In some states NOTA had significant positive effects on voter turnout, whereas we have evidences which suggested otherwise where NOTA had no or in some cases negative impact on voter participation outcomes.

Conclusion

The purpose of this paper was to test the impact of the introduction on NOTA on voter participation. Though NOTA was introduced with the intention of increasing voter participation,

we find evidences using data from legislative assembly elections in five states suggesting that the NOTA may not have any significant impact on voter participation. Though available data definitely is not sufficient to draw any definitive conclusions, however, we also do not find any definitive evidence of the positive impact of NOTA on voter participation. Moreover, our results varied across states when each states were compared individually with our control state Karnataka. Finally, questions can be raised about the validity of Karnataka as a good control due to wide cultural and socio-economic differences across states in India.

Fig 1: Histogram of Voter Turnout 2008-2013

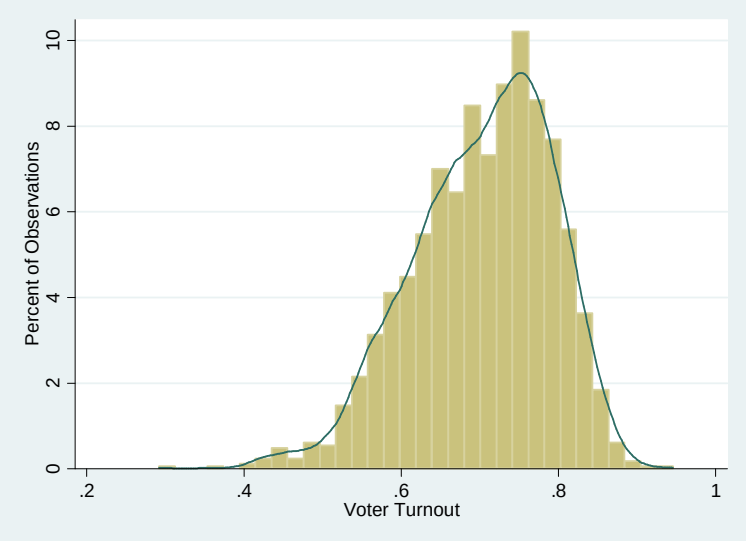

Fig 2: Box Plots of Voter Turnout and NOTA votes

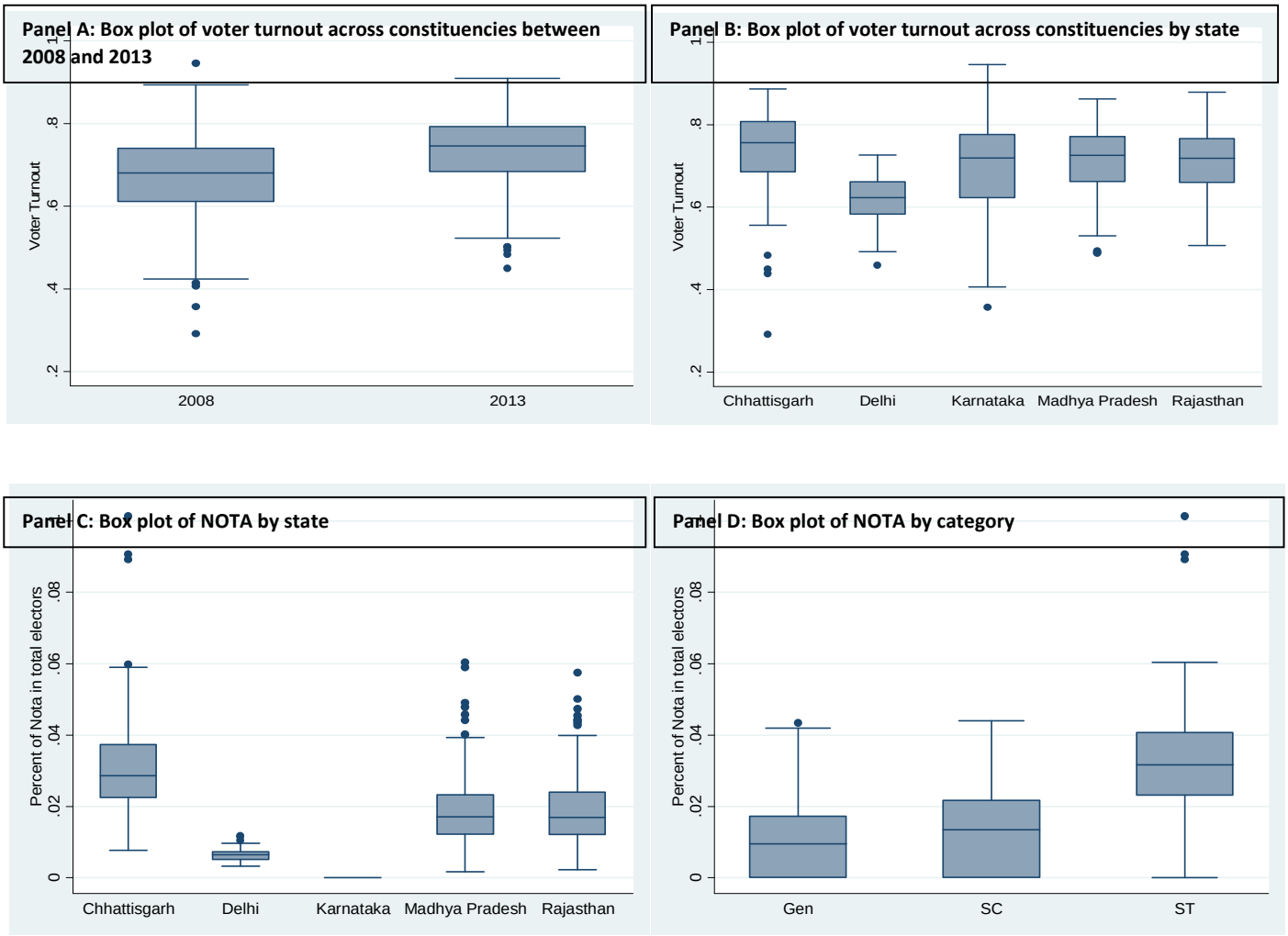

Fig 3: Box plot of NOTA by state and category

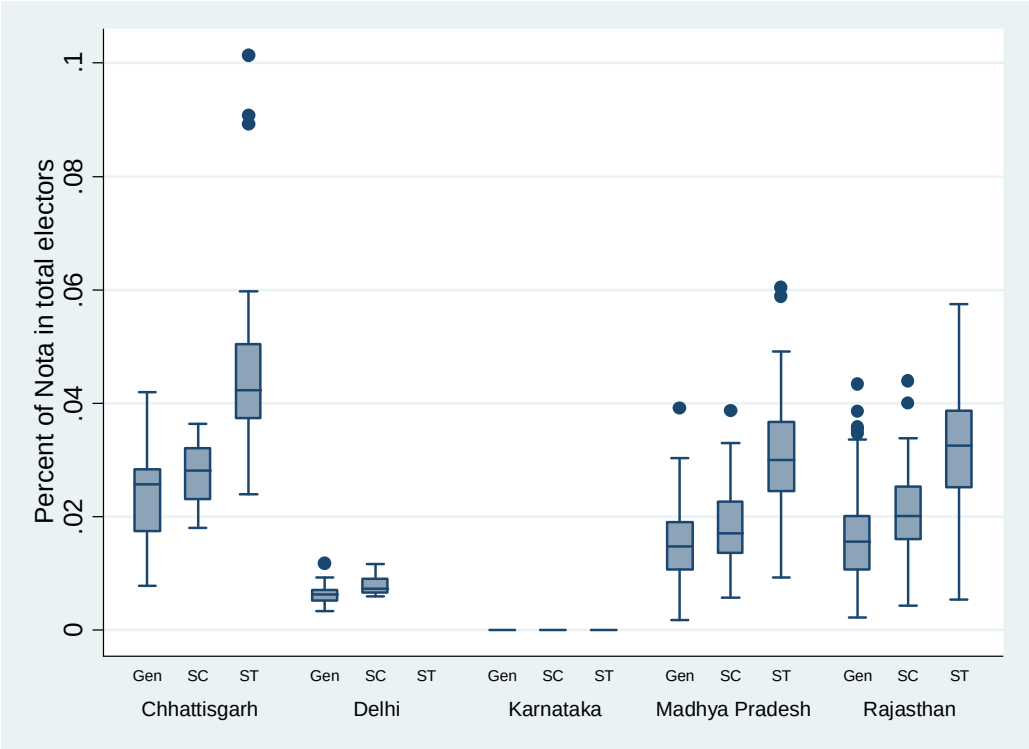

Table 1: Voter turnout by state and reservation category

Year	Gen	SC	ST	Total
Chhattisgarh				
2008	70.90%	69.66%	70.40%	70.60%
2013	77.03%	76.76%	78.86%	77.59%
Delhi				
2008	57.49%	59.30%	0.00%	57.81%
2013	66.00%	67.70%	0.00%	66.29%
Karnataka				
2008	66.89%	64.20%	65.64%	66.37%
2013	72.53%	72.67%	73.38%	72.61%
Madhya Pradesh				
2008	70.25%	67.67%	70.81%	69.97%
2013	72.93%	71.42%	74.12%	72.94%
Rajasthan				
2008	67.49%	62.60%	66.97%	66.62%
2013	76.33%	73.72%	75.56%	75.81%

Table 2: Key Characteristics of states under study

State	Population (2011Census) (million)	Per capita Income (2011) (Rs.)	Number of Constituencies	Share of SC Population	Share of ST Population	Rural Population (million)	Urban Population (million)
Karnataka	61.3	68,053	448	16.5%	7%	61.3%	38.7%
Madhya Pradesh	72.5	37,979	460	15.6%	21.1%	72.3%	27.7%
Chhattisgarh	25.5	48,366	180	12.8%	30.6%	76.7%	23.3%
Rajasthan	68.6	52,735	400	17.8%	13.5%	75.1%	24.9%
Delhi	16.8	166,883	138	16.9%	-	2.5%	97.5%

Table 3: Overall impact of NOTA on voter turnout

Variable	1	2	3	4
$NOTA_i$ x $PostNOTA_t$	0.0010789 (0.0104819)	0.0010789 (0.0104846)	0.0000626 (0.0104091)	0.0051598 (0.0125078)
$PostNOTA_t$	0.062333* (0.0095326)	0.062333* (0.0095349)	0.0599377* (0.0099404)	0.0563848* (0.0113683)
$NOTA_i$	0.0113216 (0.0080203)	0.0113653 (0.0079997)	0.0089012 (0.0086938)	0.0063526 (0.009527)
Constant	0.6637294* (0.0073324)	0.6638324* (0.0074713)	0.6671018 * (0.0081264)	0.6688783* (0.0086932)
$Reserved_{it}$		-0.0004526 (0.0043169)	-0.0148122 (0.0112529)	-0.0226147 (0.0154254)
$Reserved_{it}$ x $PostNOTA_t$			0.0105206 (0.0086226)	0.0261255 (0.0197862)
$Reserved_{it}$ x $PostNOTA_t$			0.0118763 (0.0109863)	0.02206 (0.016966)
$Reserved_{it}$ x $PostNOTA_t$ x $PostNOTA_t$				-0.0203674 (0.0219453)
R^2	0.1302	0.1302	0.1316	0.1321
Observations	1626	1626	1626	1626

Standard errors are in parentheses. *=0.01, **=0.05, ***=0.1

Table 4: Impact of NOTA on voter turnoutin Madhya Pradesh

Variable	1	2	3	4
$NOTA_i$ x $PostNOTA_t$	-0.032609* (0.0115901)	-0.032609* (0.0115904)	-0.0346506* (0.0114907)	-0.0295742** (0.0140238)
$PostNOTA_t$	0.062333* (0.0095419)	0.062333* (0.0095406)	0.0587253* (0.0102831)	0.0563848* (0.0113906)
$NOTA_i$	.0359813* (0.0087546)	0.0367818* (0.0087083)	0.0361538* (0.0095456)	0.0336156* (0.0105298)
Constant	0.6637294* (0.0073396)	0.665144* (0.007583)	0.667708* (0.0082699)	0.6688783* (0.0087102)
$Reserved_{it}$		-0.0062131 (0.0058028)	-0.0174747 (0.0122459)	-0.0226147 (0.0154557)
$Reserved_{it}$ x $PostNOTA_t$			0.0158455 (0.0115875)	0.0261255 (0.019825)
$Reserved_{it}$ x $PostNOTA_t$			0.0058312 (0.0120795)	0.0148081 (0.0184207)
$Reserved_{it}$ x $PostNOTA_t$ x $PostNOTA_t$				-0.0179538 (0.0241556)
R^2	0.0838	0.0848	0.0865	0.0870
Observations	908	908	908	908

Standard errors are in parentheses. *=0.01, **=0.05, ***=0.1

Table 5:Impact of NOTA on voter turnoutin Chhattisgarh

Variable	1	2	3	4
$NOTA_i$ x $PostNOTA_t$	0.0075357 (0.015564)	0.0075357 (0.0155827)	0.0026299 (0.0150863)	0.0049007 (0.0179248)
$PostNOTA_t$	0.062333* (0.0095514)	0.062333* (0.0095532)	0.0569018* (0.0107652)	0.0563848* (0.0114132)
$NOTA_i$	0.042281* (0.0115528)	0.0433176* (0.0113378)	0.0412591* (0.0118966)	0.0401236* (0.0129449)
Constant	0.6637294* (0.0073468)	0.664877* (0.0077562)	0.6686197* (0.008462)	0.6688783* (0.0087275)
$Reserved_{it}$		-0.0050405 (0.0079017)	-0.0214793 (0.0137019)	-0.0226147 (0.0154864)
$Reserved_{it}$ x $PostNOTA_t$			0.0238547 (0.0157535)	0.0261255 (0.0198644)
$Reserved_{it}$ x $PostNOTA_t$			0.012552 (0.0163064)	0.0157111 (0.0245006)
$Reserved_{it}$ x $PostNOTA_t$ x $PostNOTA_t$				-0.0063181 (0.032637)
R^2	0.1386	0.1390	0.1423	0.1424
Observations	628	628	628	628

Standard errors are in parentheses. *=0.01, **=0.05, ***=0.1

Table 6:Impact of NOTA on voter turnoutin Rajasthan

Variable	1	2	3	4
$NOTA_i$ x $PostNOTA_t$	0.029511** (0.0112746)	0.029511** (0.0112298)	0.028337** (0.0111383)	0.032018** (0.0133942)
$PostNOTA_t$	0.062333* (0.0095434)	0.062333* (0.0095462)	0.0580442* (0.0103486)	0.0563848* (0.0113942)
$NOTA_i$	0.0024876 (0.0086614)	0.0035484 (0.0085741)	0.0079073 (0.009353)	0.0060668 (0.0102683)
Constant	0.6637294 (0.0073407)	0.6676045* (0.0075992)	0.6680486* (0.0083008)	0.6688783* (0.0087129)
$Reserved_{it}$		-0.0170202** (0.0058957)	-0.0189706 (0.0123865)	-0.0226147 (0.0154605)
$Reserved_{it}$ x $PostNOTA_t$			0.0188373 (0.0117377)	0.0261255 (0.0198312)
$Reserved_{it}$ x $PostNOTA_t$			-0.0146117 (0.011841)	-0.007482 (0.018245)
$Reserved_{it}$ x $PostNOTA_t$ x $PostNOTA_t$				-0.0142593 (0.0236846)
R^2	0.1832	0.1895	0.1927	0.1929
Observations	848	848	848	848

Standard errors are in parentheses. *=0.01, **=0.05, ***=0.1

Table 7: Impact of NOTA on voter turnoutin Delhi

Variable	1	2	3	4
$NOTA_i$ x $PostNOTA_t$	0.0225376** (0.010993)	0.0225376** (0.0110287)	0.0236485** (0.0111584)	0.0286683** (0.0128498)
$PostNOTA_t$	0.062333* (0.0095536)	0.062333* (0.0095567)	0.0576288* (0.0109317)	0.0563848* (0.0114185)
$NOTA_i$	-0.0856537* (0.008468)	-0.0858746* (0.0085518)	-0.0914302* (0.0092043)	-0.0939401* (0.0098861)
Constant	0.6637294* (0.0073485)	0.664665* (0.0078187)	0.6682562* (0.0085405)	0.6688783* (0.0087315)
$Reserved_{it}$		-0.0041093 (0.0081214)	-0.0198827 (0.0140568)	-0.0226147 (0.0154935)
$Reserved_{it}$ x $PostNOTA_t$			0.0206616 (0.0161279)	0.0261255 (0.0198736)
$Reserved_{it}$ x $PostNOTA_t$			0.0270685** (0.0122529)	0.0406557** (0.0185287)
$Reserved_{it}$ x $PostNOTA_t$ x $PostNOTA_t$				-0.0271744 (0.0242421)
R^2	0.2128	0.2131	0.2168	0.2173
Observations	586	586	586	586

Standard errors are in parentheses. *=0.01, **=0.05, ***=0.1

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