

Political Incumbents and India's Electoral Redistricting: Evidence from Two States*

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Abstract

In 2008, the boundaries of national and state electoral constituencies in India were redrawn for the first time in three decades. Using detailed demographic and electoral data from two states, Andhra Pradesh and Rajasthan, we construct measures of the extent of redistricting (delimitation) in a given constituency. Comparing these measures across constituencies, we find no differences between locations held by ruling party and opposition members, nor do constituencies held by ministers show any redistricting advantage. This suggests that the redistricting process was largely politically neutral. That said, our data do indicate that a small number of politicians who advised on the redistricting process were successfully able to avoid unfavorable redistricting outcomes for their specific constituencies. Finally, we find that the extent of redistricting does not impact the probability of incumbents contesting after redistricting, apart from explicit restrictions posed by reservations for Scheduled Castes and Scheduled Tribes. Our findings suggest that India's delimitation process was largely politically neutral, and can offer lessons for future delimitations in India and beyond.

Keywords: electoral redistricting, incumbency advantage, political reservations, Delimitation Commission, political influence, recontest.

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1. Introduction

Most democratic countries redraw their electoral boundaries every few years, usually with the goal of equalizing population sizes across constituencies. While this is important for maintaining the principle of one-person-one-vote, the redistricting process may also be seen as undemocratic if influenced by incumbent politicians or ruling parties to create safe seats, where incumbents are unlikely to face strong electoral challenges (a process sometimes called “gerrymandering”).ⁱ

A largely United States- and gerrymandering-focused literature has found that partisan redistricting can have important consequences for voters and politicians, as well as for public policy outcomes (Cain 1985; Gelman & King 1994b; Baqir 2002; Besley and Preston 2007; Hayes & McKee 2009; Engstrom 2006; Williamson 2019; Fraga, Moskowitz & Schneer 2022). In particular, redistricting can impact a range of political outcomes such as incumbent name recognition, the likelihood of voting in post-redistricting elections, policy moderation and race entry decisions by politicians. Interestingly, the effect of redistricting on incumbency advantage remains contested, with some studies finding an incumbency advantage arising from partisan redistricting (Gilligan & Matsusaka 1999; Shotts 2001; Forgette & Winkle 2006; Gul & Pesendorfer 2010), and others finding no relationship (Friedman & Holden 2009).

Electoral redistricting in India has generated only limited scholarship to date,ⁱⁱ despite the fact that India redrew national and state electoral constituency boundaries in 2008 after a gap of three decades, a process known as re-delimitation (we use this term interchangeably with redistricting). We examine the influence of political incumbents on this redistricting process, using detailed demographic and electoral data at the constituency level. While a non-political Delimitation Commission conducted the redistricting, incumbent politicians may have still been able to influence the process, particularly because several were part of the Commission’s Advisory Committee.ⁱⁱⁱ The next Indian census is currently scheduled for 2027, after which a new re-delimitation can be conducted, making this paper's policy-relevant findings quite timely.

To explore the extent to which political actors were able to influence the 2008 redistricting process and whether this affected politicians’ decisions to recontest in later elections, we employ detailed demographic and electoral data from two states, Andhra

Pradesh and Rajasthan. The purposive choice to proceed with these states was driven by data availability (maps and GIS data) and a most-similar case comparison in terms of the nature of state-level electoral competition and party systems. Having chosen cases, we constructed measures of the extent of redistricting (delimitation) in a given constituency and collected data on candidates' decisions to run for re-election in the first post-delimitation election. We use these data to examine two important questions. First, is the extent of redistricting different for constituencies with particularly influential incumbents? Second, did the extent of redistricting change politicians' decisions to contest the next election?

Our first finding is that political incumbent influence is present, but fairly limited. Our analysis proceeds under the assumption that a large change in the demographic characteristics of the constituency, or a change in the constituency reservation status (from unreserved to reserved for Scheduled Castes (SC) or Scheduled Tribes (ST), or vice versa), are adverse outcomes from an incumbent politician's point of view, since both are likely to impose greater campaign costs during his/her re-election process.^{iv} In the latter case, the incumbent politician is often explicitly barred from contesting the next election and has to find a new constituency to contest from—a process likely to impose significant costs and lower the probability of winning considerably.

We find that such adverse outcomes are not significantly more or less likely for members of the ruling party, or any specific party. Incumbents who were ministers also do not appear to have differential probabilities of adverse outcomes, despite the observed ministerial “premium” in asset accumulation documented in other studies (Fisman et al, 2013). In this sense, the 2008 redistricting process was not particularly partisan. However, the constituencies of advisory committee members are significantly less likely to experience large demographic changes, or become reserved for SC/ST, suggesting that there may have been some influence of specific incumbents on the process.^v

Our second finding is that the redistricting process appears to place few restrictions on the ability of political incumbents to run for re-election. If a politician's constituency changes its reservation status, then s/he is significantly less likely to re-contest after redistricting. Over and above this effect, which explicitly limits incumbent politicians'

ability to contest, a bigger change in the demographic characteristics of a constituency does not have a significant effect on the propensity of politicians to run for re-election.^{vi}

This paper contributes to the empirical literature on electoral redistricting in three significant ways. First, we examine the pattern of redistricting in detail, especially the relationship of redistricting patterns with pre-existing demographic and political characteristics. This is in contrast to most of the literature on other advanced democracies, which takes the process of redistricting to be given and only examines its consequences for future electoral outcomes (Gelman & King 1990; Altman & McDonald 2015; Fraga 2016; *contra* Thompson 2004; Mann 2005; Cain et al 2005; McDonald 2006). Conclusions about the political neutrality (or otherwise) of redistricting are therefore generally based primarily on *ex-post* outcomes rather than *ex-ante* analysis. Second, in order to conduct this *ex-ante* analysis, we construct new measures of the extent of redistricting in each constituency. Again, this is in contrast with the most of the existing literature that focuses primarily on constructing seats-votes curves for the entire state or country, rather than examining constituency-level changes in any detail.^{vii} The measures we compute are based on close comparison of the old and new constituencies using GIS and other maps, and can be easily generalized to other settings. Third, to our knowledge, this is the first paper which examines the process and consequences of electoral redistricting in a developing country with a relatively young democracy, where one might expect voter information and accountability mechanisms to be less widespread than in more established democracies.

The paper proceeds as follows: Section 2 describes the process of electoral redistricting in India, Section 3 describes our data, and Section 4 discusses whether constituency sizes changed as intended in the redistricting process. Sections 5 and 6 present empirical tests of our key hypotheses and Section 7 concludes.

2. Electoral Redistricting in India

2.1 The Indian Political System

India is the world's largest democracy, with almost one billion registered voters and more than 100 recognized political parties. It is a parliamentary democracy at both the national and state levels, with first-past-the-post elections conducted every five years. State elections have an average of ten candidates contesting from each constituency.

Voter turnout is quite high: it was approximately 58% in the 2009 general election and 66.1% in the most recent general elections, in 2024. In 2001, SCs and STs accounted for 24.4% of the population, an increase from 21.5% in the 1971 census. Prior to re-delimitation, 22.1% of national parliamentary seats were reserved for these communities, and 24.1% were reserved after re-delimitation.

The Election Commission of India is responsible for conducting elections to the national parliament and to state legislative assemblies. Election Commission staff are career bureaucrats who are required to be politically neutral. For instance, they may not join political parties or otherwise engage in partisan political activity. The Election Commission of India has established a reputation for conducting free and fair elections and has undertaken many measures to safeguard the integrity of elections (McMillan, 2010; Ahuja & Ostermann 2018). Voting in India has been completely electronic since 2004, and elections are often held in several phases to ensure adequate security.

As in many other democracies, electoral redistricting (or “re-delimitation” as the process is known in India) was initially undertaken after each decennial census. However, this process was halted in 1977, after complaints from several states that the process undermined the incentives of states to implement population control policies, since a bigger population would result in more state representatives to the national parliament. In 1976, the 42nd Amendment to the Indian Constitution required that all electoral boundaries as of 1977 be frozen in place “until the relevant figures for the first census taken after the year 2000 have been published.”^{viii}

2.2 Redistricting After the 2001 Census

In 2002, India began the process of redrawing electoral constituencies based on the census of 2001, with the enactment of the Delimitation Act, 2002 and the Delimitation (Amendment) Act 2003.^{ix} In response to the earlier concerns about distorting population control incentives for state governments, this redistricting exercise specified that the total number of electoral constituencies would remain the same, both for the national legislature as well as for state legislatures. Further, each state would continue to have the same number of representatives in the national legislature, i.e. there would be no reallocation of seats across states. The decision not to increase the number of state

representatives in line with increases in state population, and the decision to not reallocate parliamentary seats across states, have both come under heavy criticism as violating the principles of representative democracy (Yadav 2008; McMillan 2001).

The goals of this redistricting exercise were two-fold: First, to equalize the population across electoral constituencies *within* each state, and second, to re-demarcate the electoral constituencies to be reserved for the SCs and STs in proportion to their increased population share since the 1971 census. Since this was the first redrawing of electoral boundaries in three decades, it resulted in widespread changes to the electoral boundaries. Rural-urban migration had resulted in much faster growth of urban population compared to rural population: 19.9% of India's population lived in urban areas in 1971, compared to 27.8% in 2001. The redistricting exercise therefore resulted in a greater allocation of electoral seats to urban areas.

In each state, the re-delimitation was carried out by an independent three-member Delimitation Commission, comprising a former Supreme Court judge, the Chief Election Commissioner of India and the State Election Commissioner of the state. Ten elected representatives from the state, five from the state legislature (Vidhan Sabha) and five from the national parliament (Lok Sabha), acted as "associate members" to advise the Delimitation Commission in each state, though they had no voting power on the final decisions of the Commission. Since these individuals are closely involved in the process of redistricting, a key question is whether members of these committees were able to influence the redistricting process, as has been the case in the U.K. (Rossiter, Johnston & Pattie 1997) and the U.S. (Thomas 2011).

After examining data from the 2001 census and local maps, consulting with district officials, and meeting with these associate members, the Delimitation Commission prepared a detailed draft proposal with the proposed boundaries of each electoral constituency. This draft proposal was widely published, public comments were invited, and public meetings in one or more places were held to hear the views of citizens. Political parties in the state scrutinized these proposals and submitted their views for consideration, often proposing new boundaries for certain constituencies. For instance, the associate members of the advisory committee in Andhra Pradesh proposed changes to more than 15 state assembly constituency boundaries after the draft proposals were published and

requested that their dissent be published along with the proposal (Delimitation Commission of India, 2007). After taking all these views into account, final reports were published for each state, all of which were approved by the President of India in August 2008, and came into effect in subsequent elections. By law, the new electoral boundaries cannot be changed until the first census after the year 2026.^x

The explicit goal of the Delimitation Commission was to redraw constituencies such that “the population of each parliamentary and assembly constituency in a State shall, so far as practicable, be the same throughout the State” (Delimitation Commission of India, 2004). This was subject to the constraints that the constituencies should be geographically compact and contiguous, every state assembly constituency should lie wholly within a national parliamentary constituency, and all assembly constituencies should lie wholly within administrative districts. Factors such as physical features, facilities of communication and public convenience were also to be considered, such that areas divided by rivers or hilly ranges or forests or ravines and other such natural barriers were not to be put in the same constituency. This consideration is mainly related to the logistics of conducting elections within the constituency. Since these constraints make the exact equalization of population across constituencies difficult, the Delimitation Commission agreed that the population in a specific constituency could vary up to 10 percent above or below the district average. This guideline has been criticized for being arbitrary, and for being violated in many cases (Kumar 2009).

After these constituencies were mapped out, constituencies that were to be reserved for the Scheduled Castes (SCs) and Scheduled Tribes (STs) were demarcated. The overall number of constituencies to be reserved for the SCs and STs were based on their population share in the state, and the exact constituencies chosen for reservation were the ones that have the largest population shares of these communities. For the Andhra Pradesh state assembly, the number of constituencies reserved for SCs increased from 39 to 48, and the number reserved for STs increased from 15 to 19. For Rajasthan, there was an increase of one reserved seat each for SCs and STs.

The electoral redistricting has generated significant politician reactions and media attention, but little empirical analysis. There was media speculation that the two largest national parties, the Indian National Congress (INC) and the Bharatiya Janata Party (BJP),

might even join hands to delay the national implementation of the final report, although this did not come to pass (Das 2006). Some media reports claimed that many politicians' electoral prospects were harmed by this process (*The Hindu* 2009; Rahman 2013), but other commentators cited the Delimitation Commission's work as being "without any obvious political partisanship" (*Economic and Political Weekly* 2008). This paper is the first to conduct detailed empirical analysis of the redistricting process.

3. Data on Redistricting and Electoral Outcomes

The analysis in the current paper is for the states of Andhra Pradesh and Rajasthan.^{xi} These states were chosen for two main reasons. The first was the availability of maps and/or GIS data required to match up the boundaries of the old and new electoral constituencies, and match these boundaries to census variables, so as to enable us to construct numerical measures of the extent of redistricting.^{xii} Second, both these states feature electoral competition between two large parties, with third parties playing only a small role, leading to ease of analysis (for instance, in generating seats-votes curves using methodologies developed for the United States).

We should note that these states exhibit significant variation along several different political dimensions, so that the results generated from this analysis are likely to be generalizable. Rajasthan is in north India, while Andhra Pradesh is in the south. States in the north and south are often cited to be different along many dimensions of political and economic culture, including the role of caste (Varshney, 2012). The incumbent party during the redistricting process was the Indian National Congress (INC) in Andhra Pradesh and the Bharatiya Janata Party (BJP) in Rajasthan. The main opposition party in Andhra Pradesh was a regional party (Telugu Desam Party) that has almost no presence outside the state, while the main opposition party in Rajasthan was the INC, a national party. The states were also on different electoral calendars: Rajasthan held its first post-delimitation elections for the state legislative assembly in December 2008, while Andhra Pradesh had its first post-delimitation state election in April 2009, coinciding with national-level elections. Our main results hold for each state analyzed separately, as well as for the pooled sample with state fixed-effects.

We gathered information on the geographical boundaries of the different state electoral constituencies using information in the Delimitation Commission Reports of 2008 and 1976 (Delimitation Commission 2008; Election Commission of India 1976), followed by matching up the old and new constituencies using GIS maps and maps provided on state government web sites. These old and new boundaries were then matched up to village-level census data so that we could compute demographic characteristics of the old and new constituencies. The rapid growth of urban areas during the three decades between redistricting made it very difficult to map the changes in electoral constituency boundaries *within* cities, since the number and boundaries of wards within cities changed considerably. For example, the city of Vijayawada had 36 wards listed in the 1976 delimitation report, and 78 wards in the 2008 report. This means that we are able to compute the extent of redistricting for 286 constituencies out of 294 in Andhra Pradesh, and 184 out of 200 constituencies in Rajasthan.^{xiii} Further, we kept track of which constituencies were demarcated (reserved) for SCs and STs, both before and after redistricting.

Our main political outcome is whether a current politician contests the post-delimitation election. By manually checking the names of candidates against the list of competing candidates in the next election, we created a dummy that equals one if the candidate decides to run for election in the following election cycle.^{xiv} Since politicians may choose to contest in different parts of a redistricted constituency, our measure tracks whether a politician contested for re-election in any constituency within the administrative district (usually consisting of 9-10 constituencies); it is rare for politicians to contest elections outside their district.

4. Did Redistricting Equalize Constituency Size?

As described above, the official criterion was population equalization subject to certain constraints. We begin by examining whether this goal was achieved by the redistricting process. The official procedures imply that constituencies with populations that are extremely small or large with respect to the district average are the most likely to experience large changes in their population during the redistricting process. We should note that despite the 10% deviation allowed by the Delimitation Committee rules, 22 out of 294 constituencies in Andhra Pradesh have post-redistricting population more than 10%

above the district average and 18 have population more than 10% below the district average. The corresponding figures for Rajasthan are 5 and 2 out of 200 constituencies (Delimitation Commission 2008). These deviations from the official rule are likely due to geographical or logistical constraints such as not having a constituency on both sides of a river.

Our data documents that there was considerable equalization of population sizes across constituencies in both states, implying that the rules regarding redistricting were followed well for the most part. Figure 1 shows the distribution of population sizes across assembly constituencies in Andhra Pradesh and Rajasthan respectively. We see that there was a high degree of variation in constituency population sizes before the redistricting exercise: population varied from less than 60,000 to more than 500,000 across constituencies of Andhra Pradesh and Rajasthan. After redistricting, the population per constituency lies in a much narrower band in both states, between 200,000 and 400,000.

We examine quantitatively whether constituencies whose population was much smaller or much larger than the district average were more likely to be redistricted by running the following linear regression:

$$ExtentRedistrict_j = constant + \alpha PopDev_j + \Gamma + \varepsilon_j \quad (1)$$

ExtentRedistrict_j measures the extent of population change in constituency *j* computed as the percentage change in the population of the constituency (absolute value). *PopDev_j* represents the population deviation from the district average, computed as the percentage difference between the pre-redistricting constituency population and the average per-constituency population for redistricting purposes (total 2001 population of constituency divided by number of constituencies allocated to the district). *X_j* is a vector of other constituency characteristics including fixed effects (indicator variables) for each state, and demographic characteristics of the old constituency (fraction rural, fraction literate, fraction male, fraction SC and fraction ST in the population). The redistricting rules imply that constituencies with larger values of *PopDev_j* should experience a higher likelihood of redistricting and a bigger change in their population i.e. the coefficient α should be positive.

Our empirical results confirm that constituencies whose populations were very far from the district average experience bigger change in their population after redistricting, with the coefficient α being positive and statistically significant (Table 1, column 1). The coefficient remains very similar in magnitude and statistical significance even if we control for pre-districting demographic characteristics of the constituency (column 2), and are fairly similar across the two states (columns 3 and 4). Our results imply that if a constituency was only half as big as the district average ($PopDev_j = 0.5$), it will experience a 35% increase in population in Andhra Pradesh and a 51% increase in population in Rajasthan; constituencies that were larger than the district average experienced corresponding reductions in population. This relationship is shown graphically in Figure 2, which shows that constituencies that had populations much below or above the district average experience bigger population changes during re-delimitation.

5. Did Incumbent Politicians Influence Redistricting?

As the above analysis indicates, the redistricting rules regarding change in constituency size were followed fairly well. This means that incumbents, whose costs of campaigning would increase with a large increase in constituency size, cannot do much to influence how much their constituency size will change. However, a given constituency size can be achieved by drawing constituency boundaries in several different ways, so that it is possible that influential politicians are able to prevent some of the adverse redistricting outcomes that can increase their costs of campaigning. We hypothesize that incumbent politicians would be greatly disadvantaged if the reservation status of their constituency is changed i.e. if an unreserved constituency became reserved for SCs or STs after redistricting or vice versa.^{xv} Changing the reservation status of their constituency is likely to cause significant difficulties for an incumbent in contesting the next election, since many would have to find a new constituency to contest from.

We also expect the costs of electoral campaigning to be higher if the demographic profile of the population changes considerably. We compute an index of demographic change in the constituency as $\sum_j (D_{j,old} - D_{j,new})^2$, where $D_{j,old}$ represents the demographic characteristic j for the old (pre-redistricting) constituency, and $D_{j,new}$ represents the same for the new (post-redistricting) one. The demographic characteristics

included in our index are those that are available at the village level in the 2001 census data, which we aggregate according to the old or new constituency boundaries: the fraction rural, fraction literate, fraction male, fraction SC and fraction ST. Since all the characteristics are between 0 and 1, the theoretical maximum value of this index is 5. In practice, this never attains values above 0.21 (Appendix Table A.1). The correlation between the demographic change index and the change in reservation status is very low (0.0063).

We test whether influential politicians are able to avoid such increases in the cost of recontesting, by running the following regression:

$$Adverse_j = constant + \sum_{k=1}^4 \beta_k Influential_{jk} + \delta PopDev_j + \mathbf{X}_j' \gamma + \eta_j \quad (2)$$

where $Adverse_j$ is one of our proxies of adverse redistricting outcomes from the incumbent's point of view (the change in reservation status or the demographic change index), $PopDev_j$ captures how far the constituency (pre-redistricting) population was from the district average, $\mathbf{X}_j$ is a vector of other constituency characteristics including fixed effects for each state as in equation (1), and $Influential_{jk}$ ($k = 1, 2, 3, 4$) are indicators of whether the incumbent politician in constituency j is particularly influential.

Our indicators of incumbent influence are the following: (i) whether the incumbent politician (MLA from that constituency) was a member of the Delimitation Commission state advisory committee during the redistricting process, (ii) whether the incumbent politician was a minister in the state government, and (iii) whether the politician belongs to the ruling party in the state. Since the advisory committee consisted of state legislators and members of national parliament from the state, we consider a further measure of influence as (iv) whether the member of parliament (MP) from the area was part of the advisory committee. Appendix Table A.2 documents the correlations among these different measures of influence. We see that they are mostly uncorrelated with each other, except for the unsurprising fact of members of the ruling party being more likely to be ministers (correlation=0.24). We should note that the advisory committees included members from opposition parties in addition to the ruling party in the state, which explains the lack of correlation between committee membership and ruling party membership. If incumbents

have significant influence over the redistricting process, we would expect to see negative β coefficients on the influence variables.

Our results indicate no consistent influence of influential politicians on the redistricting process. For Andhra Pradesh, we find the expected negative and significant coefficient only for the variable that indicates MLA membership in the advisory committee i.e. MLA members of the advisory committee experience a smaller likelihood of changing reservation status, and smaller changes in the demographics of their constituencies (Table 2, columns 1 and 2). However, note that only 1% of MLAs are members of the advisory committee, so that this is not a widespread occurrence; we see no such significant influence of committee members in Rajasthan (columns 3 and 4). Being a minister does not lead to significantly better redistricting outcomes; in fact, it is associated with a somewhat higher probability of a change in a constituency's reservation status in Andhra Pradesh (significant at the 10% level). Members of the ruling party have a lower probability of reservation status change in Andhra Pradesh, but a slightly higher probability in Rajasthan; these coefficients are marginally significant at the 10% level. There is no effect of having the local MP on the advisory committee in either state.

Overall, our empirical analysis finds no evidence of widespread politician influence on the redistricting process in India. While advisory committee members may be able to influence outcomes in their specific constituencies, this does not extend to their parties as a whole. Analysis of seats-votes curves before and after redistricting also does not reveal any changes to standard measures such as partisan bias (the extent to which a given party's seat share exceeds its vote share) or responsiveness (how much the seat share changes for a small change in the vote share); see Appendix B for details.

6. Does Electoral Redistricting Change the Probability of Recontesting?

Once the opportunity to influence the redistricting process has passed, and the process is completed, we consider whether the incumbents' decisions to run for re-election are significantly changed. In the Indian political system, many politicians do not run for re-election. In the elections prior to the redistricting process, 76% of previous winners and 47% of previous runners-up contested for re-election. These fractions declined to 57% and 39% respectively in the post-redistricting election. We now examine whether politicians'

decisions to re-contest the next election are shaped by the two potentially adverse re-delimitation outcomes considered earlier, namely whether the reservation status of their constituency changed, and the extent of demographic change in their constituency population. We run the following regression:

$$Contest_j = constant + f_1 ResChange_j + f_2 DemogChange_j + \mathbf{X}_j' \theta + v_j \quad (3)$$

where $Contest_j$ is an indicator which equals one if the incumbent politician in constituency j is a candidate in the first post-redistricting election, in any constituency of the same district. $ResChange_j$ equals one if the reservation status of the incumbent's constituency was changed during the redistricting process, and $DemogChange_j$ is the index of demographic change discussed earlier. If these features of redistricting make a big difference to the cost of campaigning, we expect $f_1 < 0$ and $f_2 < 0$. On the other hand, it is possible that politicians are able to find ways to overcome adverse redistricting outcomes. For instance, even if the demographics of the constituency change considerably, a politician might still choose to run for re-election if he can raise the additional resources required to campaign effectively. In this case, we might find that f_2 is not significantly different from zero.

We find that both previous winners and previous runners-up are significantly less likely to contest re-election when their constituency's reservation status changes, which would make them ineligible to run in most cases (Table 3, panels A and B, column 1). However, we do not find a systematic link between changes in demographic composition and politicians' decisions to run for re-election, suggesting that politicians are able to adjust to even large changes in demographic composition of their constituencies. These patterns are seen in both Andhra Pradesh and Rajasthan (columns 2 and 3). The patterns are also similar across politicians from ruling parties and non-ruling parties (columns 4 and 5), consistent with our previous finding that the redistricting process did not systematically advantage specific parties.

7. Conclusions

This paper examines the 2008 electoral re-delimitation process in India, which substantially changed the boundaries of both state and national electoral constituencies. We find that, by and large, the process achieved its primary goal of equalizing population sizes across constituencies. More importantly, the redistricting process does not appear to have been influenced by incumbent politicians to any great extent. In particular, the extent of redistricting is not statistically different for constituencies of ruling party politicians or those in ministerial positions. However, we do find some evidence to suggest that the constituencies of some politicians (advisory committee members) were protected from unfavorable changes. Examining politicians' decisions to contest the post-delimitation elections, we find that explicit changes in reservation status significantly decrease politicians' propensity to recontest elections, while other redistricting-induced changes such as changes to the demographic composition of a constituency have no significant impact on this decision. Importantly, these patterns of recontesting are similar across politicians from ruling parties versus non-ruling parties, indicating that the delimitation process was politically neutral.

Our study constitutes a methodological advance in that it puts forward simple, comparable measures of the extent of constituency redistricting that can easily be computed so long as GIS data is available to facilitate matching. As such, this methodology is generalizable to other countries and electoral systems. The results from this analysis are consistent with those found using the earlier, seats-votes curve methodology. An important policy conclusion is that it is possible to implement politically neutral redistricting plans in a developing country, provided that a non-political body is in charge of the process, and that the process is transparent and inclusive of all relevant stakeholders. India, as well as other countries throughout the world, would do well to replicate this approach in any future delimitation.

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ⁱ The term “gerrymander” derives from a reaction to the redrawing of Massachusetts state senate election districts under Governor Elbridge Gerry in 1812, where one of the redrawn constituencies was said to resemble a mythological salamander. In the United States, the 2003 redistricting in Texas is often cited as an example of a politically motivated process, though it was largely upheld by the courts. More recently, gerrymandering during the redistricting processes in both Louisiana and Alabama after the 2021 census have drawn national and even international attention. The related legal cases, which have already been before the Supreme Court, are *Callais v. Landry* and *Allen v. Milligan*, respectively.

ⁱⁱ Singh (2000) explores the full history of constituency delimitation in India; McMillan (2000) and Mishra (2025) reject the argument that re-delimitation discriminates against states that have successfully carried out family planning programs; Verma (2002) argues for minimizing the role of politicians and increasing public participation in the delimitation process; Jensenius (2013) shows that political reservations for SC does not disadvantage Muslims; and Patel & Sekher (2024) propose expanding the Lok Sabha to 793 seats to correct for the fertility-decline-driven over-representation of some Indian states.

ⁱⁱⁱ See Iyer and Mani (2012) for an analysis of politician influence on the career paths of non-political bureaucrats in India; see also Rossiter, Johnston & Pattie (1997) for analysis of how political parties influence the United Kingdom’s independent Boundary Commission, and Thomas (2011) for analysis of the United States showing that redistricting conducted by non-partisan or bipartisan commissions are very similar to those conducted by legislatures.

^{iv} The Constitution of India provides for political reservations for certain historically disadvantaged groups, namely the Scheduled Castes and Scheduled Tribes, under Article 330. In reserved constituencies, only members of these communities can contest elections. SC/ST political reservations were most recently extended until 2030 by the 104th Amendment to the Indian Constitution.

^v We include a seats-votes curve analysis in Appendix B, though this does not form the backbone of our argument.

^{vi} Incumbent candidates who won by a narrow margin are significantly more likely to lose elections in both national elections (Linden, 2004), and state legislative elections (Uppal 2009), though these studies do not focus on the incumbents’ decision to run for re-election, a crucial margin in India. Such an anti-incumbency effect is however not detected for incumbent parties (Barooah 2006), though incumbents from ruling parties are more likely to lose elections after controlling for a “honeymoon” period (Ravishankar 2009).

^{vii} A notable exception is Ansolabehere, Snyder and Stewart (2000), who use county-level variation induced by redistricting to estimate the incumbency advantage.

^{viii} The relevant text of the 42nd Amendment is in Articles 81 and 82.

^{ix} These Acts were in turn made possible by the Constitution (Eighty-fourth Amendment) Act, 2001 and the Constitution (Eighty-seventh Amendment) Act, 2003 which, inter alia, amended Articles 81, 82, 170, 330 and 332 of the Constitution of India.

^x India’s 2021 Census was not conducted due to the Covid-19 pandemic. It is now planned for 2027.

^{xi} We are in the process of creating a broader data set, which will include most Indian states, and will analyze this data in a separate paper.

^{xii} We are in the process of extending the analysis to include all major Indian states.

^{xiii} We dropped constituencies belonging to the cities of Guntur, Vijayawada, Vishakhapatnam and Warangal in Andhra Pradesh, and Ajmer, Bikaner, Jaipur, Jodhpur, Kota and Udaipur in Rajasthan. For Hyderabad, we were able to obtain detailed maps of old and new constituencies from the Andhra Pradesh state government website.

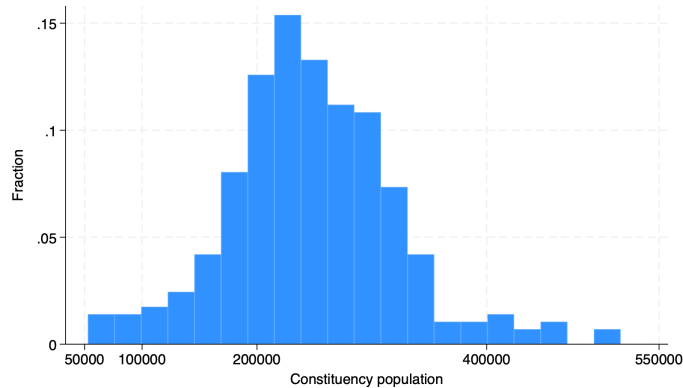
^{xiv} Names of Indian politicians are often spelled very differently across different elections, necessitating a manual match.

^{xv} Even though SC/ST candidates are allowed to contest from unreserved constituencies, the data shows that this is relatively rare. For instance, in the national elections of 2004, only 3.5% of winners and 15.6% of party candidates in unreserved constituencies were from the Scheduled Castes or Scheduled Tribes. Bhavnani (2009) shows that quotas for SC/ST do not lead to permanent increases in political representation after they are withdrawn.

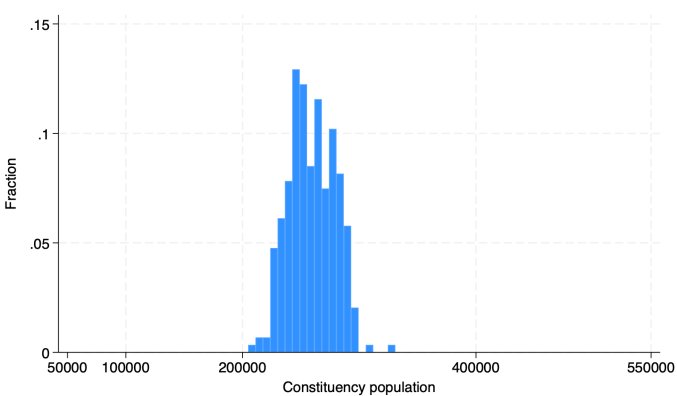
Figure 1: Constituency Population Distribution Before and After Redelimitation

Panel A: Andhra Pradesh

Before redistricting

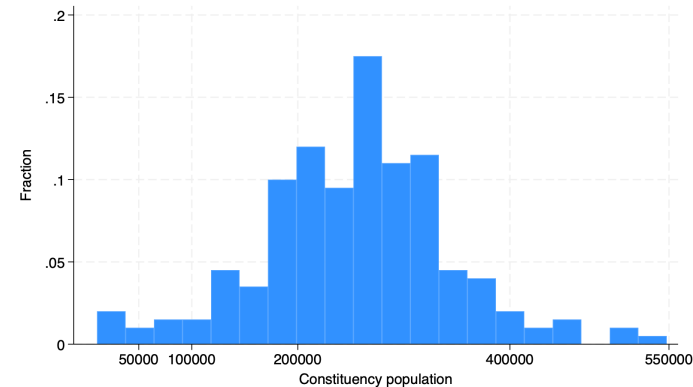


After redistricting

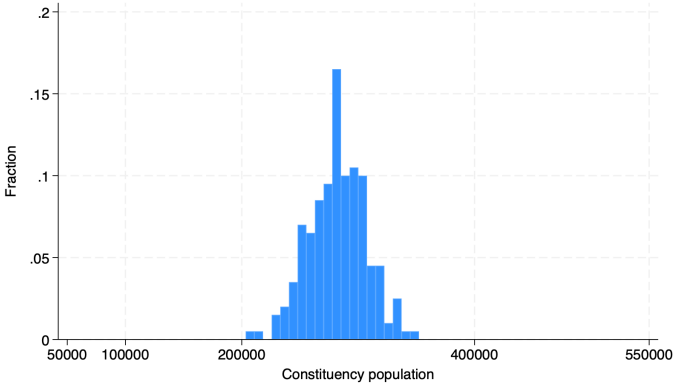


Panel B: Rajasthan

Before redistricting

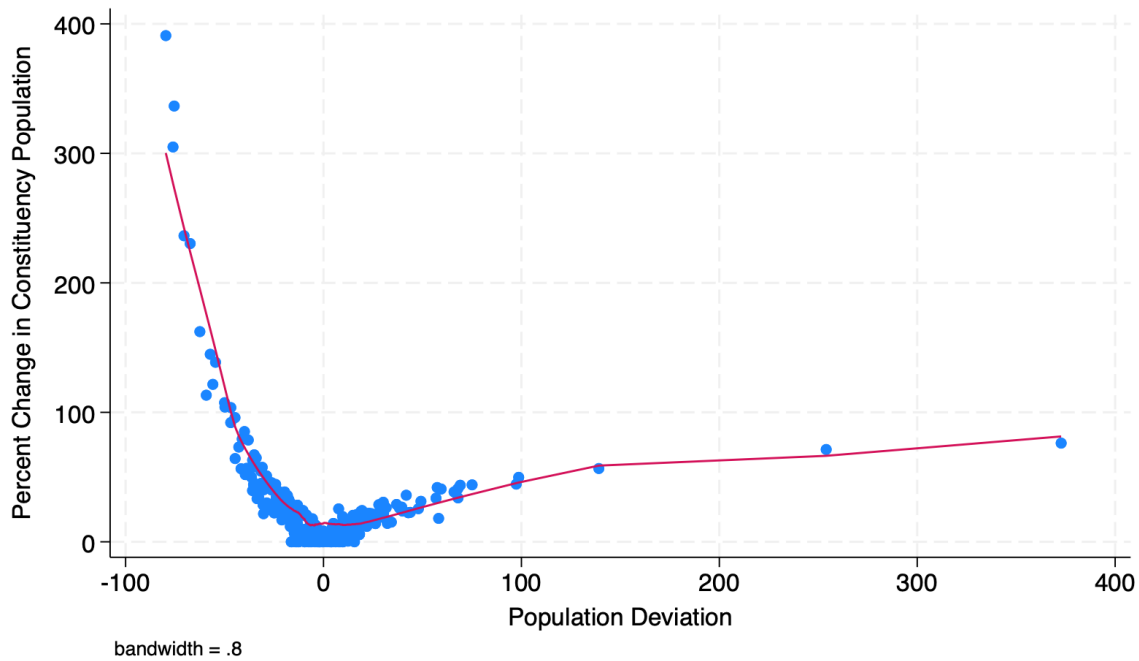


After redistricting

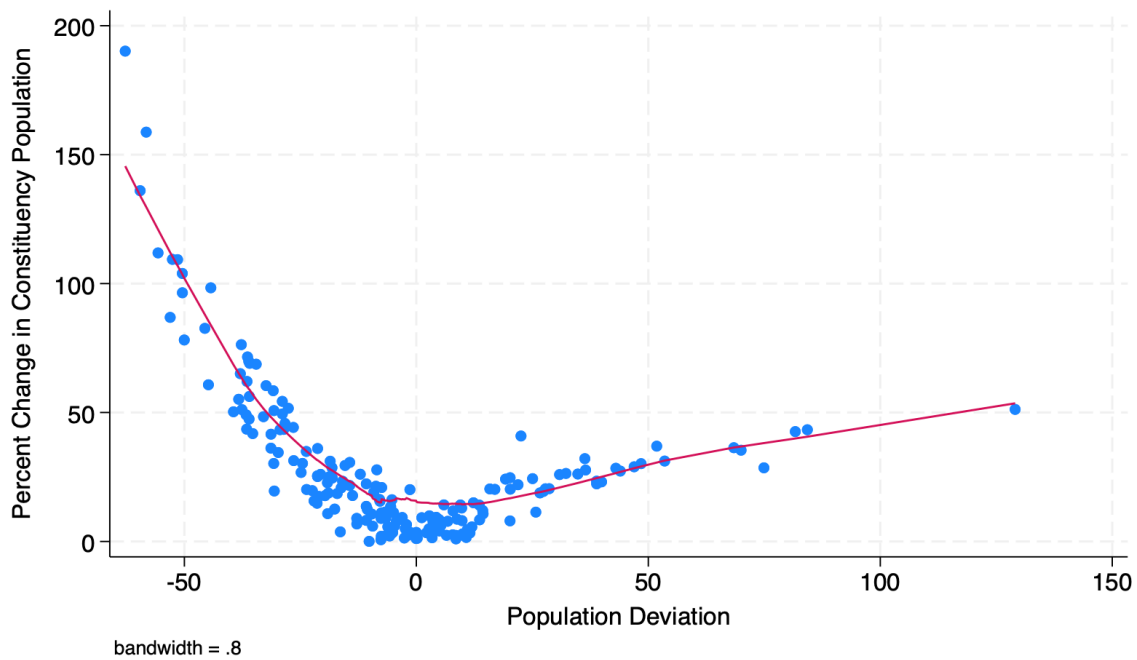


Notes: Authors' calculations based on census 2001 village level data aggregated to old and new constituency boundaries. "Before redistricting" figure for Andhra Pradesh excludes three constituencies with population greater than 6,00,000.

Figure 2: Does Redistricting Equalize Constituency Sizes?



Panel A: Andhra Pradesh



Panel B: Rajasthan

Table 1: Does Redistricting Equalize Constituency Sizes?

	Dependent variable: % change in constituency population			
	Both States		Andhra Pradesh	Rajasthan
	(1)	(2)	(3)	(4)
Population deviation from district average	0.744*** [0.248]	0.797*** [0.254]	0.709** [0.292]	1.027*** [0.199]
% rural		29.938*** [9.425]	43.201*** [11.531]	0.207 [10.301]
% literate		35.211 [24.319]	71.684** [31.634]	-22.411 [29.426]
% Scheduled Castes		21.898 [33.621]	-11.014 [45.445]	36.011 [40.393]
% Scheduled Tribes		-2.994 [10.550]	-14.348 [16.229]	0.010 [13.068]
% male		-247.083 [151.441]	148.664 [478.128]	-287.099** [120.313]
R-squared	0.262	0.292	0.261	0.491
Observations	470	470	286	184

Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%. Regressions in columns 1 and 2 include state fixed effects.

Table 2: Incumbent Influence on Costs of Re-election

	Andhra Pradesh Only		Rajasthan Only	
	Change in constituency reservation status	Demographic change index	Change in constituency reservation status	Demographic change index
	(1)	(2)	(3)	(4)
Local MLA is a committee member	-0.198 *** [0.049]	-0.010 *** [0.003]	0.144 [0.200]	-0.003 [0.002]
Local MLA is a minister	0.180 * [0.102]	0.015 [0.010]	0.070 [0.112]	0.009 [0.006]
Local MLA belongs to ruling party	-0.094 * [0.048]	-0.001 [0.003]	0.104 * [0.061]	0.000 [0.003]
Local MP is a committee member	0.013 [0.068]	0.001 [0.005]	0.038 [0.074]	-0.002 [0.003]
R-squared	0.12	0.15	0.15	0.14
Observations	286	286	184	184

Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%.

All regressions control for population deviation from district average, % rural, % literate, % Scheduled Castes, % Scheduled Tribes and % males in the population.

Table 3: Electoral Redistricting and the Probability of Contesting the Next Election

<i>Panel A: Dep var=1 if previous winner contests post-delimitation election</i>					
	Both States	AP	Rajasthan	Both States	
	All Parties	All Parties	All Parties	Ruling party	Non-ruling party
	(1)	(2)	(3)	(4)	(5)
Change in constituency reservation status	-0.209*** [0.062]	-0.228*** [0.084]	-0.229*** [0.087]	-0.202** [0.079]	-0.185* [0.104]
Demographic change index	-1.064 [1.118]	-0.992 [1.220]	-0.308 [2.480]	-1.716 [1.432]	1.120 [2.096]
Observations	470	286	184	293	177
R-squared	0.044	0.047	0.079	0.061	0.080

<i>Panel B: Dep var=1 if previous runner-up contests post-delimitation election</i>					
	Both States	AP	Rajasthan	Both States	
	All Parties	All Parties	All Parties	Ruling party	Non-ruling party
	(1)	(2)	(3)	(4)	(5)
Change in constituency reservation status	-0.177*** [0.055]	-0.179** [0.073]	-0.177** [0.089]	-0.203 [0.210]	-0.178*** [0.059]
Demographic change index	-1.118 [0.964]	-0.876 [1.121]	-2.440 [2.085]	5.165 [3.872]	-1.425 [0.985]
Observations	470	286	184	57	413
R-squared	0.041	0.028	0.087	0.096	0.040

Robust standard errors in brackets; * significant at 10%; ** significant at 5%; *** significant at 1%. All regressions control for the population deviation from the district average, % Scheduled Castes, % Scheduled Tribes, % literate, % rural and % males in the population. Regressions in columns 1, 4 and 5 also control for state fixed effects.

**Political Insumbents and India's Electoral Redistricting:
Evidence from Two States**

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Appendix A: Additional Tables and Figures

Table A.1: Summary Statistics

	Obs	Mean	Std. Dev.	Min	Max
Panel A: Both States					
% change in constituency population	470	28.89	39.61	0.00	390.96
Population deviation from district average (%)	470	-2.78	35.98	-79.67	372.74
Change in constituency reservation status	470	0.18	0.39	0.00	1.00
Demographic change index	470	0.01	0.02	0.00	0.21
Local MLA is a committee member	470	0.02	0.13	0.00	1.00
Local MLA is a minister	470	0.10	0.30	0.00	1.00
Local MLA belongs to ruling party	470	0.62	0.49	0.00	1.00
Local MP is a committee member	470	0.16	0.36	0.00	1.00
Incumbent recontests election	470	0.57	0.49	0	1
Runner-up recontests election	470	0.39	0.49	0.00	1.00
Panel B: Andhra Pradesh					
% change in constituency population	286	29.05	44.98	0.00	390.96
Population deviation from district average (%)	286	-1.42	39.55	-79.67	372.74
Change in constituency reservation status	286	0.16	0.37	0.00	1.00
Demographic change index	286	0.01	0.03	0.00	0.21
Local MLA is a committee member	286	0.01	0.12	0.00	1.00
Local MLA is a minister	286	0.08	0.27	0.00	1.00
Local MLA belongs to ruling party	286	0.63	0.48	0.00	1.00
Local MP is a committee member	286	0.12	0.32	0.00	1.00
Incumbent recontests election	286	0.59	0.49	0.00	1.00
Runner-up recontests election	286	0.37	0.48	0.00	1.00
Panel C: Rajasthan					
% change in constituency population	184	28.63	29.49	0.04	190.15
Population deviation from district average (%)	184	-4.90	29.58	-62.74	129.08
Change in constituency reservation status	184	0.21	0.41	0.00	1.00
Demographic change index	184	0.01	0.02	0.00	0.13
Local MLA is a committee member	184	0.02	0.15	0.00	1.00
Local MLA is a minister	184	0.13	0.33	0.00	1.00
Local MLA belongs to ruling party	184	0.62	0.49	0.00	1.00
Local MP is a committee member	184	0.22	0.41	0.00	1.00
Incumbent recontests election	184	0.55	0.50	0.00	1.00
Runner-up recontests election	184	0.42	0.49	0.00	1.00

Appendix Table A.2: Correlations Among Measures of Political Influence

	Local MLA is a committee member	Local MLA is a minister	Local MLA belongs to ruling party	Local MP is a committee member
Local MLA is a committee member	1			
Local MLA is a minister	-0.0437	1		
Local MLA belongs to ruling party	0.0004	0.2430***	1	
Local MP is a committee member	-0.0569	0.0137	0.0105	1

* significant at 10%; ** significant at 5%; *** significant at 1%.

Adilabad District: Old AC Boundaries



Adilabad District: New AC Boundaries



Panel B: New Assembly Constituency Boundaries

**Political Insumbents and India's Electoral Redistricting:
Evidence from Two States**

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Appendix B: Analysis of Seats-Votes Curves

Appendix B: Impact on Seats-Votes Curves

Most of the prior literature on electoral redistricting in the U.S. has focused on estimating seats-votes curves. The seats-votes curve defines the expected relationship between the seat share and vote share of a given party, and is estimated from observed political outcomes by simulating a range of possible vote share distributions and associated seat shares, under certain assumptions. Gelman and King (1994a) pioneered this methodology, which is now widely used and also coded into a computer program (Gelman, King and Thomas, 2007).

Two quantities of interest are typically estimated from these simulations. The first is the partisan bias i.e. the extent to which a given party's seat share always exceeds their vote share, above what would be expected for the opposing party. For instance, if the INC is able to translate 55% of the average district vote into 75% of the seats, but the BJP is able to translate a similar vote share into only 70% of the seats, we would conclude that the electoral system has a partisan bias towards INC of about 5%. For the U.S., Gelman and King (1994b) find an increasing trend in partisan bias towards Democrats in the 1980s, while Coate and Knight (2007) find an overall partisan bias towards Republicans when they use data from the 1990s.

The other quantity of interest is the responsiveness of the seats-votes curve. This is the change in the expected seat share for a small change in the overall vote share. In electoral systems with proportional representation, where seat share is strictly proportional to vote share, the responsiveness is 1. For first-past-the-post systems, this can be greater or less than 1. For the US, responsiveness has been found to be greater than 1 in most states; Coate and Knight (2007) estimate an overall value of 2.7 in the 1990s. Electoral redistricting in the U.S. has been found to associated with a decline in partisan bias, and an increase in responsiveness (Gelman and King, 1994b).

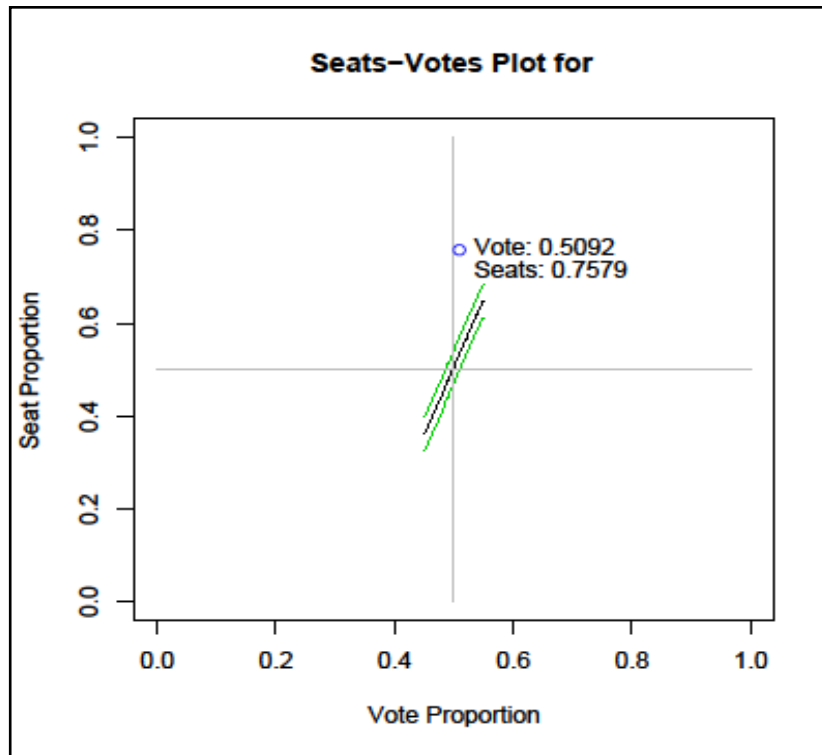
We estimated seats-votes curves for the two states of Andhra Pradesh and Rajasthan, both before and after the redistricting process, using the JudgeIt program and Gelman and King's methodology (1994a). We show the seats-votes curves for the INC in both states, before and after redistricting. To adapt this methodology to the Indian context, we computed the vote and seat shares for INC and its electoral allies rather than individual parties. To compute a two-party vote share analogous to the U.S. context, we assumed a vote share of zero for the INC alliance whenever the alliance's candidate was not among the top two. Our set of regressors included the vote share in the previous election, demographic characteristics of the constituency, a dummy for whether the

alliance won the seat in the previous election, and a dummy for whether the incumbent politician was contesting the election.

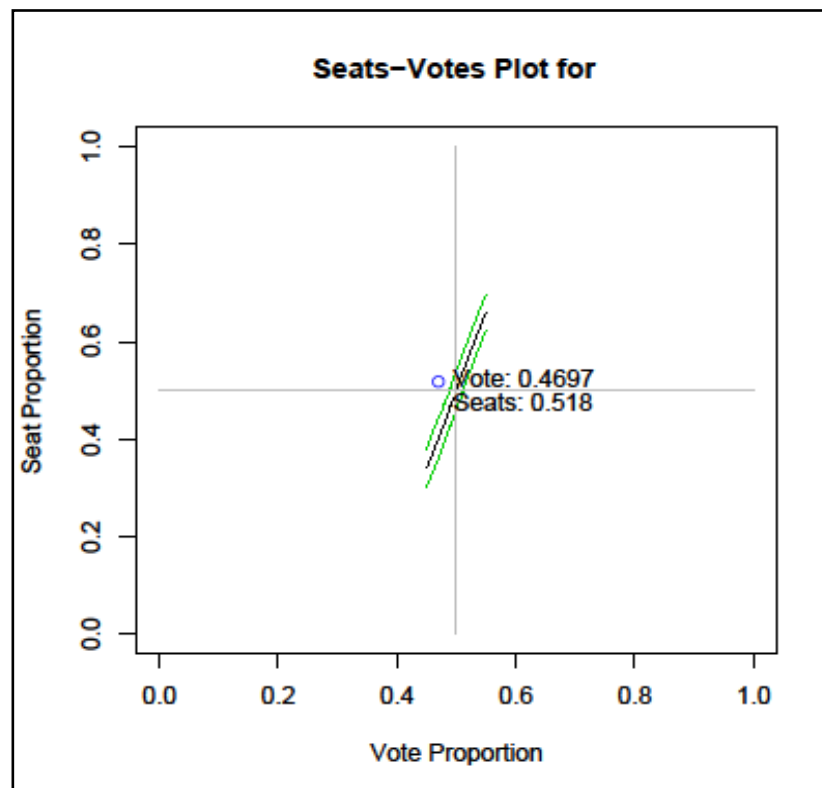
Though not central to the analysis the main body of this paper, we report two important findings for reference. First, there is very little partisan bias and a high degree of responsiveness in both these states prior to the redistricting process. The partisan bias is 1.2% towards INC in Andhra Pradesh and less than 0.5% towards the BJP in Rajasthan. The responsiveness of the seats-votes curves is 2.8 for Andhra Pradesh and 2.7 for Rajasthan, similar to that observed in the U.S. Second, the seats-votes curves look very similar before and after the redistricting process (Figures B.1 and B.2). The partisan bias in favor of INC increases slightly in Rajasthan (from -0.003 to 0.007), and decreases slightly in Andhra Pradesh (from 1.2% to 0). The responsiveness of the seats-votes curves also shows very small changes, increasing by 0.34 in Andhra Pradesh and decreasing by 0.14 in Rajasthan. Our results show that the characteristics of the electoral system were largely unchanged due to re-delimitation.

Appendix Figure B.1: Seats-Votes Curves for Andhra Pradesh

A. Before redistricting

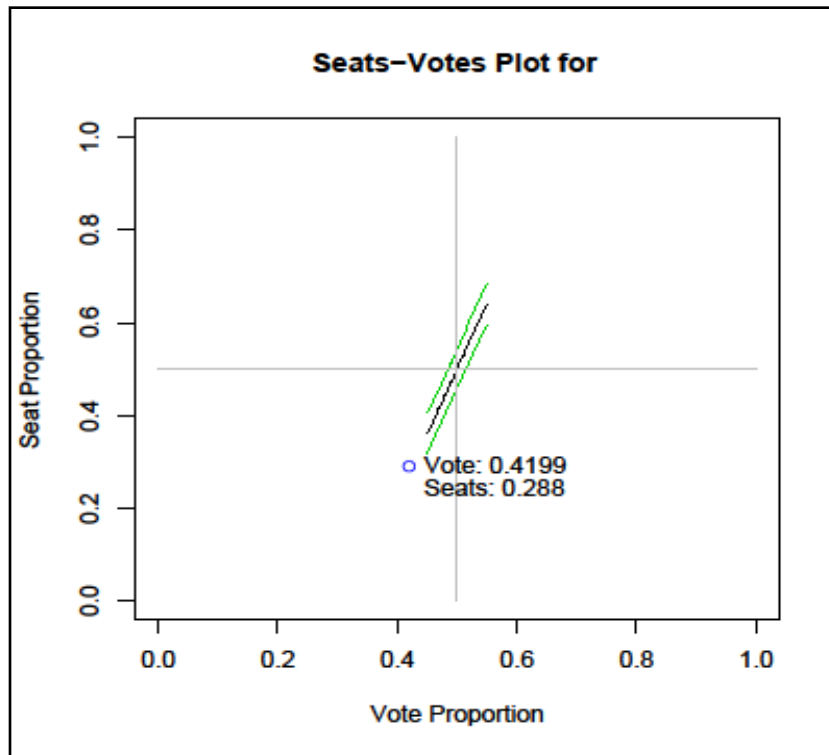


B. After redistricting



Appendix Figure B.2: Seats-Votes Curves for Rajasthan

A. Before redistricting



B. After redistricting

