

Boundaries, Representation, and Local Growth: How Electoral Redistricting Shapes Political Candidacy and Economic Development

Coleson Weir*

September 10, 2026

Job Market Paper

[Click here for the latest version](#)

Abstract

This paper examines how electoral redistricting affects political candidacy, representation, and economic development using India's 2008 Delimitation as a natural experiment. I exploit constituency-level variation in voter composition and changes in which seats are reserved for disadvantaged social groups. I find that the presence of new voters and changes in reservation status reduce both major party incumbent nominations and the probability of an incumbent winning reelection. Constituencies experiencing reservation status changes see an increase in paved road provision and higher nighttime lights growth in the five years following redistricting. Because India's redistricting was conducted by an independent commission rather than incumbent legislators, these findings suggest that insulating redistricting from political influence can generate economic benefits alongside the standard justification of limiting partisan gerrymandering.

Keywords: Electoral redistricting, incumbents, minority political representation, economic growth, public goods

JEL Classification: P16, D72, O12, O43

*Department of Economics, University of Notre Dame (cweir2@nd.edu). For their excellent research assistance, I thank Adam Battalio, Sagara Ann Johnny, Nicole Steiner, Maya Reddy, and Ahmad Wahdat. I thank the Kellogg Institute for International Studies and the Building Inclusive Growth Lab at the University of Notre Dame for financial support. For comments and suggestions, I thank participants of the Gender and Representation Workshop and Development Economics Workshop at Notre Dame. I extend a special thanks to Lakshmi Iyer, Taryn Dinkelman, Susan Ostermann, and Enrique Seira Bejarano for their feedback and advising on this project.

1 Introduction

Democracies regularly undergo electoral redistricting to equalize population across electoral constituencies to ensure the principle of “one person, one vote.” Despite this technical justification to redraw boundaries, redistricting is inherently political. Redrawing electoral boundaries can reshape who runs for office, who wins, and how different communities are represented in the legislature. Understanding how these boundary changes affect political representation and subsequent local economic development is central to evaluating whether redrawing boundaries of electoral districts serves its stated democratic purpose.

New electoral boundaries force candidates and parties to reevaluate their electoral strategies, reshaping the political calculus of a constituency as they compete to win. Parties have long understood this and sought control over the redrawing process, which has historically been a tool to entrench electoral majorities in legislatures (Erikson, 1972). In response, 16 democracies including Canada, India, Mexico, and the United Kingdom have handed the task to an independent commission or agency in order to insulate the boundary-drawing process from partisan actors. Even when partisan control is stripped from the redistricting process, the act of redrawing boundaries can still reshape who runs and who is elected. There are also consequences for which places prosper economically, in the wake of these changes. Thus, neutrality in process is no guarantee of neutrality in consequence. As democracies strive for representative governance, understanding how institutional reconfigurations shape both representation and economic development is essential.

In this paper, I analyze how electoral redistricting affects political representation and economic development in India. India’s 2008 redistricting was the largest independent redistricting exercise in the world. As redistricting could shape economic development through multiple channels, I develop a conceptual framework outlining these channels to motivate the empirical analysis. Redistricting changes the voter composition of a constituency and creates uncertainty about how that constituency will vote. Redistricting also changes who is legally allowed to run for office in India by switching which seats are reserved for Scheduled Castes and Scheduled Tribes.¹ Altering the candidate pool changes who will ultimately be elected. Politician preferences can influence which policy is implemented (Besley and Coate, 1997; Osborne and Slivinski, 1996). Additionally, shifting the median voter in a constituency can affect what policy is implemented by the elected representative (Downs, 1957).

I utilize a difference-in-differences identification strategy that leverages the spatial variation in how much a constituency is affected by redistricting. Matching constituencies before

¹Scheduled Castes and Scheduled Tribes are disadvantaged social groups. At the state level, the seats reserved for these groups only change due to redistricting.

and after maps are redrawn is an arduous process. To overcome this obstacle, I overlay GIS maps of state assembly constituencies before and after redistricting with the 2001 population census. Due to some boundary errors in the GIS maps, I manually assigned over 1,200 villages to constituencies. I match constituencies before and after electoral redistricting based on population displacement. This allows me to compute two treatment measures: the fraction of new voters and changes in the reservation status of a constituency. Including both of these treatment measures separates general uncertainty caused by redistricting and legal restrictions on who can run for office. By comparing changes in constituencies that experienced a high proportion of new voters to those with minimal boundary alterations, I isolate the causal impact of redistricting from confounding state-level trends.

I find that redistricting reduces major party incumbent nominations by 14.2% when a constituency has a high proportion of new voters, and by 45.5% when its reservation status changes. While parties do not adjust their nomination of women or minority candidates in response to new voters in a constituency, changes in reservation status lead parties to nominate 26.4% more women while nominating 55.3% fewer minority (Muslim) candidates. These shifts in candidacy carry through to electoral outcomes. Incumbents are 13% less likely to win reelection in constituencies with a high proportion of new voters, and 46.2% less likely to win when their constituency’s reservation status changes. The magnitude of these effects are very similar to the candidacy results, suggesting that changes in incumbent candidacy translate directly to changes in an incumbent’s probability of winning reelection. New voters marginally increase the probability a woman wins, despite no corresponding change in the number of women running. Reservation status change reduces the probability a minority candidate wins by 47.1%, which is similar in magnitude to the decline in minority nominations. The gendered and minority candidate effects are concentrated entirely in constituencies moving from unreserved to reserved for disadvantaged social groups. This suggests there are tradeoffs in affirmative action policies. Affirmative action can have positive spillovers to some underrepresented minorities, but also crowd out other minority groups.

As politicians are able to affect public policy, this paper goes on to examine how electoral redistricting changes economic performance and development. Previous literature has examined the impact of women politicians as well as incumbent politicians, and has found mixed results. Women are more responsive to their constituents and bring back more money to their constituency than male politicians (Anzia and Berry, 2011; Bauer and Cargile, 2023; Thomsen and Sanders, 2020), but electing women may or may not change policy (Chattopadhyay and Duflo, 2004; Clayton, 2021). Entrenched incumbents typically worsen economic development and voter well-being (Acemoglu and Robinson, 2006; Ashworth, 2006; George,

2024); however, political turnover may improve or worsen public service delivery (Akhtari, Moreira and Trucco, 2022; Bazzi et al., 2025; Marx, Pons and Rollet, 2025; Toral, 2024). The impact of electing new politicians on economic development is ambiguous.

Using the same identification strategy, I find that redistricting generates gains in local economic activity. While a high proportion of new voters has no effect on public goods provision or economic activity, changes in reservation status increase paved road provision by 2.7 percentage points and raise nighttime lights growth by 1.41 percentage points. This increase in luminosity growth corresponds to a 0.21 percentage point increase in GDP growth, which is an estimated 2.58 billion dollars in gained economic activity per year over a politician’s five-year term. These gains are concentrated in the constituencies that experienced the sharpest disruption to incumbency through legal restrictions. The improvements in public goods provision are concentrated in constituencies that became unreserved. On the other hand, nighttime lights growth is concentrated in constituencies that became reserved, which occurs when a constituency has a high proportion of Scheduled Caste or Scheduled Tribe voters. This suggests voter preferences as well as political representation determine which policies are ultimately implemented.

This paper contributes to the literature on political selection and the barriers to representation by examining how institutional design shapes candidate entry. Standard economic models of political entry suggest that candidates decide to run based on their expected probability of winning, the cost of campaigning, the returns to holding office, and electoral rules (Arora, 2022; Beath et al., 2016; Lawless and Pearson, 2008; Norris, 2006). While prior work has focused on individual-level constraints such as risk aversion or supply-side barriers (Gulzar, 2021; Lawless, 2015; Norris and Inglehart, 2001), less attention has been paid to how the physical boundaries of the electorate alter these parameters. Redistricting shapes the candidate selection environment by altering the spatial distribution of voters, thereby devaluing the localized name recognition and constituency-specific investments of incumbents. By analyzing this institutional shock, I show that independent boundary changes can reduce an incumbent’s probability of winning reelection through both electoral uncertainty and legal restrictions on candidacy. Reserved seats for historically disadvantaged groups have positive spillovers for women’s candidacy and negative spillovers for other minority candidates.

This paper also adds to the literature examining the economic and political consequences of malapportionment and electoral redistricting. When constituencies have unequal populations, this leads to unequal representation, development, and economic policy (Ansolabehere, Gerber and Snyder, 2002; Ardanaz and Scartascini, 2013; Bhavnani, 2018, 2021). Redistricting aims to equalize population to counteract malapportionment. While prior research has focused on the theoretical properties of optimal gerrymandering (Friedman and Holden,

2008; Gul and Pesendorfer, 2010) or the spatial compactness of districts (Fryer and Holden, 2011; King et al., 2022; McKinnie and Szalda-Petree, 2024), this paper provides some of the first empirical evidence to understand how redistricting alters candidate selection and economic development. The strand of the research in the United States that uses microdata has primarily focused on the effects of redistricting on voters, voter turnout, and party vote shares (Fraga, 2016; Hayes and McKee, 2009; Weir, 2026a), as well as women’s representation (Weir, 2026b). Whereas in India, studies have examined the process itself (Iyer, Weir and Ostermann, 2026; Jensenius, 2013) and its effect on infant mortality (Kjelsrud, Moene and Vandewalle, 2024).² This paper shows that even neutral and independent institutions can still affect political candidacy and development outcomes.

The rest of the paper is structured as follows: Section 2 covers the institutional background and Section 3 discusses the conceptual framework. Section 4 explains the data used in the analysis, and Section 5 describes the empirical strategy. Section 6 contains the results for political candidacy and representation, while Section 7 explores the economic benefits of redistricting. Section 8 concludes.

2 Institutional Background

2.1 India’s Electoral System

India is a multiparty parliamentary democracy at both the national and state levels. Six states have bicameral legislatures while the other 22 states have unicameral legislative bodies.³ Each state holds first-past-the-post elections approximately every 5 years. State legislative elections are conducted by the Election Commission of India which is comprised of career bureaucrats who may not participate in partisan activities, including joining political parties. Elections are held in phases to allow for proper election security measures.

Across all levels of government, India has reserved legislative seats for historically underrepresented groups. Articles 330, 332, and 334 of the Constitution of India create reserved seats in the Lok Sabha and state legislative assemblies for Scheduled Castes (SC) and Scheduled Tribes (ST).⁴ Scheduled Castes are groups that have historically held the lowest position in the Hindu caste system, whereas Scheduled Tribes are communities that historically existed outside of the caste system altogether. The proportion of seats reserved should

²Research has also examined how administrative unit splits impact development, and found mixed results (Cassidy and Velayudhan, 2026; Lipscomb and Mobarak, 2017; Narasimhan and Weaver, 2024).

³Andhra Pradesh, Bihar, Karnataka, Maharashtra, Telangana, and Uttar Pradesh have bicameral state legislatures.

⁴The Lok Sabha is India’s lower chamber of Parliament.

be approximately the same as the proportion of the SC and ST population in each state and union territory. There are not currently reserved seats for women in state legislatures nor the Lok Sabha; however, the 106th Amendment reserves one-third of seats in the Lok Sabha and state legislative assemblies for women, which will go into effect following the next delimitation.⁵

2.2 History of Delimitation in India

Every few years, 42 democracies redraw the boundaries of single-member districts.⁶ Less than half of these countries have independent commissions that redraw boundaries. In India, the Delimitation Commission is responsible for conducting electoral redistricting, or delimitation as it is called in India, and was outlined in Article 82 of the Constitution of India. The Delimitation Commission of India is designed to operate as an independent, nonpartisan body to insulate the redistricting process from political interference. Under the Delimitation Act of 2002, the commission consisted of three core members with voting power: a retired judge of the Supreme Court of India, who served as the chairperson; the Chief Election Commissioner of India; and the Election Commissioner of the respective state or union territory. To ensure local context is considered, the commission enlisted ten associate members from each state, consisting of five members of the Lok Sabha and five members of the state legislative assembly.⁷ The associate members did not possess voting rights, nor did they have the power to veto or sign the final boundary determinations. The final authority to approve and publish the electoral maps rested solely with the three members of the commission, which significantly limited the scope for partisan gerrymandering or strategic boundary manipulation by political incumbents.

Article 170 of the Constitution of India lays out the principle of “one person, one vote” and ensures the proportion of the population contained within each constituency should be approximately the same within each state. The process of electoral redistricting occurred following each decennial census until states became concerned that redistricting unfairly redistributed political power across states due to unequal progress in family planning policies. The concerns resulted in the 42nd Amendment, which said the 1976 electoral boundaries would be used until after the first census following the year 2000. The population census was conducted in 2001, and the process of redrawing electoral boundaries began with the Delimitation Act of 2002. States were still concerned about reallocating seats across states

⁵The next delimitation is supposed to occur following the 2027 census.

⁶All but nine of the 42 countries that redraw boundaries are historically linked to the United States, United Kingdom, or one of their former colonies (DeSilver, 2025).

⁷If a state had fewer than five members of the Lok Sabha, all members of the Lok Sabha from the state served as advisory members of the delimitation commission.

due to differing population growth in northern and southern states. As a result, the number of seats in both the Lok Sabha and state legislative assemblies were kept the same, and seats were only reallocated within states.

In redrawing constituency boundaries, the Delimitation Commission followed specific guidelines to ensure geographical compactness and administrative continuity. Constituencies must be contiguous geographical areas, and the commission was instructed to utilize natural barriers, public roads, and existing communication links as boundaries. Detailed empirical analysis of whether there was political influence in the redistricting process in India by [Iyer, Weir and Ostermann \(2026\)](#) shows politicians were unable to influence redistricting in their favor .

The distribution of reserved seats for Scheduled Castes and Scheduled Tribes followed constitutional regulations that minimized administrative discretion. According to the Delimitation Act of 2002, constituencies with the highest concentration of Scheduled Tribe populations were reserved for Scheduled Tribes. For Scheduled Castes, the commission was required to identify constituencies with highly concentrated Scheduled Caste populations and distribute the reserved seats geographically across different regions of the state to ensure broad representation. Because these assignments were determined mathematically based on the population shares recorded in the 2001 census, the shifting of a constituency into or out of reserved status is a mechanical consequence of demographic changes rather than political negotiation. This assignment provides a source of variation in candidate eligibility that is independent of local politics.

Using the 2001 census data, the delimitation commission created a draft of the new boundaries for each state. Draft reports were published for each state between 2004 and 2007. Comments on the proposed boundaries written by advisory members of the commission were published alongside the draft reports. The commission gathered feedback on the proposed boundaries through public comments and public meetings. After taking the feedback into account, the Delimitation Commission published final boundary reports for each state. The new maps drawn by the Delimitation Commission were implemented for state and national elections beginning in 2008. These boundaries are still in effect and will be until after the first election following the 2027 census.

The goal to equalize population across constituencies was generally achieved. Redistricting shifted the population distribution of constituencies, and reassigned reserved seats across constituencies. Constituencies have a higher population, on average, and the standard deviation shrank by 22% ([Appendix Figure A.1](#)). Overall, the goal of redistricting was achieved by the Delimitation Commission.

3 Conceptual Framework

Electoral redistricting can affect policy outcomes through two main channels: by changing the composition of voters within a constituency and by changing who is elected to represent a constituency. I discuss each channel in turn. Appendix Figure A.2 presents a diagram of these two channels and the mechanisms linking them to policy and development outcomes.

Redistricting redraws constituency boundaries, altering the underlying population of voters that a politician must appeal to. A new composition of voters can shift policy outcomes by changing the median voter in a constituency, since the median voter’s policy preference is the one implemented in equilibrium (Downs, 1957). If redistricting moves a constituency’s median voter either by adding or removing villages with different preferences, the policy that is implemented after the election shifts accordingly.

This channel operates not only through the redrawing of boundaries but through its effect on voter turnout. Voters who are placed into a new constituency are less likely to vote (Hayes and McKee, 2009), meaning their preferences may not be taken into account even though they are nominally represented. If redistricting dampens voting turnout, the median voter of those who vote may not coincide with the median voter among the full constituency population. A politician optimizing their election chance responds to this effective median voter. Thus, redistricting can change policy through changing voter turnout and thus the effective median voter of a constituency. A limitation of this channel is that voter preferences are not directly observable in the data. As a result, I cannot directly test whether redistricting shifts the median voter or the effective median voter in a constituency. However, I do test whether redistricting changes voter turnout.

The second channel operates through redistricting’s effect on political candidacy, and in turn on who wins political office. Redistricting creates uncertainty about how a newly drawn constituency will vote. Uncertainty is created due to new voters not knowing the incumbent politicians and politicians not knowing how this new group of voters will vote. *Ex ante*, it is not clear how this uncertainty affects candidacy. On one hand, parties may respond to uncertainty by favoring their incumbents (Meserve, Pemstein and Bernhard, 2020). Incumbents have already proven they can win elections, and parties tend to nominate candidates likely to win (Magesan, Szabó and Ujhelyi, 2025). Therefore, redistricting could increase the nomination of incumbents and previously elected politicians, and correspondingly reduce the nomination of women and other minority candidates. On the other hand, parties may not nominate incumbents for reelection if the incumbent is not a good fit for the voters in the new constituency. If fewer incumbents are nominated, this may open up opportunities for other candidates. I am going to examine whether parties nominate incumbents, and what

other candidates may run instead. I focus on two types of candidates that are historically underrepresented, women and minority candidates, and whether this geographic reorganization opens doors to these candidates.

This same uncertainty can affect individual candidates' decisions to run, independent of party nomination strategy, and may do so differentially for women. Women already face higher barriers and costs to running for office (Lazarus and Steigerwalt, 2018; Shaukat, 2019). More generally, running in a constituency whose voting behavior is unknown is inherently riskier, and women tend to be more risk averse; this uncertainty could reduce women's candidacy directly (Niederle and Vesterlund, 2007; Preece, Stoddard and Fisher, 2016).

A shift in who runs may or may not translate into changes in representation. Incumbents may be less willing to run for a seat in a new constituency where the electorate's voting behavior is unpredictable. If the incumbents who withdraw from newly drawn constituencies are not a systematically stronger or weaker subset of incumbents overall, then the decline in incumbent candidacy should map closely onto the decline in the probability that an incumbent wins the seat, with representation shifting primarily through reduced entry rather than through a change in the competitiveness of the incumbents who do run. This logic may not extend to women and minority candidates. Parties may nominate them more often in a newly uncertain constituency without committing the same support they give incumbents. If so, a rise in their candidacy would not bring the same rise in their odds of winning for women and minority candidates.

In the case of India, redistricting also directly changes who is eligible to run by changing a constituency's reservation status for Scheduled Castes and Scheduled Tribes.⁸ When a constituency moves from unreserved to reserved, the sitting incumbent can no longer run unless they belong to a Scheduled Caste or Scheduled Tribe. On the other hand when a constituency moves from reserved to unreserved, the incumbent typically does not seek reelection (Bhavnani, 2017). A reservation status change could thus alter the number of incumbents running post-redistricting. Because non-political reservations for SC and ST individuals have generated gendered spillovers elsewhere (Bertrand, Hanna and Mullainathan, 2010; Cassan, 2019), reservation status changes from redistricting may similarly carry unintended consequences for women's candidacy.⁹

Changes in political candidacy and electoral outcomes may shape economic development through two channels. The election of women to office results in higher levels of economic growth (Baskaran et al., 2024), investment in education (Clots-Figueras, 2012), and public

⁸A constituency's reservations status can only change due to the delimitation process for state assembly seats in India.

⁹Studies have examined the effects of reserved seats in the local setting, with mixed results (Cassan and Vandewalle, 2021; Karekurve-Ramachandra and Lee, 2020).

goods provision (Chattopadhyay and Duflo, 2004). These gains, however, are conditional on women’s ability to exercise effective authority once elected. When inexperience or informal proxy control by male relatives leaves women’s seats susceptible to capture, the anticipated benefits of female representation fail to materialize (Afridi, Iversen and Sharan, 2017). Similarly, whether incumbents are beneficial or detrimental to development is ambiguous. Entrenched incumbents are associated with weaker electoral discipline and correspondingly lower growth and public goods provision (George, 2024), suggesting that turnover among such incumbents should be development-enhancing. Yet this turnover can induce bureaucratic turnover, which is disruptive to administrative processes, and degrade service delivery (Akhtari, Moreira and Trucco, 2022; Toral, 2024). Where a change in a constituency’s reservation status results in political turnover, service delivery may therefore deteriorate even as electoral accountability improves.

4 Data

4.1 Measuring Electoral Redistricting

To measure the extent of electoral redistricting, I utilize data from Iyer, Weir and Ostermann (2026). At the village level, India’s 2001 Population Census data is overlaid with GIS maps of state assembly constituency boundaries before and after the 2008 delimitation. To resolve spatial discrepancies arising from boundary misalignment in the raw GIS shape files, particularly along international borders and coastal regions, manual matching for approximately 1,200 villages was required. Each disputed village was matched using its census land area or centroid coordinates. When a village polygon intersected multiple constituency boundaries due to digitization errors, the village was assigned to the constituency containing its administrative center or the largest share of its land. 23 states in India underwent redistricting in 2008 and are thus included in the analysis.¹⁰ Pre-redistricting constituencies are matched to post-redistricting constituencies based on whichever post-redistricting constituency contains the largest proportion of the pre-redistricting constituency’s population.¹¹ For example, in Andhra Pradesh, Madakasira constituency stayed the same, Kalyandurg con-

¹⁰A few cities had the boundaries and number of wards change substantially. Thus, constituencies for these cities were unable to be matched and thus dropped from the analysis. This accounts for 6% of the total sample of the 23 states. For various reasons such as safety concerns due to ongoing conflict, Arunachal Pradesh, Assam, Jammu & Kashmir, Jharkhand, Manipur, and Nagaland did not redraw constituency boundaries in 2008. New boundaries for Jharkhand were drawn, but not implemented. Assam did not redraw constituency boundaries in 2008, but did in 2023.

¹¹Other research examining boundaries or boundary changes typically look at whether boundaries split certain groups of people (Bluhm, Hodler and Schaudt, 2024; Michalopoulos and Papaioannou, 2016) or measure the artificialness of a boundary (Alesina, Easterly and Matuszeski, 2011).

stituency shrunk, and Kadiri constituency lost some land in the northwest but gained land in the south (Appendix Figure A.3). To illustrate this, constituency maps before and after redistricting for Anantapur district in Andhra Pradesh are presented in Appendix Figure A.3.

This methodology allows me to compute two main measures of redistricting: the fraction of new voters and reservation status change. Constituencies have approximately a third of constituents in the constituency that were not before redistricting, on average (Table A.2).¹² The median proportion of new voters in a constituency is 30.7%. 12.5% of constituencies have less than 5% new voters. Appendix Figure A.4 shows the distribution of the fraction of new voters. Redistricting resulted in substantial boundary changes, with many voters being displaced from their prior constituency.

Redistricting changes which seats are reserved for SC and ST candidates. I compute whether a constituency had a change in its reservation status. This includes both a constituency going from unreserved to reserved for Scheduled Caste or Scheduled Tribe candidates from reserved to unreserved. Moving from unreserved to reserved would legally bar a politician from running in that constituency if they are not a member of a Scheduled Caste or Scheduled Tribe. Alternatively, if a candidate goes from reserved to unreserved, a SC/ST politician can still run in the constituency, but they are unlikely to win. Approximately 20% of constituencies had their reservation status change due to electoral redistricting (Table A.2).

Another measure of redistricting is the demographic change of a constituency. To measure this, I construct a demographic change index for each constituency. The index includes the population shares of women, scheduled castes, scheduled tribes, literate individuals, and rural residents. The demographic change index is defined as the square root of one fifth of the sum of the squared differences across these five dimensions, which is normalized strictly between zero and one. This metric captures the multidimensional demographic distance between the old and new boundaries, where a value of zero indicates identical demographic compositions and a value of one represents a complete demographic inversion. On average, constituencies in India have 3.9% demographic change, and it ranges from no change at all to 47% change. The correlation between the demographic change and the fraction of new voters is 0.355. I use the fraction of new voters and reservation status change as the primary measures of redistricting because the demographic change measure is limited by what is recorded in the population census.¹³

¹²There are 66 constituencies with more than 80% of their constituency being new voters. Many of these constituencies became much larger due to redistricting. The high fraction of new voters could also be high due to some remaining errors after manual corrections due to imprecise borders of the GIS maps.

¹³Age, education, income, and granular occupational categories are not in the population census data.

4.2 State Legislative Election Data

I utilize election data for India’s state assemblies from the Trivedi Centre for Political Data. The sample includes state assembly elections from 1978 through 2017.¹⁴ The data contains information on political party, sex, and the number of votes received for each candidate.¹⁵ I merge these data with data identifying which candidates are Muslim based on their names. Muslim candidates are classified as minority candidates for the remainder of the paper. The religion data is available for all elections before redistricting and the election immediately following redistricting. Overall, there are 202,646 unique candidates who ran for election across the 3,235 constituencies. Of the 23,487 incumbents, 1,309 are women, and 22,178 are men. The elections are competitive even when incumbents are present. In the election immediately before redistricting, 8.4 candidates run for office in each constituency. Major parties nominate 0.61 incumbents on average before redistricting, which drops to 0.48 after redistricting.¹⁶ Incumbents win 31% of seats prior to redistricting, which drops to 25% after new maps are implemented. On the other hand, women win only 7% of legislative assembly seats, and minority candidates only win 5% of seats before redistricting (Table 1). Women and minority candidates’ probability of winning marginally increases after redistricting. The data contains a unique candidate identifier to track candidates over time. Utilizing the candidate identifier, I determine if candidates seek office in the next election and whether they win. About 63% of incumbents run for reelection prior to redistricting, while almost half of these incumbents win the next election.

4.3 Economic Data

I utilize the Socioeconomic High-resolution Rural-Urban Geographic Platform for India (SHRUG) for data on night lights, public goods, employment, and pollution (Asher et al., 2021). Using unique village-level identifiers from the SHRUG, I spatially match the villages to assembly constituencies before and after the 2008 redistricting.¹⁷ Pre-redistricting constituencies are matched to post-redistricting constituencies based on the mapping described above.

¹⁴For specific election years by state, see Appendix Table A.1.

¹⁵Each candidate’s age and caste is not available for all individuals. Caste is an optional question on candidate affidavits, and few candidates report this information.

¹⁶Major political parties are defined as a party that held at least 5% of legislative seats in any state between 1978 and 2008 following Bhalotra, Clots-Figueras and Iyer (2018)

¹⁷This mapping resulted in fewer constituencies than the election data contains due to some data not being included in the SHRUG data, including the entire state of Puducherry. I conduct a robustness check of the candidacy and representation results using the same sample as the public goods and nighttime light data.

Table 1: Summary Statistics

	Pre-Redistricting Mean (1)	Post-Redistricting Mean (2)
<i>Panel A: Political Candidacy</i>		
Incumbents Nominated by a Major Party	0.606	0.481
Women Nominated by a Major Party	0.329	0.405
Minority Candidates Nominated by a Major Party	0.338	0.377
Independent Men	3.014	3.776
Independent Women	0.180	0.234
<i>Panel B: Voter Behavior and Representation</i>		
Voter Turnout	0.710	0.749
Any Incumbent Won	0.314	0.252
Woman Won	0.070	0.085
Minority Candidate Won	0.051	0.054
Independent Won	0.038	0.027
<i>Panel C: Economic Development</i>		
Primary Schools	0.867	0.885
Primary Health Subcenters	0.223	0.305
Paved Roads	0.686	0.724
Annual Nighttime Light Growth	0.076	0.053

Notes: This table presents summary statistics of all of the main outcomes. Pre-redistricting data is for the election immediately before redistricting. Post-redistricting data is for the election immediately after redistricting.

4.3.1 Public Goods

The Population Censuses from 1991, 2001, and 2011 contain the number of specific public goods in each village. Using this data, I compute the fraction of villages within a constituency that have the following public goods: primary schools, primary health subcenters, and paved roads. Public goods provision in India has been increasing since the 1961 Census. There have been many public policies aimed at ensuring everyone has access to public goods such as schools and health centers (Iyer and Weir, 2025). In 1991, 84% of constituencies had a primary school, which increased to 89% in 2011. Similarly, for primary health subcenters, 26% of constituencies had one in 1991, and 31% had a primary health subcenter in 2011. There was a larger increase in the provision of paved roads over the same two decades. The provision of paved roads increased by 11 percentage points from 1991 to 2011.

4.3.2 Nighttime Lights

I use nighttime light data as a proxy for economic growth. A benefit of using night light data as a proxy is that it allows for estimates at a disaggregated level, where GDP is not commonly computed (Henderson, Storeygard and Weil, 2012). Baskaran et al. (2024) find that a 1 percentage point increase in night lights is associated with a 0.15 percentage point increase in GDP in India. Night lights themselves are associated with electricity usage in an economy (Chand et al., 2009), and electrification improves economic development outcomes (Dinkelman, 2011; Lipscomb, Mobarak and Barham, 2013). In India, politicians can control the distribution of electricity (Baskaran, Min and Uppal, 2015; Burgess et al., 2020; Mahadevan, 2024). Thus, night lights are able to be influenced by politicians and a good proxy for economic growth and development.

The SHRUG contains nighttime light data from the U.S. Air Force Defense Meteorological Satellite Program’s Operational Linescan System (DMSP) (Asher et al., 2021; Henderson, Storeygard and Weil, 2011). The data is available from 1994 through 2013. Each pixel is assigned a value from 0 to 63 depending on the intensity of the light in that pixel. The National Oceanic and Atmospheric Agency adjusted the DMSP data by removing any low quality data. Data could be removed due to environmental reasons such as clouds, auroral lights, and active fires in a given area.¹⁸ This refined data is aggregated by year. I aggregate the village night light data to the assembly constituency level to create yearly estimates of night lights in each electoral constituency. I scale the total sum of night lights in a constituency by the area of the constituency. The data is aggregated to the five-year election terms.

5 Estimating the Impact of Electoral Redistricting

To estimate the effect of electoral redistricting, I use a difference-in-difference identification strategy that exploits the fraction of new voters in a constituency as well as the change in the reservation status of a constituency. I estimate the difference-in-difference model with the following regression equation:

$$y_{cst} = \beta_1 Post_t \times NewVoters_c + \beta_2 Post_t \times ResChange_c + \delta_c + \delta_t + \varepsilon_{cst} \quad (1)$$

where y_{cst} is the outcome of interest in electoral constituency c in state s in election year t . I

¹⁸Low sensitivity and saturation could all introduce measurement error in the night light data. Min et al. (2013) and Tuttle et al. (2014) show that satellite sensors can pick up very low levels of light output, suggesting low sensitivity is not an issue. Saturation could result in the highest light output being censored, as there is a cap on how high light can be measured.

stack the data such that the election years are relative to the election immediately preceding electoral redistricting. For example, the elections in Karnataka and Andhra Pradesh that immediately preceded redistricting occurred in 2004 and 2005, respectively. These election years are both coded as 0. $Post_t$ is an indicator variable equal to one if the election occurs after redistricting. $NewVoters_c$ is an indicator equal to one if a constituency has the fraction of new voters in the constituency at or above the median across the entire country. $ResChange_c$ is an indicator equal to one if the reservation status of a constituency changed due to redistricting. Including both $ResChange_c$ and $NewVoters_c$ in the analysis separates the legal restrictions on who can run for office from general uncertainty caused by redistricting.¹⁹ Constituency and time fixed effects are denoted δ_c and δ_t . Constituency fixed effects capture both observed and unobserved time-invariant constituency characteristics. Relative election year fixed effects control for time trends common to all electoral constituencies. The main analysis uses one election before and one election after redistricting. However, I show robustness to utilizing all election years. Standard errors are clustered at the electoral constituency level.

This empirical strategy avoids issues presented by the difference-in-differences and econometrics literature by not including time-varying covariates (Caetano et al., 2024), not utilizing continuous treatment (Callaway, Goodman-Bacon and Sant’Anna, 2025), and not exploiting variation that affects groups at different times (Goodman-Bacon, 2021).²⁰ The Delimitation Commission’s maps went into effect in 2008 and would be first utilized in the first election after 2008. Elections occur every five years and the dates are predetermined. Thus, all of the maps go into effect in the same year even though the elections can occur at different times. Thus, there is no staggered rollout of the new maps, and the two-way fixed effects estimator is not biased.

For the overall identification strategy to yield a causal estimate, the change in the outcome variable for constituencies with a low proportion of new voters (no reservation status change) would be the same as the change experienced by constituencies with a high proportion of new voters (reservation status change) in the absence of electoral redistricting. To provide evidence for this parallel trends assumption, I will estimate an event study model which allows the effect of electoral redistricting to vary over time. By interacting the fraction of

¹⁹This identification strategy assumes the effects are linearly additive and not multiplicative. The correlation between $ResChange_c$ and $NewVoters_c$ is 0.07, so any multiplicative effect would be incredibly small, if one exists.

²⁰I utilize a stacked difference-in-difference identification strategy. Although the treatment does not occur at different times, Baker, Larcker and Wang (2022) show that the stacked difference-in-difference eliminates bias caused by staggered rollout and gives unbiased estimates. The difference between a staggered difference-in-difference and estimators suggested in Callaway and Sant’Anna (2021) and Sun and Abraham (2021) is the weighting of observations (Baker, Larcker and Wang, 2022).

new voters in a constituency as well as the reservation status change indicator with election year fixed effects, I test for preexisting trends and estimate the effect of electoral redistricting on the outcome of interest over time. The event study model is estimated using the following equation:

$$\begin{aligned}
y_{cst} = & \sum_{\tau=-6, \tau \neq 0}^2 \alpha_{\tau} \mathbf{1}\{ElectionYear = \tau\} \times NewVoters_c \\
& + \sum_{\iota=-6, \iota \neq 0}^2 \gamma_{\iota} \mathbf{1}\{ElectionYear = \iota\} \times ResChange_c + \delta_c + \delta_t + \nu_{cst}
\end{aligned} \tag{2}$$

where τ and ι represent the leads or lags of interest. The variables $NewVoters_c$, $ResChange_c$, δ_c , and δ_t are as described above. The coefficients α_{-6} through α_{-1} test whether outcomes followed common trends in constituencies with high and low proportions of new voters prior to electoral boundaries being redrawn. The coefficients of interest for the fraction of new voters are α_1 and α_2 , which measure the effect of a high proportion of new voters on the outcome of interest in the two elections following redistricting. The coefficient for election year 0 is omitted so the other coefficients are all relative to the election immediately preceding electoral redistricting. The coefficients γ_{-6} through γ_{-1} test whether outcomes followed common trends in constituencies that experienced a reservation status change and those that did not prior to electoral boundaries being redrawn. The coefficients of interest for the analysis of reservation changes are γ_1 and γ_2 which measure the effect of a reservation status change on the outcome of interest in the two elections following redistricting. Standard errors are also clustered at the electoral constituency level.

6 Does Redistricting Alter Political Candidacy and Representation?

6.1 Political Candidacy

Changing the voting population of a constituency shapes who runs for office. When there is a high proportion of new voters in a constituency, the number of incumbents nominated by a major party drops by 0.086 (Table 2). This is a 14.2% decline in the number of incumbents running for office, which translates to approximately one fewer incumbent running in every 10 constituencies. The electoral uncertainty caused by new voters did not change the number of women or minority candidates nominated by major political parties. However, fewer independent candidates ran. The number of independent men running for office dropped by 0.2 men in constituencies with a high proportion of new voters, on average (Table 2). The

number of women running as independents also dropped by 0.06 women (Table 2). These decreases in independent candidacy are a 6.6% and 30.6% decline for men and women, respectively. As parties did not change their strategy in nominating women and minority candidates, the larger effect of electoral uncertainty on women’s independent candidacy is likely due to higher risk aversion than male candidates.

Reserved seats legally bar certain people from running for office in a constituency. The number of major party nominated incumbents declines by 0.276 when a constituency’s reservation status changes, which is a 45.5% decline (Table 2). In one out of every four constituencies, incumbents are no longer nominated by major parties as a result of a change in reservation status. The effect is twice as large in constituencies that became reserved because incumbents were unlikely legally eligible to run in that constituency (Appendix Table A.3).

Women and minority candidates are treated differently by political parties when parties are faced with legal restrictions on who is able to run for office. Major parties increase the number of women nominated by 0.087 women, on average, due to a reservation status change (Table 2). This increases the number of women running for a major party by 26.4%. As women only hold 7% of legislative seats in India, increasing the number of women running could bring women slightly closer to equal representation. The change in women’s candidacy is a combination of major party and individual decisions. The effect on major party candidacy for women is almost 50% larger than the effect on independent women, meaning risk aversion accounts for approximately one third of the effect of redistricting on women’s candidacy. On the other hand, minority candidates are nominated less by major political parties due to changes in which constituencies are reserved for SC/ST candidates. Minority candidacy decreases by 55.3% when a constituency’s reservation status changes (Table 2). The changes in women’s and minority candidate’s candidacy are only observed when a constituency moves from unreserved to reserved as a result of electoral redistricting (Appendix Table A.3).

The electoral uncertainty and legal restrictions on candidacy changed who ran for public office. Incumbents are nominated less by major political parties due to electoral uncertainty as well as changes in the reservation status of a constituency. Women and minority candidates are only affected by legal restrictions on who is able to run, with parties nominating more women and fewer minority candidates. These results hold for the total number of incumbents, women, and minority candidates as well (Appendix Table A.4).

6.1.1 Identification Assumptions

Figure 1 provides evidence in support of the parallel trends assumption for the effect of the fraction of new voters as well as reservation status changes on political candidacy.

Table 2: Effect of Electoral Redistricting on Political Candidacy

	Major Party Nominees				
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)	Number of Independent Men (4)	Number of Independent Women (5)
$Post \times NewVoters$	-0.086*** (0.024)	-0.019 (0.029)	-0.035 (0.034)	-0.201* (0.120)	-0.055** (0.023)
$Post \times ResChange$	-0.276*** (0.028)	0.087** (0.040)	-0.187*** (0.041)	-0.077 (0.161)	0.059** (0.029)
Observations	6,470	6,470	6,470	6,470	6,470
R-squared	0.588	0.577	0.719	0.681	0.534
Avg Dep Variable	0.606	0.329	0.338	3.014	0.180

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting election and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Before redistricting occurred, constituencies with high and low proportions of new voters had the same number of incumbents nominated by major parties. Following redistricting, constituencies with a high proportion of new voters saw declines that persisted in the two elections following redistricting (Figure 1). There is evidence of the parallel trends assumption holding for the effect of new voters on women's candidacy, minority candidacy, and independent candidates. Constituencies that experienced a change in their reservation status had the same number of incumbents and women nominated by major political parties prior to redistricting (Figure 1). Both incumbents and women had persistent effects in the two elections following redistricting. However, the effect in the second election after new maps were implemented is smaller than the effect immediately after redistricting.

There are potential violations of the parallel trends assumption for the effect of a reservation status change on minority candidacy as well as independent men's candidacy shown in Figure 1. Thus, I conduct an event study sensitivity analysis proposed by [Rambachan and Roth \(2023\)](#) in Appendix Figures A.5 and A.6. The breakdown value for a significant effect on both the number of minority candidates running for a major party and the number of independent men running is 0.5. This means the result is robust to allowing for violations of

the parallel trends assumption up to half of the maximum violation in the pre-redistricting period (Appendix Figure A.6). Thus, the result for these two outcomes is not robust to violations of the parallel trends assumption. I, therefore, interpret these results cautiously.

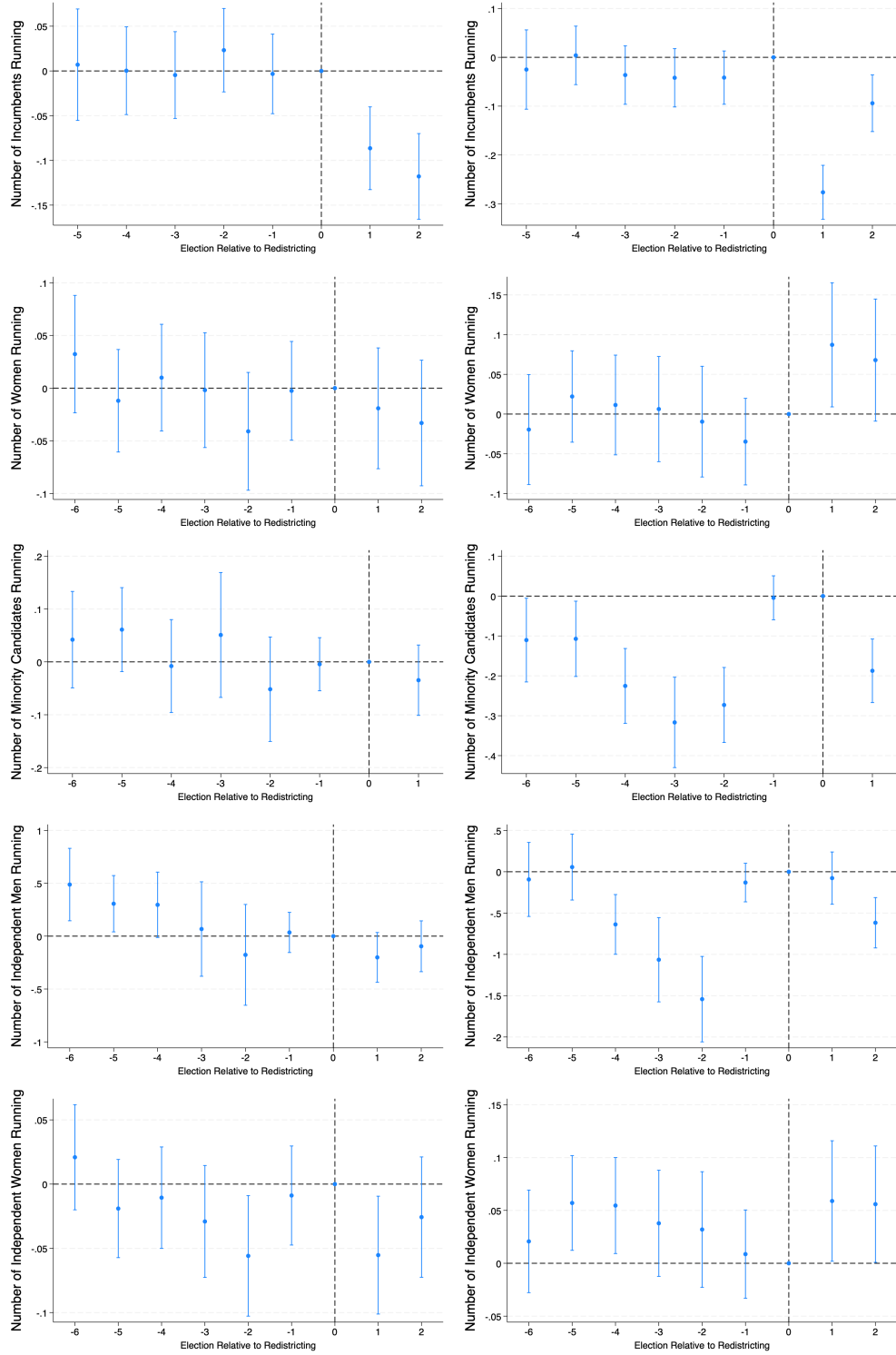
A remaining concern for identification is that electoral redistricting in one constituency mechanically changes the bordering constituency. A constituency with a low proportion of new voters may still experience spillover effects if nearby constituencies with a high fraction of new voters see candidates or party resources shift across the boundary. Such interference would violate the Stable Unit Treatment Value Assumption (SUTVA), because the potential outcomes of one constituency would then depend not only on its own treatment status but also on the treatment status of its neighboring constituency. If a SUTVA violation were driving the results, one would expect the estimated treatment effect to decay with distance from a redrawn boundary, because constituencies further from treated units are progressively less exposed to any spillovers in candidates and party resources.

To address this concern, I compute the distance from the centroid of a constituency to the nearest “treated” constituency as defined by *NewVoters*. The median distance to the nearest “treated” constituency is 26 kilometers. Appendix Table A.5 reports a “donut” specification across increasing exclusion radii. For major party incumbents, the point estimate on *NewVoters* remains stable, ranging from -0.073 to -0.096, as the exclusion radius increases from 0 to 20 kilometers. The effect of reservation status change is also stable. The standard errors increase modestly as the radius grows, due to the reduction in sample size as constituencies near treated units are dropped. The estimates that modestly decline are not statistically different from each other for any of the outcome variables. Due to the stability of the estimates across radii, Appendix Table A.5 supports the stable unit treatment value assumption.

6.1.2 Robustness Checks

Appendix Table A.6 estimates the baseline political candidacy specification using the full pre-period sample rather than restricting to the single election immediately preceding redistricting. Using six pre-redistricting elections and one post-redistricting election, the effect on major party incumbents is -0.091 and significant at the one percent level. The effect of reservation status changes on the number of incumbents nominated by major parties is -0.258 , and is also significant at the one percent level. These estimates as well as the effect on the number of women nominated by major parties are similar to those presented in Table 2. The minority candidacy result, however, is not robust to including six pre-redistricting elections. This suggests the minority candidacy finding is more sensitive to the number of pre-redistricting elections included in the analysis than the other results.

Figure 1: Event Studies: Effect of Redistricting on Political Candidacy



(a) Fraction of New Voters

(b) Reservation Status Change

Notes: Each point in Panel A represents the coefficient of $NewVoters_c$ interacted with an election year indicator variable from Equation 2. Each point in Panel B is the same but uses $ResChange_c$. The bars represent the 95% confidence interval of the coefficient. Each coefficient is relative to the year before redistricting. The vertical line is at the last election before electoral boundaries were redrawn.

Appendix Table A.7 checks sensitivity to the construction of the *NewVoters* variable. While the results in Table 2 use an indicator for whether a constituency’s fraction of new voters is at or above the national median, Appendix Table A.7 considers four alternatives. Using a continuous measure of the fraction of new voters yields a statistically significant negative effect on major party incumbents and independent candidates of both genders. These results are consistent with the sign and significance pattern of the binary treatment. Restricting the comparison to the fourth quartile of fraction of new voters versus the rest of the sample produces a larger point estimate for incumbents. I drop the top 1% of constituencies by the fraction to address concerns about outliers driving the results. These estimates are essentially the same as in Table 2 (Appendix Table A.7). Using demographic change instead of the fraction of new voters as the treatment measure shifts the changes in who is nominated toward women candidates rather than incumbents. The lack of an effect on incumbents is suggestive that a loss of constituency-specific political capital such as name recognition drives changes in incumbent behavior. Due to a lack of full demographic information in the population census, the fraction of new voters remains the primary source of variation rather than the demographic change measure.

The main analysis in Table 2 clusters standard errors at the electoral constituency level. However, candidates may have run in a different constituency within the same district due to redistricting. Clustering at the constituency level could therefore understate the true standard errors if candidacy and voting behavior are correlated across constituencies within the same district. I therefore cluster at the district level in Appendix Table A.8. Beyond district level clustering, Appendix Table A.8 also reports standard errors allowing for arbitrary spatial correlation across nearby constituencies following the approach in Colella et al. (2023). Redistricting in one constituency mechanically affects the boundaries, voter composition, and candidate pools of adjacent constituencies. Thus, treatment effects and unobserved shocks may not be independent across nearby constituencies even if they fall in different districts. I report these arbitrary spatial correlation standard errors at three radii (50, 100, and 250 kilometers) to check whether effects are sensitive to spatial spillovers. Across all four sets of standard errors, the standard errors and thus significance levels for the effect of new voters and reservation status change are relatively unchanged from those presented in Table 2. Thus, the effects in Table 2 are not sensitive to clustering choice or to allowing for spatial correlation.

Appendix Table A.6, A.7, and A.8 show that the effects of new voters and changes in reservation status on major party incumbent and women nominations are robust to the choice of estimation sample, the functional form and construction of the *NewVoters* variable, and spatial correlation. The minority candidacy result is an exception. The effect is robust

to alternative constructions of *NewVoters* and alternative standard error specifications; however, the effect on minority candidacy is sensitive to including additional pre-redistricting elections.

6.2 Voter Behavior and Political Representation

Electoral redistricting not only changes who runs for office but also voter behavior and who wins. Incumbents are 4.1 percentage points less likely to win reelection in a constituency with a high proportion of new voters (Table 3). This is a 13% decrease in the probability that any incumbent wins reelection. While there is no effect of having new voters on the number of women running in an election, new voters marginally increase the probability a woman wins. In constituencies with a high proportion of new voters, women are 2.1 percentage points more likely to win, which is a 30% increase in the probability that a woman wins (Table 3). New voters did not affect the probability a minority candidate or an independent candidate won the election.

Altering the reservation status of a constituency reduces voter turnout by 1.1 percentage points (Table 3). While this effect is significant, the magnitude is incredibly small. This is a 1.5% decline in voter turnout. The average vote margin is 11.1 percentage points. If every voter that did not turn out as a result of redistricting voted for a single politician, it would not change who won. This is corroborated by the fact that there is no effect on the vote margin (Appendix Table A.9). While the average effect on voter turnout is negative, changing a constituency from unreserved to reserved and reserved to unreserved have opposite effects. When a constituency becomes reserved, voter turnout decreases by 3.1 percentage points (Appendix Table A.10). On the other hand, voter turnout increases by 2.8 percentage points when a constituency becomes unreserved (Appendix Table A.10). These effects are still small in magnitude and still would not change the outcome of the election.

Although redistricting had a very minor effect on voter behavior, incumbents are 14.5 percentage points more likely to lose reelection when the reservation status of their constituency changes (Table 3). Thus, incumbents are 46.2% less likely to win. This is approximately a one-to-one relationship between candidacy and winning. Fewer incumbents run, so fewer incumbents win reelection. The type of reservation change (i.e., becoming reserved or unreserved) does not change the fact that incumbents are more likely to lose the election (Appendix Table A.10).

The probabilities that women and minority candidates win are differentially affected by reservation status. While more women are nominated by major political parties, this does not translate to an increase in the probability a woman wins though (Table 3). On the

other hand, fewer minority candidates are nominated, which translates to a 2.1 percentage point decrease in the probability a minority candidate wins (Table 3). This 47.1% decline in the probability a minority candidate wins. Similar to incumbents, there is almost a one-to-one relationship between the number of minority candidates running and the probability a minority candidate wins. The effect is completely concentrated in constituencies that became reserved (Appendix Table A.10). There is no change in the probability that an independent candidate wins the election.

Table 3: Effect of Electoral Redistricting on Voter Behavior and Political Representation

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
<i>Post</i> $\times$ <i>NewVoters</i>	0.007 (0.004)	-0.041* (0.021)	0.021* (0.012)	0.011 (0.009)	-0.009 (0.009)
<i>Post</i> $\times$ <i>ResChange</i>	-0.011** (0.005)	-0.145*** (0.026)	-0.007 (0.017)	-0.024** (0.010)	0.000 (0.010)
Observations	6,470	6,470	6,470	6,470	6,470
R-squared	0.860	0.555	0.580	0.678	0.524
Avg Dep Variable	0.710	0.314	0.070	0.051	0.038

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

6.2.1 Identification Assumptions

Figure 2 provides evidence in support of the parallel trends assumption for the effect of the fraction of new voters as well as reservation status changes on voter behavior and political representation. Before redistricting occurred, incumbents had the same probability of winning in constituencies with high and low proportions of new voters. Following redistricting, high-proportion constituencies saw declines that persisted in the two elections following redistricting (Figure 2). There is evidence of the parallel trends assumption holding for the effect of new voters on women winning, minority candidates winning, and independent candidates winning. The effect of new voters on women's probability of winning is not persistent, and is only observed in the first election with new maps (Figure 2). There are potential violations of the parallel trends assumption for the effect of new voters on voter turnout. Thus, I conduct an event study sensitivity analysis, presented in Appendix Figure

A.7. The breakdown value for voter turnout is 0.5, which means that the results are robust to violations up to half as large as those seen pre-redistricting.

Similarly, Figure 2 Panel B provides evidence of the parallel trends assumption for the effect of reservation status on voter behavior and political representation. None of the outcomes show violations of the parallel trends assumption in Panel B. The effect of reservation status changes on voter turnout and incumbents winning are not persistent. The effects are null in the second election after redistricting.²¹

To test for SUTVA violations, I conduct another “donut” specification in Appendix Table A.11. The effect of new voters on voter turnout remains stable, ranging from 0.007 to 0.011, as the exclusion radius increases from 0 to 20 kilometers. Similarly, the estimate for any incumbent winning is robust, ranging from -0.025 to -0.043. The effect of reservation status changes shows the same pattern, with the effect on the probability an incumbent won ranging from -0.135 to -0.173 and the effect on the probability a minority candidate won ranging from -0.018 to -0.026. Standard errors increase modestly as the radius grows due to the decreasing sample size. The estimates that modestly decline are not statistically different from each other for any of the outcome variables. Due to the stability of the estimates across radii, Appendix Table A.11 supports the stable unit treatment value assumption.

6.2.2 Robustness Checks

Appendix Table A.12 re-estimates equation 1 using all six elections before redistricting. The effect of reservation status changes on voter turnout and the probability any incumbent wins are robust to this specification. The effect on the probability a minority candidate wins is not robust to this sample. The Table 3 coefficient of -0.024 shrinks to -0.011 and loses significance. I therefore continue to cautiously interpret the effect of redistricting on minority candidates.

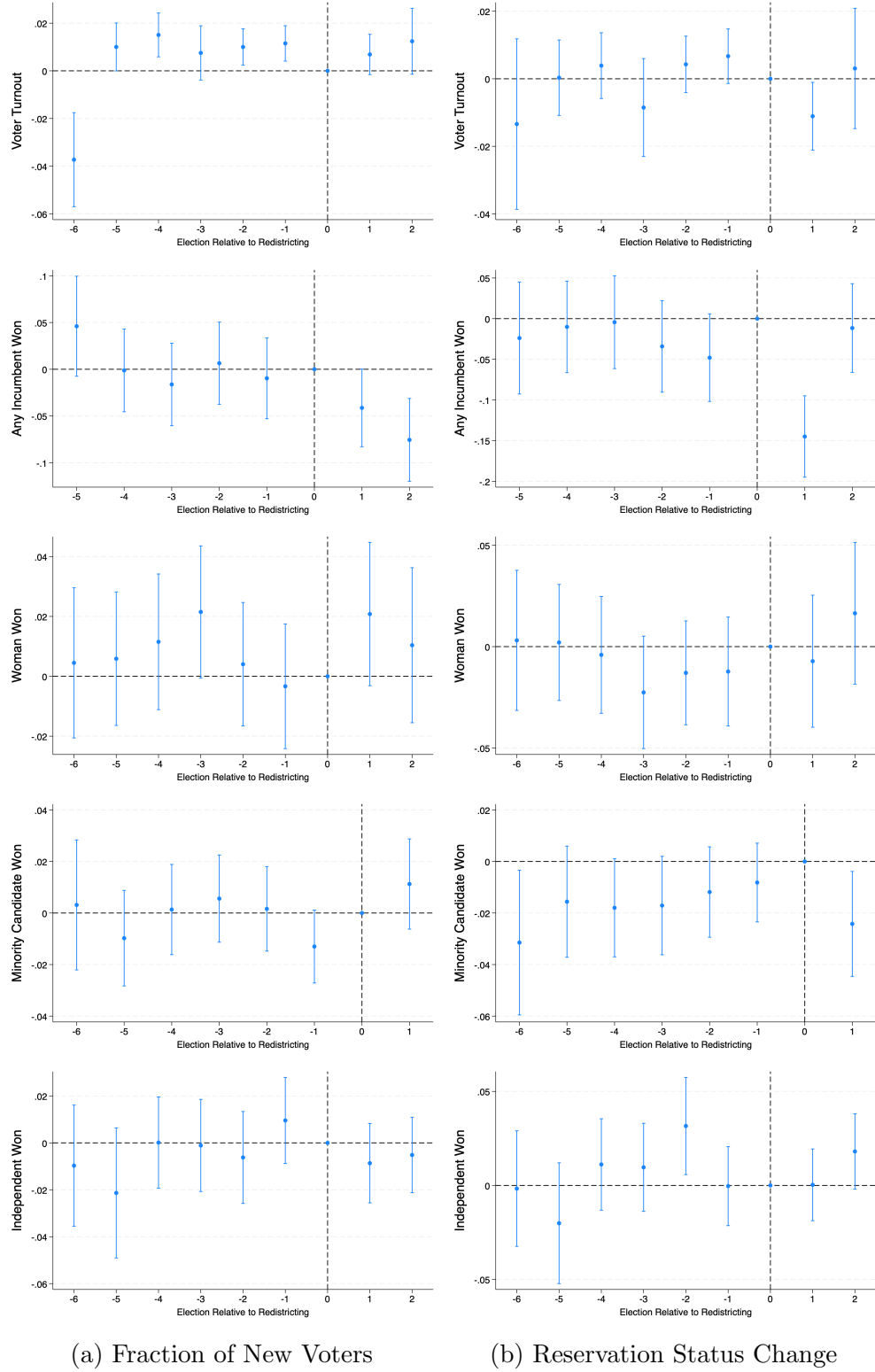
Appendix Table A.13 checks sensitivity to the construction of *NewVoters*. The continuous, fourth-quartile, dropping top 1%, and demographic change specifications all preserve the sign and significance of the effect of redistricting on the probability an incumbent wins. Thus, one should not be concerned that the definition of *NewVoters* is driving the results.

Appendix Table A.14 reports district-level clustering as well as standard errors allowing for arbitrary spatial correlation at 50, 100, and 250 kilometers. The results are robust to using all four of these alternative standard errors, indicating the results is not sensitive to clustering choice.

Together, Appendix Tables A.12, A.13, and A.14 show that the negative effect of redistricting on the probability an incumbent wins is robust to the choice of estimation sample,

²¹Event study sensitivity analyses are presented in Appendix Figure A.8.

Figure 2: Event Studies: Effect of Redistricting on Voter Behavior and Representation



Notes: Each point in Panel A represents the coefficient of $NewVoters_c$ interacted with an election year indicator variable from Equation 2. Each point in Panel B is the same but uses $ResChange_c$. The bars represent the 95% confidence interval of the coefficient. Each coefficient is relative to the year before redistricting. The vertical line is at the last election before electoral boundaries were redrawn.

the construction of the treatment variable, and alternative choices of standard errors. As with the political candidacy results, the effect on minority candidate’s electoral outcomes are not robust to including additional pre-redistricting elections.

7 Does Redistricting Shape Development Outcomes?

Now, I examine how redistricting alters policy and development outcomes. Given that prior literature demonstrates that entrenched politicians and dynastic politics are detrimental for economic development (Acemoglu and Robinson, 2006; George, 2024), and new leaders are more responsive and incorporate citizen needs into policy (Bazzi et al., 2025), a key question is whether the redistricting-induced decline in incumbents translates into tangible welfare gains, losses, or both. However, redistricting represents a sweeping institutional shock that alters administrative boundaries, voter-politician familiarity, and party organizational structures; any observed changes in economic outcomes may reflect both the representation channel, changing the constituency’s voter preferences, and broader institutional disruptions.

Having a high proportion of new voters in a constituency does not alter the provision of public goods, including primary schools, primary health subcenters, and paved roads, and does not change nighttime light growth. On the other hand, changing the reservation status of a constituency increases the provision of paved roads and nighttime light growth. Paved roads provision increases by 2.7 percentage points, which is a 4% increase (Table 4). Nighttime lights grow by 1.41 percentage points when a constituency’s reservation status changes.²² Nighttime lights grow annually by 7.6 percentage points on average, so redistricting increases growth by 18.6%.

The constituencies that see the sharpest disruption to incumbency see modest gains in paved roads and large gains in nighttime light growth. This is consistent with the literature showing that entrenched incumbent politicians are detrimental for economic growth. When redistricting changes who wins, public goods provision and nighttime lights grow. Thus, the loss of incumbency is one mechanism through which redistricting affects policy and economic development. Appendix Table A.15 shows the gains in public goods provision are concentrated in constituencies that became unreserved due to redistricting. The growth in nighttime lights is observed in constituencies that became reserved (Appendix Table A.15). Constituencies that became reserved had a high proportion of SC/ST individuals, whereas constituencies that became unreserved had smaller SC/ST populations. These results suggest that voter preferences are also a mechanism through which redistricting affects development.

²²Converting the estimate from the Poisson pseudo maximum likelihood estimation to percentage points uses the following formula: $100 \times (e^{\hat{\beta}} - 1)$.

Constituencies with high SC/ST populations may prefer policy other than public goods that show up in nighttime lights. On the other hand, constituencies with smaller SC/ST population may prioritize public goods provision. Thus, redistricting affects policy through both voter preferences and representation.

Table 4: Effect of Electoral Redistricting on Development Outcomes

	Primary Schools (1)	Primary Health Subcenters (2)	Paved Roads (3)	Nighttime Light Growth (4)
$Post \times NewVoters$	-0.013 (0.008)	0.003 (0.010)	0.012 (0.012)	0.002 (0.004)
$Post \times ResChange$	0.006 (0.010)	-0.002 (0.011)	0.027* (0.014)	0.014*** (0.005)
Observations	4,830	4,830	4,830	5,182
R-squared	0.759	0.854	0.832	0.018
Avg Dep Variable	0.867	0.223	0.686	0.076

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency’s reservation status changed due to redistricting. Column 4 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth. The R-squared value in Column 4 is a pseudo-R-squared value from the PPML estimation.

The estimated 1.41 percentage point increase in nighttime light growth suggests a \$2.58 billion annual gain in localized economic activity during the five-year legislative term following redistricting. A one percentage point increase in nighttime lights is associated with a 0.15 percentage point increase in GDP growth (Baskaran et al., 2024). Using Baskaran et al. (2024)’s estimate, a 1.41 point increase in nighttime light growth corresponds to a 0.2115 increase in India’s GDP growth rate. Redistricting went into effect in 2008. In 2007, India’s GDP was \$1.22 trillion. Redistricting’s 0.2115 percentage point increase in GDP growth indicates there was a \$2.58 billion gain in the economy as a result of redistricting. Night-time lights serve as a valuable proxy for subnational economic activity where gross domestic product is unobserved, and mapping these luminosity changes directly to aggregate welfare losses has underlying assumptions. Applying elasticities to translate this luminosity decline into a specific monetary value suggests an expansion in localized economic activity. Thus, the disruption of local political representation has benefits for local economic development.

I now conduct several robustness to show the results are not driven by the sample selection, SUTVA violations, or spatial correlation. To show the results are not driven by sample composition, Appendix Tables A.16 and A.17 estimate the candidacy and representation results on the samples used for the development analysis. The SHRUG data has fewer constituencies than the overall election data, so this analysis will ensure that the null results for the effect of new voters on development are not due to the sample. Restricting to the public goods sample, the effects of redistricting on incumbent candidacy and electoral outcomes are similar to those found in Tables 2 and 3, indicating that the null development results in Table 4 Row 1 are not a result of the sample.

To test for SUTVA violations, Appendix Table A.18 reports the “donut” specification across exclusion radii of 0 to 20 kilometers for all four development outcomes. The effect of reservation status changes on nighttime light growth declines somewhat as the radius increases (from 0.014 at the full sample to 0.006 at 20km), while the paved roads coefficient remains stable and significant throughout. For both of these outcomes, the main specification estimate is not statistically different than the estimate with an exclusion radius of 20 kilometers. Thus, Appendix Table A.18 supports the stable unit treatment value assumption.

Appendix Table A.19 estimates the effect of redistricting on development outcomes using the 1991, 2001, and 2011 population censuses. The results are robust to the inclusion of the 1991 census. The effect of reservation status change on paved roads is stronger in this specification. Appendix Table A.20 determines if the results are due to the constructions of the *NewVoters* variable. The continuous and fourth quartile measures both yield a significant negative effect on primary schools, but yield a similar result for paved roads and nighttime light growth. Appendix Table A.21 reports district-level clustering as well as standard errors allowing for spatial correlation at 50, 100, and 250 kilometers. The effect on paved roads and nighttime light growth retains significance across all different clustering specifications. Appendix Table A.22 addresses concerns about low sensitivity and saturation in the nighttime light growth outcome due to satellite sensors by dropping the top and bottom one percent of the sample. The results are robust to this specification; thus one should not be concerned about the technical limitations of the nighttime light data.

8 Conclusion

This paper examines how electoral redistricting reshapes who runs for office, who wins, and economic development. Redistricting operates through two channels: electoral uncertainty and legal restrictions on candidacy. Both channels reduce the number of incumbents nominated by major parties, with reservation status change producing a substantially larger

effect. While parties do not adjust their nomination of women or minority candidates in response to new voters, party nomination strategies respond to a reservation status change. Parties increase the number of women nominated by 26.4% when a constituency's reservation status changes, while minority nominations fall by 55.3%, reflecting parties' legal inability to nominate certain candidates.

These candidacy effects carry through to electoral outcomes. Incumbents are 13% less likely to win reelection when facing a high proportion of new voters and 46.2% less likely to win when their constituency's reservation status changes. The loss of incumbency as well as changes in voter preferences generate economic gains. Constituencies experiencing a reservation status change see a 2.7 percentage point increase in paved road provision and a 1.41 percentage point increase in nighttime light growth. The effect on public goods provision is concentrated in constituencies that became unreserved, while nighttime light growth is concentrated in constituencies that became reserved. These overall results are consistent with prior evidence that entrenched incumbents are detrimental to local economic development, and that new leadership is more responsive to constituent needs.

These findings carry implications for how electoral redistricting is conducted. Because redistricting can displace incumbents and improve development, the process of drawing electoral boundaries should not be treated as purely administrative. Redistricting itself is a lever that affects who holds power and what policies are implemented. Redistricting authority should be assigned to independent commissions rather than to incumbent politicians or legislatures with a direct stake in the outcome. Sitting incumbents have an incentive to manipulate boundaries in ways that protect their seat. Independent redistricting bodies, by contrast, are better positioned to draw boundaries based on population and administrative criteria alone, allowing the natural churn in incumbency to occur. Given that entrenched incumbents harm and redistricting-induced turnover enhances economic development, jurisdictions considering reforms to their redistricting process should weigh not only the standard concerns about partisan gerrymandering, but also the possibility that insulating redistricting from incumbent influence could yield positive downstream effects on local economic activity.

References

- Acemoglu, Daron, and James A. Robinson.** 2006. “Economic Backwardness in Political Perspective.” *American Political Science Review*, 100(1): 115–131.
- Afridi, Farzana, Vegard Iversen, and M. R. Sharan.** 2017. “Women Political Leaders, Corruption, and Learning: Evidence from a Large Public Program in India.” *Economic Development and Cultural Change*, 66(1): 1–30.
- Akhtari, Mitra, Diana Moreira, and Laura Trucco.** 2022. “Political Turnover, Bureaucratic Turnover, and the Quality of Public Services.” *American Economic Review*, 112(2): 442–493.
- Alesina, Alberto, William Easterly, and Janina Matuszeski.** 2011. “Artificial States.” *Journal of the European Economic Association*, 9(2): 246–277.
- Ansolabehere, Stephen, Alan Gerber, and Jim Snyder.** 2002. “Equal Votes, Equal Money: Court-Ordered Redistricting and Public Expenditures in the American States.” *American Political Science Review*, 96(4): 767–777.
- Anzia, Sarah F., and Christopher R. Berry.** 2011. “The Jackie (and Jill) Robinson Effect: Why Do Congresswomen Outperform Congressmen?” *American Journal of Political Science*, 55(3): 478–493. [_eprint: https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1540-5907.2011.00512.x](https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1540-5907.2011.00512.x).
- Ardanaz, Martin, and Carlos Scartascini.** 2013. “Inequality and Personal Income Taxation: The Origins and Effects of Legislative Malapportionment.” *Comparative Political Studies*, 46(12): 1636–1663.
- Arora, Ashna.** 2022. “Election by Community Consensus: Effects on Political Selection and Governance.” *The Review of Economics and Statistics*, 104(2): 321–335.
- Asher, Sam, Tobias Lunt, Ryu Matsuura, and Paul Novosad.** 2021. “Development Research at High Geographic Resolution: An Analysis of Night-Lights, Firms, and Poverty in India Using the SHRUG Open Data Platform.” *World Bank Economic Review*, 35(4): 845–871.
- Ashworth, Scott.** 2006. “Campaign Finance and Voter Welfare with Entrenched Incumbents.” *American Political Science Review*, 100(1): 55–68.
- Baker, Andrew C., David F. Larcker, and Charles C. Y. Wang.** 2022. “How much should we trust staggered difference-in-differences estimates?” *Journal of Financial Economics*, 144(2): 370–395.
- Baskaran, Thushyanthan, Brian Min, and Yogesh Uppal.** 2015. “Election cycles and electricity provision: Evidence from a quasi-experiment with Indian special elections.” *Journal of Public Economics*, 126: 64–73.

- Baskaran, Thushyanthan, Sonia Bhalotra, Brian Min, and Yogesh Uppal.** 2024. “Women legislators and economic performance.” *Journal of Economic Growth*, 29(2): 151–214.
- Bauer, Nichole M., and Ivy A. M. Cargile.** 2023. “Women Get the Job Done: Differences in Constituent Communication from Female and Male Lawmakers.” *Politics & Gender*, 19(4): 1110–1133.
- Bazzi, Samuel, Masyhur Hilmy, Benjamin Marx, Mahvish Shaukat, and Andreas Stegmann.** 2025. “It Takes a Village Election: Turnover and Performance in Local Bureaucracies.” *CEPR Discussion Papers*. Number: DP19994.
- Beath, Andrew, Fotini Christia, Georgy Egorov, and Ruben Enikolopov.** 2016. “Electoral Rules and Political Selection: Theory and Evidence from a Field Experiment in Afghanistan.” *The Review of Economic Studies*, 83(3): 932–968.
- Bertrand, Marianne, Rema Hanna, and Sendhil Mullainathan.** 2010. “Affirmative action in education: Evidence from engineering college admissions in India.” *Journal of Public Economics*, 94(1): 16–29.
- Besley, Timothy, and Stephen Coate.** 1997. “An Economic Model of Representative Democracy.” *The Quarterly Journal of Economics*, 112(1): 85–114.
- Bhalotra, Sonia, Irma Clots-Figueras, and Lakshmi Iyer.** 2018. “Pathbreakers? Women’s Electoral Success and Future Political Participation.” *The Economic Journal*, 128(613): 1844–1878.
- Bhavnani, Rikhil R.** 2017. “Do the Effects of Temporary Ethnic Group Quotas Persist? Evidence from India.” *American Economic Journal: Applied Economics*, 9(3): 105–123.
- Bhavnani, Rikhil R.** 2018. “The Effects of Malapportionment on Cabinet Inclusion: Sub-national Evidence from India.” *British Journal of Political Science*, 48(1): 69–89.
- Bhavnani, Rikhil R.** 2021. “The effects of malapportionment on economic development.” *PLOS ONE*, 16(12): e0259150.
- Bluhm, Richard, Roland Hodler, and Paul Schaudt.** 2024. “Ethnofederalism: Sub-national borders and the salience of ethnicity in politics.” *Working Paper*.
- Burgess, Robin, Michael Greenstone, Nicholas Ryan, and Anant Sudarshan.** 2020. “The Consequences of Treating Electricity as a Right.” *Journal of Economic Perspectives*, 34(1): 145–169.
- Caetano, Carolina, Brantly Callaway, Stroud Payne, and Hugo Sant’Anna Rodrigues.** 2024. “Difference in Differences with Time-Varying Covariates.” arXiv:2202.02903 [econ].
- Callaway, Brantly, and Pedro H. C. Sant’Anna.** 2021. “Difference-in-Differences with multiple time periods.” *Journal of Econometrics*, 225(2): 200–230.

- Callaway, Brantly, Andrew Goodman-Bacon, and Pedro H. C. Sant’Anna.** 2025. “Difference-in-differences with a Continuous Treatment.” *Working Paper*.
- Cassan, Guilhem.** 2019. “Affirmative action, education and gender: Evidence from India.” *Journal of Development Economics*, 136: 51–70.
- Cassan, Guilhem, and Lore Vandewalle.** 2021. “Identities and public policies: Unexpected effects of political reservations for women in India.” *World Development*, 143: 105408.
- Cassidy, Traviss, and Tejaswi Velayudhan.** 2026. “Government Fragmentation and Economic Growth.” *The Review of Economics and Statistics*, 108(2): 372–389.
- Chand, T. R. Kiran, K. V. S. Badarinath, C. D. Elvidge, and B. T. Tuttle.** 2009. “Spatial characterization of electrical power consumption patterns over India using temporal DMSP-OLS night-time satellite data.” *International Journal of Remote Sensing*, 30(3): 647–661. [_eprint: https://doi.org/10.1080/01431160802345685](https://doi.org/10.1080/01431160802345685).
- Chattopadhyay, Raghavendra, and Esther Dufo.** 2004. “Women as Policy Makers: Evidence from a Randomized Policy Experiment in India.” *Econometrica*, 72(5): 1409–1443.
- Clayton, Amanda.** 2021. “How Do Electoral Gender Quotas Affect Policy?” *Annual Review of Political Science*, 24(1): 235–252. [_eprint: https://doi.org/10.1146/annurev-polisci-041719-102019](https://doi.org/10.1146/annurev-polisci-041719-102019).
- Clots-Figueras, Irma.** 2012. “Are Female Leaders Good for Education? Evidence from India.” *American Economic Journal: Applied Economics*, 4(1): 212–244.
- Colella, Fabrizio, Rafael Lalive, Seyhun Orcan Sakalli, and Mathias Thoenig.** 2023. “acreg: Arbitrary correlation regression.” *The Stata Journal*, 23(1): 119–147.
- DeSilver, Drew.** 2025. “U.S. stands out globally in how it draws legislative districts.” *Pew Research Center*.
- Dinkelman, Taryn.** 2011. “The Effects of Rural Electrification on Employment: New Evidence from South Africa.” *American Economic Review*, 101(7): 3078–3108.
- Downs, Anthony.** 1957. “An Economic Theory of Political Action in a Democracy.” *Journal of Political Economy*, 65(2): 135–150.
- Erikson, Robert S.** 1972. “Malapportionment, Gerrymandering, and Party Fortunes in Congressional Elections.” *American Political Science Review*, 66(4): 1234–1245.
- Fraga, Bernard L.** 2016. “Redistricting and the Causal Impact of Race on Voter Turnout.” *The Journal of Politics*, 78(1): 19–34.
- Friedman, John N., and Richard T. Holden.** 2008. “Optimal Gerrymandering: Sometimes Pack, but Never Crack.” *American Economic Review*, 98(1): 113–144.

- Fryer, Roland G., and Richard Holden.** 2011. "Measuring the Compactness of Political Districting Plans." *The Journal of Law and Economics*, 54(3): 493–535.
- George, Siddharth.** 2024. "Like Father, Like Son? The Effect of Political Dynasties on Economic Development." *Working Paper*.
- Goodman-Bacon, Andrew.** 2021. "Difference-in-differences with variation in treatment timing." *Journal of Econometrics*, 225(2): 254–277.
- Gul, Faruk, and Wolfgang Pesendorfer.** 2010. "Strategic Redistricting." *American Economic Review*, 100(4): 1616–1641.
- Gulzar, Saad.** 2021. "Who Enters Politics and Why?" *Annual Review of Political Science*, 24(Volume 24, 2021): 253–275.
- Hayes, Danny, and Seth C. McKee.** 2009. "The Participatory Effects of Redistricting." *American Journal of Political Science*, 53(4): 1006–1023.
- Henderson, J. Vernon, Adam Storeygard, and David N. Weil.** 2012. "Measuring Economic Growth from Outer Space." *American Economic Review*, 102(2): 994–1028.
- Henderson, Vernon, Adam Storeygard, and David N. Weil.** 2011. "A Bright Idea for Measuring Economic Growth." *American Economic Review*, 101(3): 194–199.
- Iyer, Lakshmi, and Coleson Weir.** 2025. "The colonial legacy in India: How persistent are the effects of historical institutions?" *Journal of Development Economics*, 177: 103576.
- Iyer, Lakshmi, Coleson Weir, and Susan Ostermann.** 2026. "Redrawing the Lines: Did Political Incumbents Influence Electoral Redistricting in India?" *Working Paper*.
- Jensenius, Francesca Refsum.** 2013. "Was the Delimitation Commission Unfair to Muslims?" *Studies in Indian Politics*, 1(2): 213–229.
- Karekurve-Ramachandra, Varun, and Alexander Lee.** 2020. "Do Gender Quotas Hurt Less Privileged Groups? Evidence from India." *American Journal of Political Science*, 64(4): 757–772.
- King, Annika, Jacob Murri, Jake Callahan, Adrienne Russell, and Tyler J. Jarvis.** 2022. "Mathematical Analysis of Redistricting in Utah." *Statistics and Public Policy*, 9(1): 136–148. _eprint: <https://doi.org/10.1080/2330443X.2022.2105770>.
- Kjelsrud, Anders, Kalle Moene, and Lore Vandewalle.** 2024. "Political Competition Over Life and Death: Social Provision and Infant Mortality in India." *Journal of Human Resources*.
- Lawless, Jennifer L.** 2015. "Female Candidates and Legislators." *Annual Review of Political Science*, 18: 349–366.

- Lawless, Jennifer L., and Kathryn Pearson.** 2008. "The Primary Reason for Women's Underrepresentation? Reevaluating the Conventional Wisdom." *The Journal of Politics*, 70(1): 67–82.
- Lazarus, Jeffrey, and Amy Steigerwalt.** 2018. *Gendered Vulnerability: How Women Work Harder to Stay in Office*. University of Michigan Press.
- Lipscomb, Molly, A. Mushfiq Mobarak, and Tania Barham.** 2013. "Development Effects of Electrification: Evidence from the Topographic Placement of Hydropower Plants in Brazil." *American Economic Journal: Applied Economics*, 5(2): 200–231.
- Lipscomb, Molly, and Ahmed Mushfiq Mobarak.** 2017. "Decentralization and Pollution Spillovers: Evidence from the Re-drawing of County Borders in Brazil." *The Review of Economic Studies*, 84(1): 464–502.
- Magesan, Arvind, Andrea Szabó, and Gergely Ujhelyi.** 2025. "Do Parties and Voters Disagree? An Equilibrium Analysis of Candidate Selection in India." *Working Paper*.
- Mahadevan, Meera.** 2024. "The Price of Power: Costs of Political Corruption in Indian Electricity." *American Economic Review*, 114(10): 3314–3344.
- Marx, Benjamin, Vincent Pons, and Vincent Rollet.** 2025. "Electoral Turnovers." *The Review of Economic Studies*, 92(5): 3306–3339.
- McKinnie, Kelly, and Erin Szalda-Petree.** 2024. "Enumeration and sampling analysis of Montana's 2020 congressional redistricting map." *Journal of Computational Social Science*, 8(1): 10.
- Meserve, Stephen A., Daniel Pemstein, and William T. Bernhard.** 2020. "Gender, Incumbency and Party List Nominations." *British Journal of Political Science*, 50(1): 1–15.
- Michalopoulos, Stelios, and Elias Papaioannou.** 2016. "The Long-Run Effects of the Scramble for Africa." *The American economic review*, 106(7): 1802–1848. Place: Nashville.
- Min, Brian, Kwawu Mensan Gaba, Ousmane Fall Sarr, and Alassane Agalassou.** 2013. "Detection of rural electrification in Africa using DMSP-OLS night lights imagery." *International Journal of Remote Sensing*, 34(22): 8118–8141. eprint: <https://doi.org/10.1080/01431161.2013.833358>.
- Narasimhan, Veda, and Jeffrey Weaver.** 2024. "Polity Size and Local Government Performance: Evidence from India." *American Economic Review*, 114(11): 3385–3426.
- Niederle, Muriel, and Lise Vesterlund.** 2007. "Do Women Shy Away From Competition? Do Men Compete Too Much?*" *The Quarterly Journal of Economics*, 122(3): 1067–1101.
- Norris, Pippa.** 2006. "The Impact of Electoral Reform on Women's Representation." *Acta Politica*, 41(2): 197–213.

- Norris, Pippa, and Ronald Inglehart.** 2001. “Women and Democracy: Cultural Obstacles to Equal Representation.” *Journal of Democracy*, 12(3): 126–140.
- Osborne, Martin J., and Al Slivinski.** 1996. “A Model of Political Competition with Citizen-Candidates.” *The Quarterly Journal of Economics*, 111(1): 65–96.
- Preece, Jessica Robinson, Olga Bogach Stoddard, and Rachel Fisher.** 2016. “Run, Jane, Run! Gendered Responses to Political Party Recruitment.” *Political Behavior*, 38(3): 561–577.
- Rambachan, Ashesh, and Jonathan Roth.** 2023. “A More Credible Approach to Parallel Trends.” *The Review of Economic Studies*, 90(5): 2555–2591.
- Shaukat, Mahvish.** 2019. “Too Close to Call: Electoral Competition and Politician Behavior in India.” *Working Paper*.
- Sun, Liyang, and Sarah Abraham.** 2021. “Estimating dynamic treatment effects in event studies with heterogeneous treatment effects.” *Journal of Econometrics*, 225(2): 175–199.
- Thomsen, Danielle M., and Bailey K. Sanders.** 2020. “Gender Differences in Legislator Responsiveness.” *Perspectives on Politics*, 18(4): 1017–1030.
- Toral, Guillermo.** 2024. “Turnover: How Lame-Duck Governments Disrupt the Bureaucracy and Service Delivery before Leaving Office.” *The Journal of Politics*, 86(4): 1348–1367.
- Tuttle, Benjamin T., Sharolyn Anderson, Chris Elvidge, Tilottama Ghosh, Kim Baugh, and Paul Sutton.** 2014. “Aladdin’s Magic Lamp: Active Target Calibration of the DMSP OLS.” *Remote Sensing*, 6(12): 12708–12722.
- Weir, Coleson.** 2026a. “Dividing Lines: Redistricting, Race, and Party Vote Shares.” *Work-in-Progress*.
- Weir, Coleson.** 2026b. “Gerrymandering Gender: Electoral Redistricting and Women’s Political Representation in the United States.” *Work-in-Progress*.

A Appendix: Additional Tables and Figures

Figure A.1: India Constituency Population Distribution

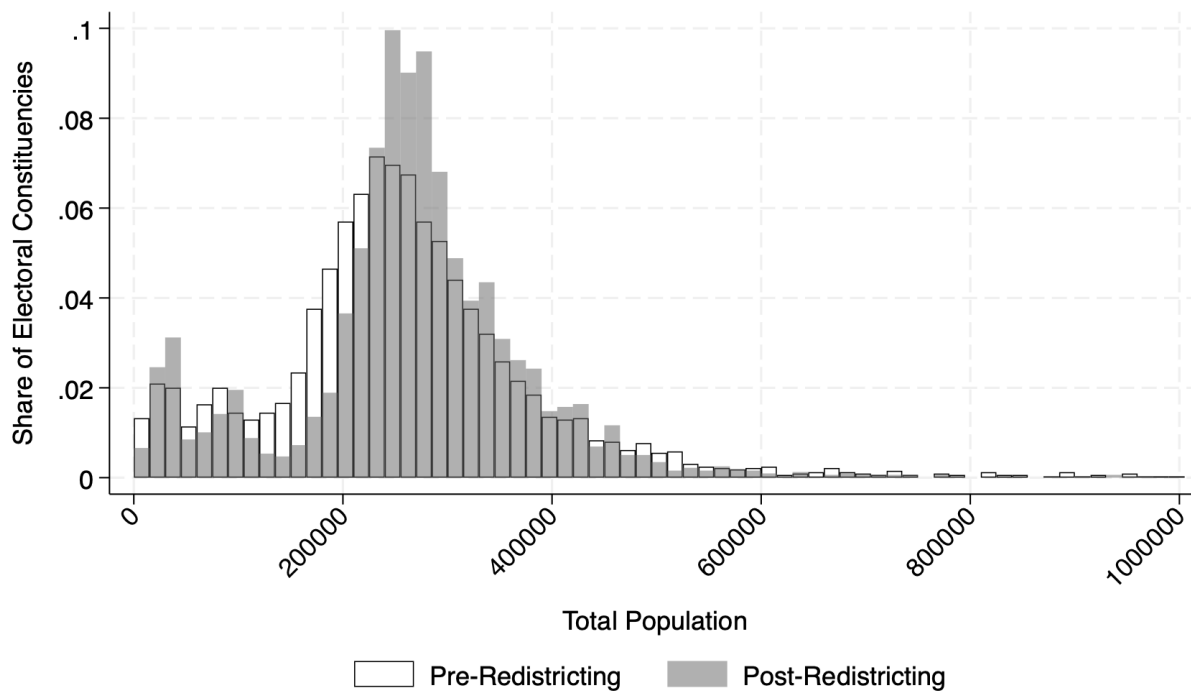


Figure A.2: Diagram of Conceptual Framework

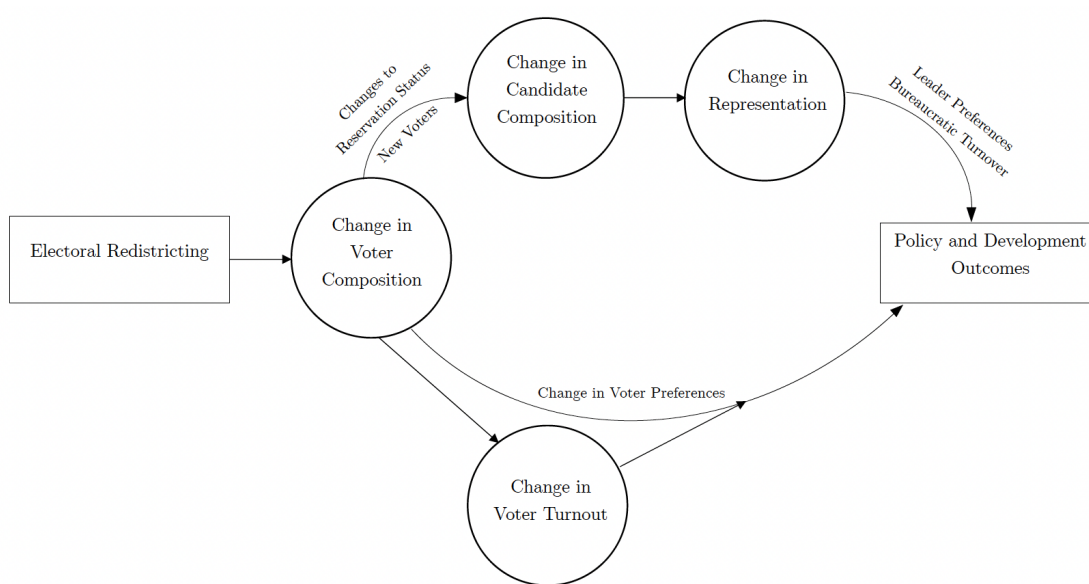


Figure A.3: Constituency Maps for Anantapur District, Andhra Pradesh, India

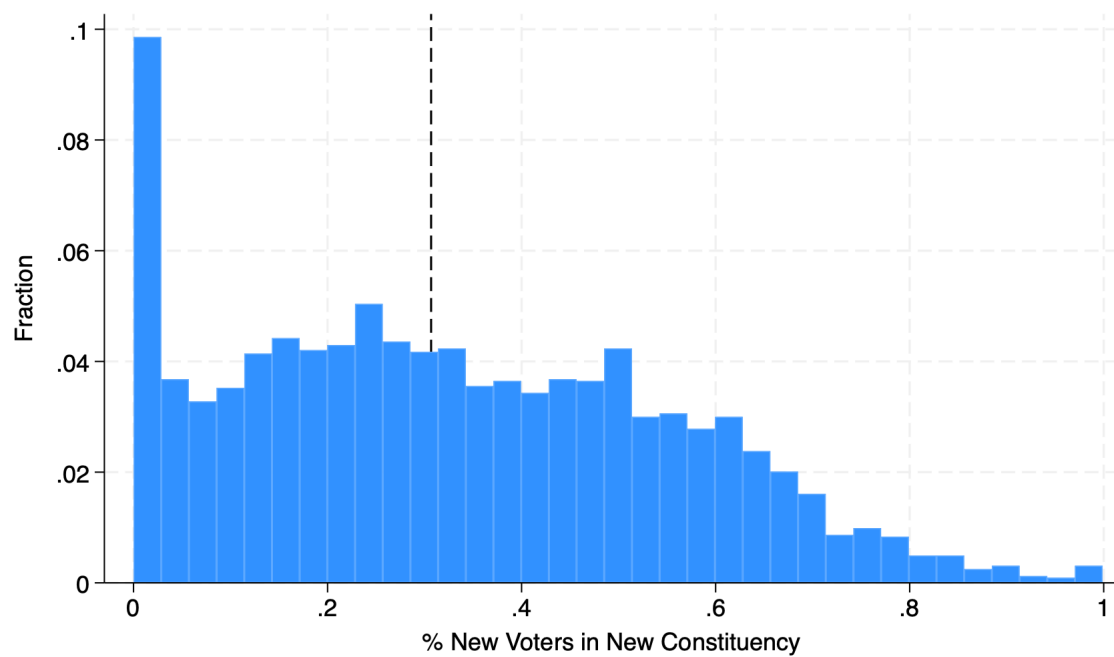


(a) Pre-Electoral Redistricting



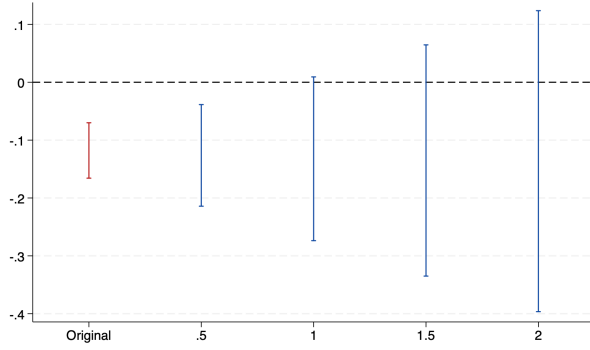
(b) Post-Electoral Redistricting

Figure A.4: Distribution of the Fraction of New Voters

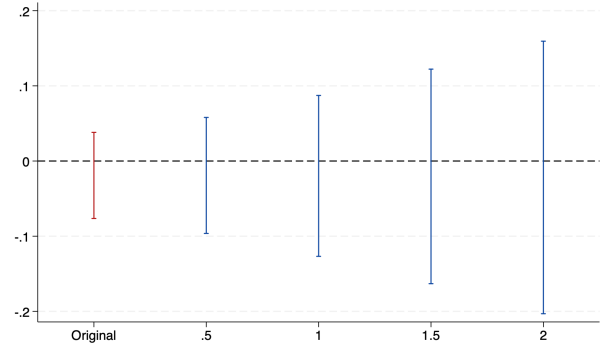


Notes: The dashed line is located at the median of the distribution.

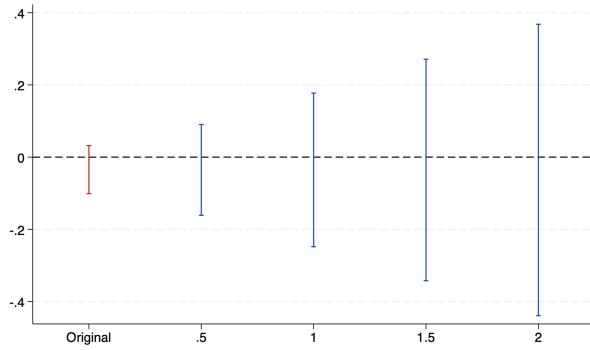
Figure A.5: Event Studies Sensitivity Analysis: Effect of New Voters on Political Candidacy



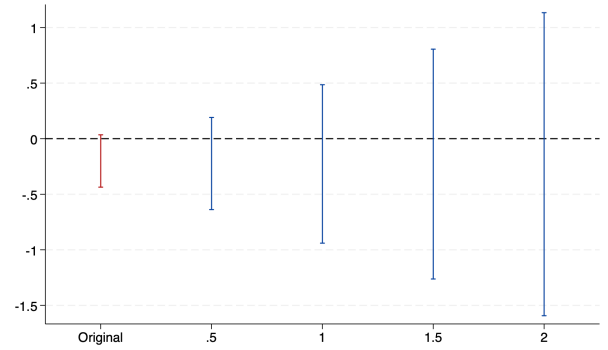
(a) Number of Major Party Incumbents



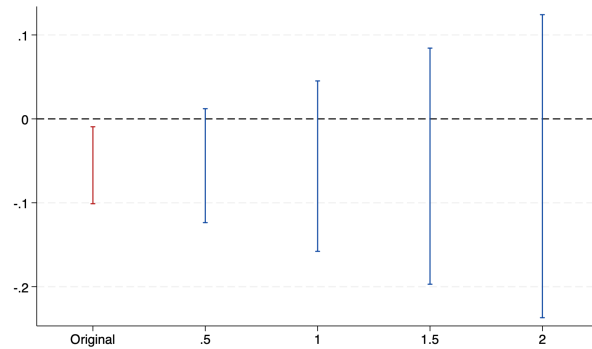
(b) Number of Major Party Women Candidates



(c) Number of Major Party Minority Candidates



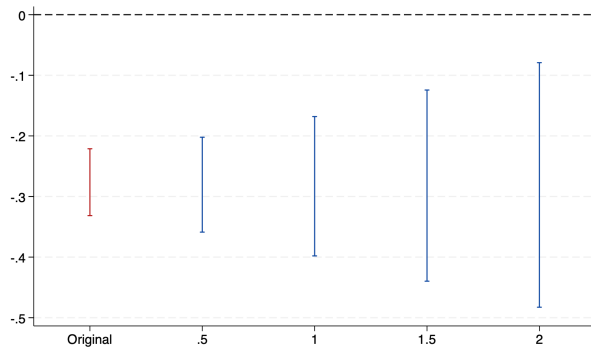
(d) Number of Independent Men Running



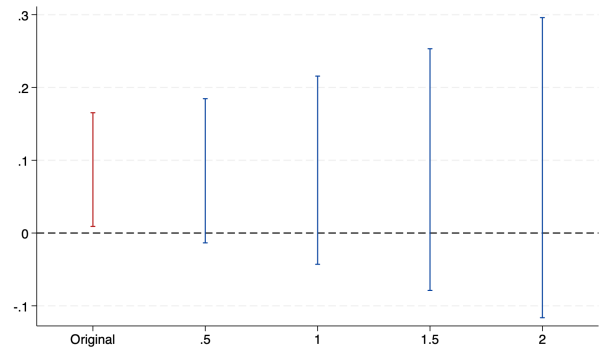
(e) Number of Independent Women Running

Notes: This figure depicts the results of the event-study sensitivity analysis proposed in [Rambachan and Roth \(2023\)](#). Each panel plots the robust 95% confidence sets for the treatment effect in the election year after constituency boundaries were redrawn using different values of the maximum post-treatment violation of parallel trends ($Mbar$). Each value on the horizontal axis is a different value of $Mbar$. The breakdown value corresponds to the first value of $Mbar$ that results in a confidence set that has a statistically insignificant treatment effect.

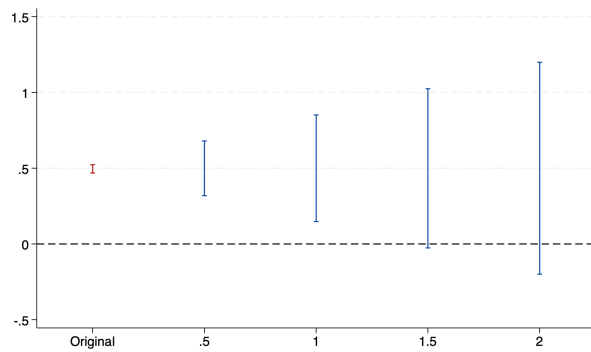
Figure A.6: Event Studies Sensitivity Analysis: Effect of Reservation Status Change on Political Candidacy



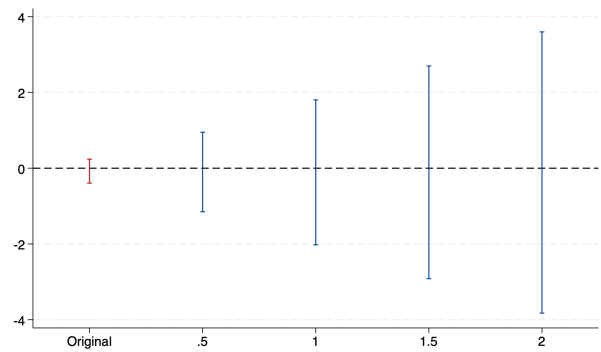
(a) Number of Major Party Incumbents



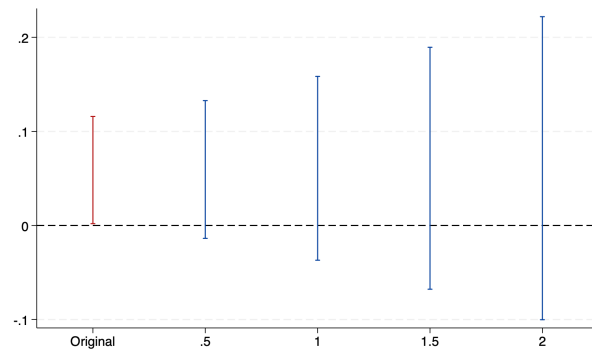
(b) Number of Major Party Women Candidates



(c) Number of Major Party Minority Candidates



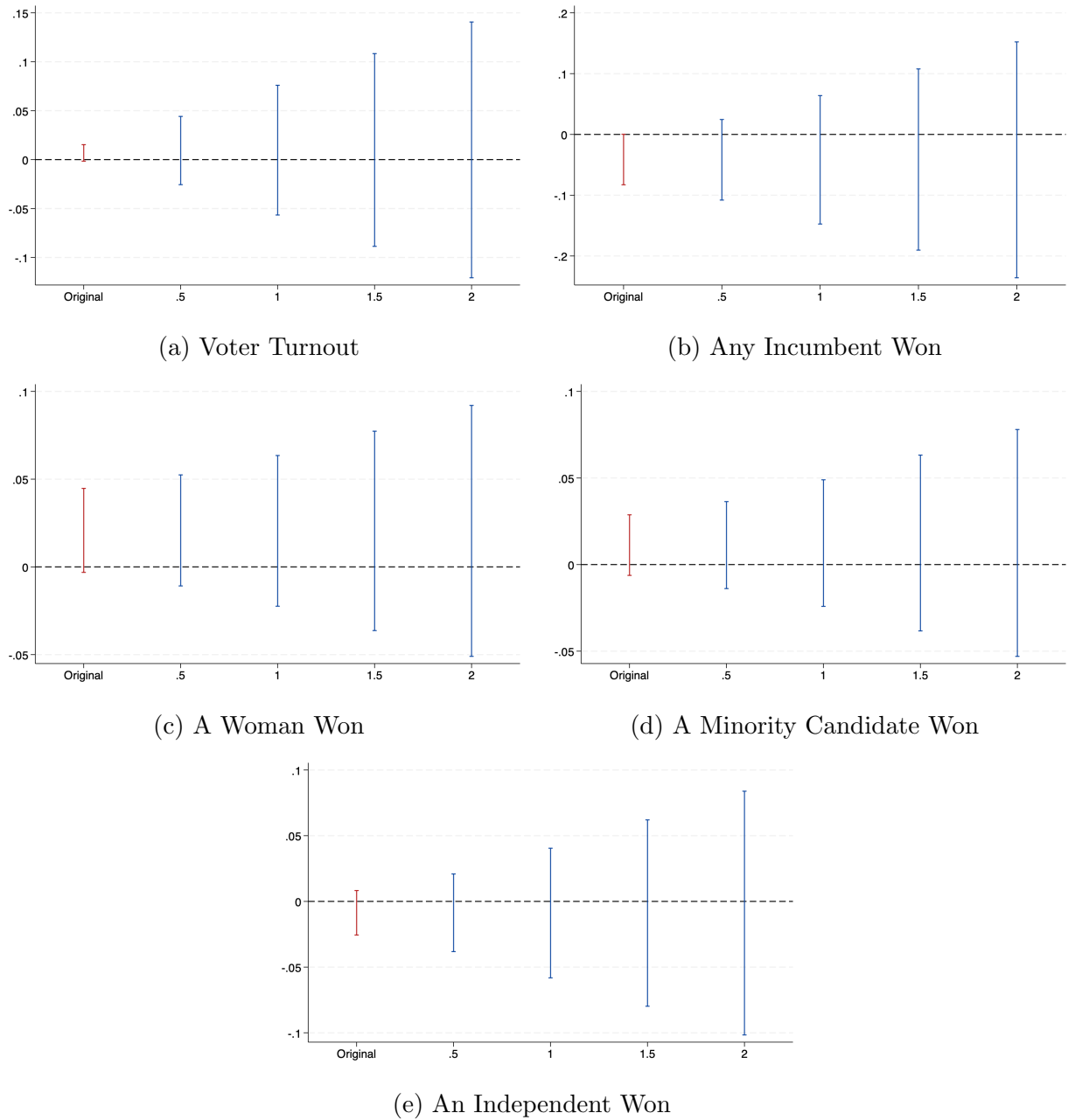
(d) Number of Independent Men Running



(e) Number of Independent Women Running

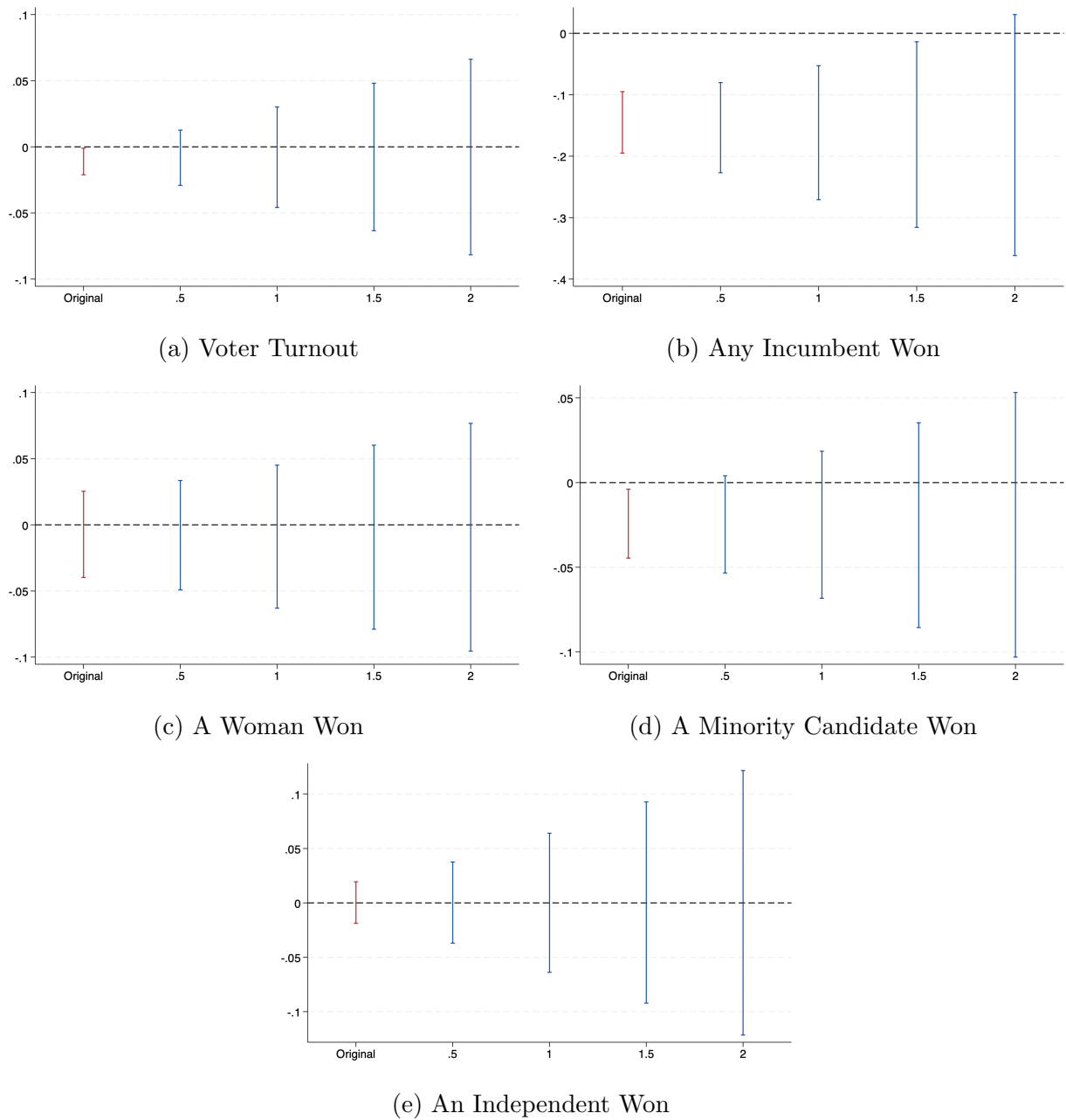
Notes: This figure depicts the results of the event-study sensitivity analysis proposed in [Rambachan and Roth \(2023\)](#). Each panel plots the robust 95% confidence sets for the treatment effect in the election year after constituency boundaries were redrawn using different values of the maximum post-treatment violation of parallel trends (M_{bar}). Each value on the horizontal axis is a different value of M_{bar} . The breakdown value corresponds to the first value of M_{bar} that results in a confidence set that has a statistically insignificant treatment effect.

Figure A.7: Event Studies Sensitivity Analysis: Effect of New Voters on Voter Behavior and Representation



Notes: This figure depicts the results of the event-study sensitivity analysis proposed in [Rambachan and Roth \(2023\)](#). Each panel plots the robust 95% confidence sets for the treatment effect in the election year after constituency boundaries were redrawn using different values of the maximum post-treatment violation of parallel trends (M_{bar}). Each value on the horizontal axis is a different value of M_{bar} . The breakdown value corresponds to the first value of M_{bar} that results in a confidence set that has a statistically insignificant treatment effect.

Figure A.8: Event Studies Sensitivity Analysis: Effect of Reservation Status Change on Voter Behavior and Representation



Notes: This figure depicts the results of the event-study sensitivity analysis proposed in [Rambachan and Roth \(2023\)](#). Each panel plots the robust 95% confidence sets for the treatment effect in the election year after constituency boundaries were redrawn using different values of the maximum post-treatment violation of parallel trends ($Mbar$). Each value on the horizontal axis is a different value of $Mbar$. The breakdown value corresponds to the first value of $Mbar$ that results in a confidence set that has a statistically insignificant treatment effect.

Table A.1: Election Information by State

	First Election with New Maps	Election Years	Number of Elections
Andhra Pradesh	2009	1978-2014	9
Bihar	2010	1980-2015	8
Chhattisgarh	2008	2003-2013	3
Goa	2012	1989-2017	7
Gujarat	2012	1980-2017	9
Haryana	2009	1982-2014	8
Himachal Pradesh	2012	1982-2017	9
Karnataka	2008	1978-2013	9
Kerala	2011	1980-2016	9
Madhya Pradesh	2008	1980-2013	8
Maharashtra	2009	1978-2014	9
Meghalaya	2008	1978-2013	8
Mizoram	2008	1979-2013	9
Odisha	2009	1980-2014	8
Puducherry	2011	1980-2016	9
Punjab	2012	1980-2017	8
Rajasthan	2008	1980-2013	8
Sikkim	2009	1979-2014	8
Tamil Nadu	2011	1980-2016	9
Tripura	2008	1983-2013	7
Uttarakhand	2012	2002-2017	4
Uttar Pradesh	2012	1980-2017	10
West Bengal	2011	1982-2016	8

Notes: This table presents the election data for each state in India. Elections are scheduled every five years. Chhattisgarh split from Madhya Pradesh in 2000, and Uttarakhand split from Uttar Pradesh in 2000. I have manually followed the politicians in Chhattisgarh and Uttarakhand over time.

Table A.2: Pre-Redistricting Summary Statistics

	Observations (1)	Mean (2)	Std. dev. (3)	Minimum (4)	Maximum (5)
<i>Panel A: Electoral Redistricting</i>					
Fraction of New Voters in Constituency	3,235	0.329	0.224	0	0.999
Reservation Status Change	3,235	0.199	0.4	0	1
<i>Panel B: Political Candidacy</i>					
Incumbents Nominated by a Major Party	3,235	0.606	0.498	0	2
Women Nominated by a Major Party	3,235	0.329	0.584	0	6
Minority Candidates Nominated by a Major Party	3,235	0.338	0.845	0	7
Independent Men	3,235	3.014	2.709	0	23
Independent Women	3,235	0.180	0.447	0	6
<i>Panel C: Voter Behavior and Representation</i>					
Voter Turnout	3,235	0.710	0.170	0.235	1
Any Incumbent Won	3,235	0.314	0.464	0	1
Woman Won	3,235	0.070	0.255	0	1
Minority Candidate Won	3,235	0.051	0.220	0	1
Independent Won	3,235	0.038	0.191	0	1
<i>Panel D: Economic Development</i>					
Primary Schools	2,545	0.867	0.154	0	1
Primary Health Subcenters	2,545	0.223	0.212	0	1
Paved Roads	2,545	0.686	0.270	0	1
Annual Nighttime Light Growth	2,860	0.076	0.165	-0.788	1.220

Notes: This table presents summary statistics of all of the main outcomes. Data is for the election immediately before redistricting

Table A.3: Type of Reservation Change - Political Candidacy

	Major Party Nominees			Number of Independent Men (4)	Number of Independent Women (5)
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)		
New Voters	-0.087*** (0.024)	-0.018 (0.029)	-0.036 (0.034)	-0.206* (0.119)	-0.055** (0.023)
Unreserved to Reserved	-0.339*** (0.032)	0.179*** (0.048)	-0.337*** (0.043)	-0.668*** (0.169)	0.058 (0.036)
Reserved to Unreserved	-0.158*** (0.047)	-0.088 (0.061)	0.097 (0.073)	1.050*** (0.299)	0.061 (0.043)
Observations	6,470	6,470	6,470	6,470	6,470
R-squared	0.590	0.579	0.721	0.684	0.534
Avg Dep Variable	0.606	0.329	0.338	3.014	0.180

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. “New Voters” is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. “Unreserved to Reserved” means a constituency was not a reserved seat for SC or ST candidates before redistricting and the seat became reserved due to redistricting. “Reserved to Unreserved” means a constituency was a reserved seat for SC or ST candidates before redistricting and the seat became unreserved due to redistricting.

Table A.4: Effect of Redistricting on Additional Candidacy Outcomes

	Number of Candidates (1)	Number of Incumbents (2)	Number of Women (3)	Number of Minority Candidates (4)
$Post \times NewVoters$	-0.332** (0.153)	-0.102*** (0.024)	-0.056 (0.041)	-0.032 (0.050)
$Post \times ResChange$	-0.179 (0.208)	-0.272*** (0.029)	0.113** (0.055)	-0.316*** (0.061)
Observations	6,470	6,470	6,470	6,470
R-squared	0.792	0.582	0.585	0.748
Avg Dep Variable	8.443	0.640	0.564	0.602

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.5: Robustness Check: Donut Specification - Political Candidacy

	Full Sample (1)	5 km (2)	10 km (3)	15 km (4)	20 km (5)
<i>Panel A: Number of Major Party Incumbents</i>					
<i>Post</i> × <i>NewVoters</i>	-0.086*** (0.024)	-0.083*** (0.024)	-0.084*** (0.025)	-0.073*** (0.027)	-0.096*** (0.030)
<i>Post</i> × <i>ResChange</i>	-0.276*** (0.028)	-0.285*** (0.028)	-0.284*** (0.029)	-0.299*** (0.032)	-0.321*** (0.036)
<i>Panel B: Number of Major Party Women Candidates</i>					
<i>Post</i> × <i>NewVoters</i>	-0.019 (0.029)	-0.012 (0.030)	0.003 (0.031)	-0.010 (0.034)	-0.014 (0.039)
<i>Post</i> × <i>ResChange</i>	0.087** (0.040)	0.077* (0.040)	0.070* (0.043)	0.044 (0.047)	0.077 (0.053)
<i>Panel C: Number of Major Party Minority Candidates</i>					
<i>Post</i> × <i>NewVoters</i>	-0.035 (0.034)	-0.041 (0.034)	-0.042 (0.035)	-0.051 (0.038)	-0.026 (0.041)
<i>Post</i> × <i>ResChange</i>	-0.187*** (0.041)	-0.192*** (0.041)	-0.204*** (0.044)	-0.242*** (0.048)	-0.243*** (0.053)
<i>Panel D: Number of Independent Men</i>					
<i>Post</i> × <i>NewVoters</i>	-0.201* (0.120)	-0.208* (0.122)	-0.186 (0.129)	-0.190 (0.140)	-0.153 (0.163)
<i>Post</i> × <i>ResChange</i>	-0.077 (0.161)	-0.085 (0.164)	-0.036 (0.173)	-0.091 (0.190)	0.045 (0.217)
<i>Panel E: Number of Independent Women</i>					
<i>Post</i> × <i>NewVoters</i>	-0.055** (0.023)	-0.054** (0.024)	-0.051** (0.025)	-0.056** (0.028)	-0.067** (0.032)
<i>Post</i> × <i>ResChange</i>	0.059** (0.029)	0.053* (0.030)	0.060* (0.031)	0.057 (0.035)	0.063 (0.041)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Column 1 is the full sample. Column 2 drops constituencies within 5 kilometers of the nearest treated constituency. Column 3 drops constituencies within 10 kilometers of the nearest treated constituency. Column 4 drops constituencies within 15 kilometers of the nearest treated constituency. Column 5 drops constituencies within 20 kilometers of the nearest treated constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.6: Robustness Check: Political Candidacy - Full Sample

	Major Party Nominees			Number of Independent Men (4)	Number of Independent Women (5)
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)		
<i>Post</i> $\times$ <i>NewVoters</i>	-0.091*** (0.019)	-0.014 (0.025)	-0.045 (0.030)	-0.315** (0.129)	-0.038* (0.019)
<i>Post</i> $\times$ <i>ResChange</i>	-0.258*** (0.023)	0.090*** (0.034)	-0.040 (0.036)	0.434** (0.171)	0.030 (0.025)
Observations	20,341	23,487	23,487	23,487	23,487
R-squared	0.242	0.282	0.558	0.485	0.210
Avg Dep Variable	0.606	0.329	0.338	3.014	0.180

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and six elections pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.7: Robustness Check: Political Candidacy - Alternative Cutoffs

	Major Party Nominees			Number of Independent Men (4)	Number of Independent Women (5)
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)		
Continuous	-0.045*** (0.012)	-0.019 (0.015)	-0.017 (0.018)	-0.123** (0.059)	-0.031*** (0.011)
Fourth Quartile	-0.108*** (0.034)	-0.042 (0.041)	-0.060 (0.051)	-0.206 (0.174)	-0.079** (0.032)
Drop Top 1% of New Voters	-0.080*** (0.024)	-0.015 (0.029)	-0.032 (0.034)	-0.189 (0.121)	-0.053** (0.024)
Demographic Change	-0.005 (0.024)	-0.108*** (0.029)	0.018 (0.034)	0.196 (0.120)	-0.026 (0.023)
Avg Dep Variable	0.606	0.329	0.338	3.014	0.180

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Row 1 uses a continuous measure of the fraction of new voters. Row 2 compares the fourth quartile of the fraction of new voters to the rest of the sample. Row 3 drops the top 1% of constituencies based on the fraction of new voters. Row 4 uses demographic change as the measure of redistricting instead of the fraction of new voters. All regressions include *Post* $\times$ *ResChange*.

Table A.8: Robustness Check: Political Candidacy - Clustering

	Major Party Nominees				
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)	Number of Independent Men (4)	Number of Independent Women (5)
<i>Post × NewVoters</i>	-0.086 (0.022)*** {0.023}*** [0.024]*** 0.029 ***	-0.019 (0.030) {0.031} [0.030] 0.034	-0.035 (0.032) {0.032} [0.031] 0.037	-0.201 (0.133) {0.138} [0.157] 0.163	-0.055 (0.024)** {0.024}** [0.022]** 0.021 ***
<i>Post × ResChange</i>	-0.276 (0.029)*** {0.029}*** [0.030]*** 0.031 ***	0.087 (0.039)** {0.041}** [0.035]** 0.031 ***	-0.187 (0.044)*** {0.044}*** [0.046]*** 0.055 ***	-0.077 (0.162) {0.166} [0.165] 0.132	0.059 (0.029)** {0.029}** [0.026]** 0.021 ***

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral district level and reported in parenthesis. The second through fourth standard errors allow for arbitrary spatial correlation following Colella et al. (2023). The standard errors in curly brackets allow for spatial correlation for constituencies within 50 kilometers of each other. The standard errors in square brackets allow for spatial correlation for constituencies within 100 kilometers of each other. The standard errors in absolute value bars allow for spatial correlation for constituencies within 250 kilometers of each other. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.9: Effect of Redistricting on Additional Representation Outcomes

	Vote Margin (1)	BJP Won (2)	INC Won (3)
$Post \times NewVoters$	-0.000 (0.004)	-0.000 (0.016)	0.029 (0.019)
$Post \times ResChange$	-0.003 (0.006)	0.005 (0.020)	0.028 (0.025)
Observations	6,470	6,470	6,470
R-squared	0.622	0.699	0.616
Avg Dep Variable	0.111	0.221	0.270

Notes: $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting. "BJP" stands for the Bharatiya Janata Party, and "INC" stands for Indian National Congress.

Table A.10: Type of Reservation Change - Voter Behavior and Representation

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
New Voters	0.007 (0.004)	-0.042* (0.021)	0.021* (0.012)	0.011 (0.009)	-0.009 (0.009)
Unreserved to Reserved	-0.031*** (0.006)	-0.172*** (0.030)	0.029 (0.019)	-0.044*** (0.011)	-0.015 (0.011)
Reserved to Unreserved	0.028*** (0.008)	-0.094*** (0.040)	-0.077*** (0.028)	0.014 (0.018)	0.029* (0.015)
Observations	6,470	6,292	6,470	6,470	6,470
R-squared	0.861	0.555	0.582	0.679	0.524
Avg Dep Variable	0.710	0.314	0.070	0.051	0.038

Notes: $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. "New Voters" is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. "Unreserved to Reserved" means a constituency was not a reserved seat for SC or ST candidates before redistricting and the seat became reserved due to redistricting. "Reserved to Unreserved" means a constituency was a reserved seat for SC or ST candidates before redistricting and the seat became unreserved due to redistricting.

Table A.11: Robustness Check: Donut Specification - Voter Behavior and Representation

	Full Sample (1)	5 km (2)	10 km (3)	15 km (4)	20 km (5)
<i>Panel A: Voter Turnout</i>					
<i>Post × NewVoters</i>	0.007 (0.004)	0.009** (0.004)	0.011** (0.005)	0.011** (0.005)	0.008 (0.006)
<i>Post × ResChange</i>	-0.011** (0.005)	-0.012** (0.005)	-0.011* (0.005)	-0.010* (0.006)	-0.007 (0.007)
<i>Panel B: Any Incumbent Won</i>					
<i>Post × NewVoters</i>	-0.041* (0.021)	-0.041* (0.021)	-0.043* (0.022)	-0.025 (0.024)	-0.037 (0.027)
<i>Post × ResChange</i>	-0.145*** (0.026)	-0.145*** (0.026)	-0.141*** (0.026)	-0.135*** (0.029)	-0.173*** (0.032)
<i>Panel C: A Woman Won</i>					
<i>Post × NewVoters</i>	0.021* (0.012)	0.020 (0.012)	0.025* (0.013)	0.025* (0.014)	0.013 (0.016)
<i>Post × ResChange</i>	-0.007 (0.017)	-0.007 (0.017)	-0.013 (0.017)	-0.022 (0.019)	-0.007 (0.021)
<i>Panel D: A Minority Candidate Won</i>					
<i>Post × NewVoters</i>	0.011 (0.009)	0.012 (0.009)	0.012 (0.009)	0.005 (0.010)	0.001 (0.010)
<i>Post × ResChange</i>	-0.024** (0.010)	-0.023** (0.011)	-0.026** (0.011)	-0.024** (0.012)	-0.018 (0.012)
<i>Panel E: An Independent Won</i>					
<i>Post × NewVoters</i>	-0.009 (0.009)	-0.008 (0.009)	-0.011 (0.009)	-0.009 (0.010)	-0.012 (0.012)
<i>Post × ResChange</i>	0.000 (0.010)	-0.002 (0.010)	-0.002 (0.010)	-0.002 (0.012)	0.001 (0.014)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Column 1 is the full sample. Column 2 drops constituencies within 5 kilometers of the nearest treated constituency. Column 3 drops constituencies within 10 kilometers of the nearest treated constituency. Column 4 drops constituencies within 15 kilometers of the nearest treated constituency. Column 5 drops constituencies within 20 kilometers of the nearest treated constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.12: Robustness Check: Voter Behavior and Representation - Full Sample

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
$Post \times NewVoters$	0.001 (0.005)	-0.043** (0.017)	0.014 (0.010)	0.013* (0.007)	-0.006 (0.007)
$Post \times ResChange$	-0.011** (0.006)	-0.127*** (0.019)	0.001 (0.013)	-0.011 (0.008)	-0.004 (0.007)
Observations	23,487	20,341	23,487	23,487	23,487
R-squared	0.684	0.232	0.268	0.514	0.200
Avg Dep Variable	0.710	0.314	0.070	0.051	0.038

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and six elections pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.13: Robustness Check: Voter Behavior and Representation - Alternative Cutoffs

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
Continuous	0.003 (0.002)	-0.029*** (0.011)	0.009 (0.006)	0.001 (0.005)	-0.003 (0.004)
Fourth Quartile	0.007 (0.006)	-0.076*** (0.030)	0.020 (0.017)	0.007 (0.013)	-0.010 (0.012)
Drop Top 1% of New Voters	0.007 (0.004)	-0.038* (0.021)	0.021* (0.012)	0.013 (0.009)	-0.010 (0.009)
Demographic Change	0.008* (0.004)	-0.051** (0.021)	-0.015 (0.012)	0.017* (0.009)	0.007 (0.009)
Avg Dep Variable	0.710	0.314	0.070	0.051	0.038

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Row 1 uses a continuous measure of the fraction of new voters. Row 2 compares the fourth quartile of the fraction of new voters to the rest of the sample. Row 3 drops the top 1% of constituencies based on the fraction of new voters. Row 4 uses demographic change as the measure of redistricting instead of the fraction of new voters. All regressions include $Post \times ResChange$.

Table A.14: Robustness Check: Voter Behavior and Representation - Clustering

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
<i>Post × NewVoters</i>	0.007 (0.005) {0.005} [0.005] 0.005	-0.041 (0.021)* {0.022}* [0.022]* 0.026	0.021 (0.014) {0.014} [0.014] 0.013	0.011 (0.009) {0.009} [0.008] 0.011	-0.009 (0.009) {0.009} [0.009] 0.010
<i>Post × ResChange</i>	-0.011 (0.005)** {0.006}** [0.006]* 0.008	-0.145 (0.026)*** {0.028}*** [0.027]*** 0.024 ***	-0.007 (0.016) {0.016} [0.016] 0.015	-0.024 (0.009)*** {0.010}** [0.012]** 0.012 **	0.000 (0.009) {0.009} [0.009] 0.010

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral district level and reported in parenthesis. The second through fourth standard errors allow for arbitrary spatial correlation following [Colella et al. \(2023\)](#). The standard errors in curly brackets allow for spatial correlation for constituencies within 50 kilometers of each other. The standard errors in square brackets allow for spatial correlation for constituencies within 100 kilometers of each other. The standard errors in absolute value bars allow for spatial correlation for constituencies within 250 kilometers of each other. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.15: Type of Reservation Change - Development Outcomes

	Primary Schools (1)	Primary Health Subcenters (2)	Paved Roads (3)	Nighttime Light Growth (4)
New Voters	-0.014* (0.008)	0.003 (0.010)	0.011 (0.012)	0.002 (0.004)
Unreserved to Reserved	-0.006 (0.012)	-0.006 (0.013)	0.016 (0.017)	0.017*** (0.005)
Reserved to Unreserved	0.027* (0.015)	0.004 (0.016)	0.047** (0.022)	0.009 (0.009)
Observations	4,830	4,830	4,830	5,182
R-squared	0.760	0.854	0.832	0.018
Avg Dep Variable	0.867	0.223	0.686	0.076

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. “New Voters” is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. “Unreserved to Reserved” means a constituency was not a reserved seat for SC or ST candidates before redistricting and the seat became reserved due to redistricting. “Reserved to Unreserved” means a constituency was a reserved seat for SC or ST candidates before redistricting and the seat became unreserved due to redistricting. Column 4 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth. The R-squared value in Column 4 is a pseudo-R-squared value from the PPML estimation.

Table A.16: Robustness Check: Political Candidacy - Development Sample

	Major Party Nominees				
	Number of Incumbents (1)	Number of Women (2)	Number of Minority Candidates (3)	Number of Independent Men (4)	Number of Independent Women (5)
<i>Panel A: Public Goods Sample</i>					
<i>Post</i> × <i>NewVoters</i>	0.018 (0.032)	-0.012 (0.042)	-0.048 (0.049)	-0.099 (0.176)	-0.053 (0.035)
<i>Post</i> × <i>ResChange</i>	-0.335*** (0.036)	0.085 (0.056)	-0.275*** (0.062)	0.306 (0.229)	0.069* (0.041)
Observations	4,830	4,830	4,830	4,830	4,830
R-squared	0.702	0.658	0.764	0.740	0.631
<i>Panel B: Nighttime Lights Sample</i>					
<i>Post</i> × <i>NewVoters</i>	0.001 (0.030)	0.004 (0.038)	-0.024 (0.044)	-0.136 (0.158)	-0.033 (0.031)
<i>Post</i> × <i>ResChange</i>	-0.320*** (0.034)	0.092* (0.053)	-0.227*** (0.058)	0.333 (0.213)	0.092** (0.039)
Observations	5,182	5,182	5,182	5,182	5,182
R-squared	0.672	0.643	0.753	0.731	0.608
Avg Dep Variable	0.606	0.329	0.338	3.014	0.180

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Panel A conducts the analysis on the same sample as the public goods results. Panel B conducts the analysis on the same sample as the nighttime lights results. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.17: Robustness Check: Voter Behavior and Representation - Development Sample

	Voter Turnout (1)	An Incumbent Won (2)	A Woman Won (3)	A Minority Candidate Won (4)	An Independent Won (5)
<i>Panel A: Public Goods Sample</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	0.011* (0.006)	0.022 (0.029)	0.023 (0.017)	0.021 (0.013)	0.008 (0.012)
<i>Post</i> $\times$ <i>ResChange</i>	-0.017** (0.007)	-0.199*** (0.032)	-0.021 (0.022)	-0.041*** (0.013)	-0.001 (0.014)
Observations	4,830	4,830	4,830	4,830	4,830
R-squared	0.883	0.681	0.681	0.760	0.624
<i>Panel B: Nighttime Lights Sample</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	0.009* (0.006)	0.021 (0.027)	0.023 (0.016)	0.029** (0.012)	0.005 (0.011)
<i>Post</i> $\times$ <i>ResChange</i>	-0.015** (0.007)	-0.189*** (0.031)	-0.017 (0.021)	-0.032** (0.013)	0.001 (0.013)
Observations	5,182	5,182	5,182	5,182	5,182
R-squared	0.872	0.651	0.654	0.731	0.609
Avg Dep Variable	0.710	0.314	0.070	0.051	0.038

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Panel A conducts the analysis on the same sample as the public goods results. Panel B conducts the analysis on the same sample as the nighttime lights results. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.18: Robustness Check: Donut Specification - Development Outcomes

	Full Sample (1)	5 km (2)	10 km (3)	15 km (4)	20 km (5)
<i>Panel A: Primary Schools</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	-0.013 (0.008)	-0.009 (0.008)	-0.005 (0.008)	-0.010 (0.009)	-0.008 (0.010)
<i>Post</i> $\times$ <i>ResChange</i>	0.006 (0.010)	0.007 (0.010)	0.005 (0.010)	0.005 (0.011)	0.013 (0.012)
<i>Panel B: Primary Health Subcenters</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	0.003 (0.010)	0.002 (0.010)	0.007 (0.010)	0.001 (0.010)	0.001 (0.011)
<i>Post</i> $\times$ <i>ResChange</i>	-0.002 (0.011)	-0.002 (0.011)	0.000 (0.011)	-0.001 (0.011)	0.002 (0.012)
<i>Panel C: Paved Roads</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	0.012 (0.012)	0.010 (0.012)	0.010 (0.013)	0.005 (0.014)	-0.009 (0.016)
<i>Post</i> $\times$ <i>ResChange</i>	0.027* (0.014)	0.027* (0.014)	0.021 (0.015)	0.027* (0.016)	0.030* (0.018)
<i>Panel D: Nighttime Light Growth</i>					
<i>Post</i> $\times$ <i>NewVoters</i>	0.002 (0.004)	0.001 (0.004)	0.000 (0.004)	-0.000 (0.004)	0.003 (0.004)
<i>Post</i> $\times$ <i>ResChange</i>	0.014*** (0.005)	0.012*** (0.005)	0.009** (0.004)	0.007* (0.004)	0.006 (0.004)

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Column 1 is the full sample. Column 2 drops constituencies within 5 kilometers of the nearest treated constituency. Column 3 drops constituencies within 10 kilometers of the nearest treated constituency. Column 4 drops constituencies within 15 kilometers of the nearest treated constituency. Column 5 drops constituencies within 20 kilometers of the nearest treated constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting.

Table A.19: Robustness Check: Development Outcomes - Full Sample

	Primary Schools (1)	Primary Health Subcenters (2)	Paved Roads (3)	Nighttime Light Growth (4)
$Post \times NewVoters$	-0.011 (0.008)	-0.000 (0.013)	0.009 (0.011)	-0.000 (0.002)
$Post \times ResChange$	0.003 (0.009)	-0.009 (0.014)	0.038*** (0.013)	0.006** (0.003)
Observations	7,149	7,149	7,149	10,558
R-squared	0.743	0.489	0.767	0.006
Avg Dep Variable	0.867	0.223	0.686	0.076

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and two elections pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting. Column 4 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth. The R-squared value in Column 4 is a pseudo-R-squared value from the PPML estimation.

Table A.20: Robustness Check: Development Outcomes - Alternative Cutoffs

	Primary Schools (1)	Primary Health Subcenters (2)	Paved Roads (3)	Nighttime Light Growth (4)
Continuous	-0.015*** (0.005)	0.002 (0.006)	0.003 (0.007)	0.003 (0.003)
Fourth Quartile	-0.038*** (0.013)	-0.003 (0.015)	-0.002 (0.018)	0.005 (0.008)
Drop Top 1% of New Voters	-0.012 (0.008)	0.002 (0.010)	0.012 (0.012)	0.003 (0.004)
Demographic Change	-0.015* (0.008)	0.009 (0.009)	0.018 (0.012)	-0.021*** (0.004)
Avg Dep Variable	0.867	0.223	0.686	0.076

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. Row 1 uses a continuous measure of the fraction of new voters. Row 2 compares the fourth quartile of the fraction of new voters to the rest of the sample. Row 3 drops the top 1% of constituencies based on the fraction of new voters. Row 4 uses demographic change as the measure of redistricting instead of the fraction of new voters. All regressions include $Post \times ResChange$. Column 4 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth.

Table A.21: Robustness Check: Development Outcomes - Clustering

	Primary Schools (1)	Primary Health Subcenters (2)	Paved Roads (3)	Nighttime Light Growth (4)
<i>Post × NewVoters</i>	-0.013 (0.010) {0.010} [0.011] 0.011	0.003 (0.010) {0.010} [0.010] 0.007	0.012 (0.013) {0.014} [0.015] 0.014	0.002 (0.005)
<i>Post × ResChange</i>	0.006 (0.011) {0.012} [0.014] 0.016	-0.002 (0.012) {0.012} [0.012] 0.010	0.027 (0.014)* {0.016} [0.015] 0.019	0.014 (0.005)***

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral district level and reported in parenthesis. The second through fourth standard errors allow for arbitrary spatial correlation following Colella et al. (2023). The standard errors in curly brackets allow for spatial correlation for constituencies within 50 kilometers of each other. The standard errors in square brackets allow for spatial correlation for constituencies within 100 kilometers of each other. The standard errors in absolute value bars allow for spatial correlation for constituencies within 250 kilometers of each other. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting. Column 4 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth. Column 4 does not include standard errors for arbitrary spatial correlation as the arbitrary spatial correlation is for linear functions.

Table A.22: Robustness Check: Nighttime Light Growth - Low Sensitivity and Saturation

	Nighttime Light Growth (1)
$Post \times NewVoters$	-0.002 (0.004)
$Post \times ResChange$	0.009** (0.004)
Observations	5,060
R-squared	0.020
Avg Dep Variable	0.076

Notes: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. Robust standard errors are clustered at the electoral constituency level. Each regression includes electoral constituency and time fixed effects. One election post-redistricting and one election pre-redistricting are utilized for the analysis. The unit of analysis is the electoral constituency. *NewVoters* is an indicator equal to one if a constituency had the fraction of new voters in the constituency at or above the median across India. *ResChange* is an indicator equal to one if a constituency's reservation status changed due to redistricting. Column 1 uses a Poisson pseudo maximum likelihood (PPML) estimator to estimate the effect of redistricting on nighttime light growth. The R-squared value in Column 1 is a pseudo-R-squared value from the PPML estimation. The top and bottom 1% of the nighttime light constituencies are dropped.