

Politics and Local Economic Growth: Evidence from India *

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January 2015

Abstract

We show that the party affiliation of local politicians affects the prospects for firm growth in India, via political control over the provision of government inputs ostensibly determined by neutral bureaucrats. This evidence supports a growing literature on the importance of bureaucrat behavior in developing countries. Using a close election regression discontinuity, we show that firms in India perform significantly better when represented by politicians who are aligned with the coalition in control of the state government. Firms in coalition-aligned constituencies increase employment one percentage point more per year over a seven year period. Further, we show that stock prices show 10-15% positive cumulative abnormal returns in the month following the election of a coalition-aligned candidate in the firm's headquarter constituency, suggesting that political alignment benefits capital as well as labor. We find no effect on public good provision, and the effect is as strong in the private sector as in the public sector. Using international survey data to classify industries according to government obstacles to doing business, we find that the effect of political alignment is largest in sectors that are dependent on inputs supplied by government officials. Finally, we show that in one sector, mining, the supply of approved permits is predicted by our measure of alignment, providing micro evidence of the proposed channel.

JEL Codes: O12/P16/D72.

*We are thankful for useful discussions with Alberto Alesina, Josh Angrist, Lorenzo Casaburi, Shawn Cole, Ed Glaeser, Ricardo Hausmann, Richard Hornbeck, Lakshmi Iyer, Devesh Kapur, Asim Khwaja, Michael Kremer, Sendhil Mullainathan, Rohini Pande, Andrei Shleifer and David Yanagizawa, and to the many seminar participants who provided helpful feedback. We are grateful to Francesca Jensenius and Ben Ranish for sharing data and to Sandesh Dhungana and Pranav Gupta for excellent research assistance. Mr. PC Mohanan of the Indian Ministry of Statistics has been invaluable in helping us use the Economic Census. This project received financial support from the Center for International Development and the Warburg Fund (Harvard University). All errors are our own.

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1 Introduction

Reducing the number of government-created obstacles to doing business, like licenses, permits and clearances, has been a major agenda in developing countries. A central premise of this agenda is that stringent permitting requirements give the suppliers of these goods, chiefly bureaucrats and politicians, the ability to hold up firms.

In this paper, we present evidence that in post-liberalization India, politician identity continues to have a significant impact on private sector performance; the major channel appears to be political control of an ostensibly neutral bureaucracy.

We measure the local economic impact of one form of political favoritism: the tendency of governing parties to provide the most support to regions that are represented by their allies and members.¹ The previous literature in this area is focused on government inputs; we measure economic impacts and shed light on the mechanism behind those impacts, shedding light on the government inputs that are the largest constraints to private sector growth.

We focus on state-level legislative constituencies in India, which provide a common institutional framework for a large number of elections with staggered years. The empirical challenge is that locations that favor the dominant party may differ in many characteristics from locations that vote for opposition parties.² We use a regression discontinuity design to control for these differences. By comparing locations where majority candidates narrowly won to places where majority candidates narrowly lost, we identify a causal impact of majority representation, in places that are comparable on observables and are likely to be comparable on unobservables as well.

This paper makes three contributions. First, we show that majority constituencies have

¹An analogous situation in the United States is that a single party controls Congress, but individual congressional districts may or may not be represented by members of the majority party. Albouy (2009) shows that majority districts receive more federal grants than minority districts. Ansolabehere and Snyder (2006) and Finan (2004) find similar results, respectively in U.S. state governments and in Brazil.

²For example, a caste-based party is likely to win support from areas dominated by lower castes. These areas will have a history of marginalization, and be on different growth paths.

significantly higher private sector employment growth. Second, we show that stock prices increase when majority politicians are elected in firms' headquarter constituencies, implying that firm value is rising along with employment. Finally, we present evidence that local variation in the implementation of regulation is an important mechanism for these effects.

We find that, over a seven year period, private sector employment growth is 1.4 percentage points per year higher in majority constituencies than in minority constituencies.³

Employment growth is not a sufficient statistic for firm welfare; politicians could be forcing firms to make inefficient hiring decisions (Shleifer and Vishny, 1994). We examine stock returns around elections, to test whether firms receive higher valuations when their home constituencies become majority-represented. We find that stocks experience cumulative abnormal returns in the range of 9-15% in the month following the election of a majority party candidate. This suggests not only that majority representation is indeed good for local firms, but that this effect is understood by stock market participants.

Finally, we argue that politicians influence firms primarily through the actions of government bureaucrats who have the ability to hold up the operations of firms in a range of ways. These include limiting the supply of licenses and permits, demanding bribes, and initiating tax and labor use audits, among others. This is consistent with Jensenius (2013), who argues that state politicians act primarily not as legislators, but as “fixers,” or as mediators of the relationship between citizens/firms and state officials. Callen et al. (2014) finds significant interaction between politicians and local health workers in Pakistan, and that electoral competition interacts with health worker absenteeism.⁴

We present two pieces of evidence supporting this hypothesis. First, we use international

³Note that the majority status of a constituency is a characteristic of the political representative of a location, rather than the location itself. Nevertheless for ease of exposition, we will also use the terms “majority constituency” and “minority constituency.”

⁴The idea that politicians wield direct control over local bureaucratic outcomes is widespread in the media. Regarding environmental permits, ex-minister Jairam Ramesh is quoted as saying, “The chief minister would just call the pollution control guy and say, “clear it.” In the State, the chief minister is the king he's the sultan.” (Barry and Bagri, 2014)

survey data to classify industries according to their dependence on various government-provided inputs. Interacting these characteristics in the regression discontinuity specification, we find that politicians disproportionately affect the performance of firms in sectors that are constrained by corruption, licensing requirements, and taxes, all areas where local bureaucrats have hold-up power. In contrast, we find little evidence that dependence on credit or roads and electricity affects firms' dependence on politicians.

General microdata on bureaucratic inputs to local firms are not available. We collected data on these inputs to a single sector, the mining sector, and matched these to political constituencies. We find that majority representation positively predicts both the number of mining permits granted and the size of approved mines. This provides evidence for the existence of the channel proposed above: politicians influence the actions of bureaucrats in favor of firms in majority constituencies.

Finally, we find suggestive evidence that outcomes are particularly bad for constituencies narrowly lost by the governing party, suggesting that intensity of regulation may have asymmetric effects on firms; restricting access to inputs may constrain firms more than loosening access benefits them. This result would arise from a model where firms are constrained on multiple dimensions.

Our results are consistent with a model of politicians who choose between policy levers to maximize future electoral outcomes, taking into account the opportunity costs and electoral returns of using those policy levers. The burdensome regulatory environment in India and political control of bureaucrats (Iyer and Mani, 2012; Pritchett, 2009) make it cheap for politicians to control the enforcement of regulation at a local level. The ease of targeting and low cost of regulatory enforcement appear to make it a desirable strategic tool for Indian politicians.⁵

⁵Other work shows that institutions can restrict the choice sets of politicians (Grembi et al., 2012; Ferraz and Monteiro, 2010; Wyplosz, 2012). In the Indian context, the absence of an effective institution of bureaucratic independence expands politicians' choice sets.

2 Background and conceptual framework

In this section, we describe the electoral system in India, review the roles of local politicians, and describe a model of political decision-making that generates predictions about the effect of majority representation.

2.1 State politics and firms in India

We focus on the outcomes of state level elections in India. State governments are central actors in the allocation of government inputs.

The Indian constitution grants significant administrative and legislative power to state governments. States incur 57% of total expenditures, and have administrative control over police, provision of public goods, labor markets, land rights, money lending, state public services, and retail taxes. States operate their own civil services, and in practice state politicians exert a significant degree of control over federally-appointed bureaucrats assigned to their state (Iyer and Mani, 2012). Surveys indicate that among all levels of government, the majority of Indian citizens hold state governments responsible for provision of public goods and public safety (Chhibber et al., 2004).

State elections use a first-past-the-post system. Candidates compete in elections to represent single-member legislative constituencies; the candidate with a plurality in a given constituency wins the seat. The party with the largest number of seats in an election has the first opportunity to form a government; it may do so alone or as part of a coalition.⁶ The essential feature of this system for our analysis is that a given location may or may not be represented by a member of the party that controls the government.

Indian elections between 1990 and 2012 were competitive. In addition to the two major national parties (Indian National Congress and Bharatiya Janata Party), several regional and

⁶If the party fails to form a majority, the party with the next highest number of seats may try to form a majority coalition.

caste-based parties experienced electoral success in state elections, and incumbent parties lost more often than they won.

State legislators (Members of the Legislative Assembly, or MLAs) in India have little formal power over local government inputs. Legislatures are in session for on average only 40 days each year, and most political decisions are taken by the executive (Jensenius, 2013). Local development funds for discretionary projects are small, and equally available to MLAs, regardless of party.

The predominantly qualitative literature on Indian politicians emphasizes that their primary role is to act as an intermediary between citizens and the state, to help individuals and firms obtain inputs and services that they are ostensibly entitled to by the state. State legislators spend the majority of their time dealing with constituent requests, and frequently make direct requests to bureaucrats or cabinet ministers on behalf of constituents. Jensenius (2013) writes, “Maintaining an image of being well-connected and getting things done is essential to the popularity of MLAs.”

The typical Indian firm has long been highly dependent on public officials and government-supplied inputs in many areas of business. Under the License Raj, India’s burdensome system of industrial regulation, firms needed state approval in order to expand or contract production, import goods, add products and hire or fire workers. While the 1990s were a period of significant liberalization, the regulatory burden on firms remained high by international standards throughout the study period (Panagariya, 2008).

Public infrastructure is another major constraint to business in India that politicians could potentially alleviate. In 2005, 38% of Indian firms reported that access to high quality roads or electricity infrastructure was a major or severe obstacle to growth, and many firms have resorted to private provision of these goods.

Firms in our sample period are also dependent on the state for access to credit. In 1990, nearly all banks were operated by the state, making the government a monopolist supplier

of formal credit; private banking grew through the sample period, but even by 2005, 54% of banking sector employment remained in state-owned banks. Finally, state-owned firms remain an important part of the economy.⁷

We treat all of these factors (implementation of regulation, freedom from bureaucratic harassment, access to public infrastructure and credit from state banks) as government inputs which can be controlled by the coalition party and potentially used for political ends. Our empirical strategy aims to differentiate which of these has the biggest impact.

2.2 Conceptual Framework

We present a formal model of political behavior in Appendix A, the essential details of which we describe here. Politicians and parties are motivated strictly by reelection. The governing party controls the allocation of government inputs, which include public goods, access to credit, and localized enforcement of regulations.

Voters face a signal extraction problem. Low quality legislators dissipate the value of government inputs. Voters can observe the value of government inputs that are ultimately delivered, which are a function of (i) the government inputs that the party allocated to their constituency; and (ii) the quality of their legislator. They care about candidate quality, but cannot directly observe it.

The governing party can thus improve a candidate's appearance to voters by increase inputs to that candidate's constituency. This gives the party an incentive to favor locations held by its own politicians, and to disfavor locations held by party opponents. The model predicts that majority constituencies will receive more government inputs than minority constituencies. If there is a convex cost of deviating from equal provision across all locations, we would expect this electoral strategy to be concentrated in constituencies where elections

⁷In 1990, the public sector and state-owned firms accounted for 18.8% of non-farm employment; by 2005 this number was 13.8%

are close.

In equilibrium, it is optimal for the party to give the most resources to places where its candidates are narrow winners, and the least to places where its candidates are narrow losers, even when voters know that this is taking place. ⁸

The politically motivated government inputs that maximize electoral returns might or might not lead to growth. Policies have electoral impacts and economic impacts that may or may not be correlated; politicians are only concerned by the former. Our empirical tests identify the impact of majority representation on growth. If we find an effect, we can infer that (i) politicians have allocated government inputs differently across majority and minority locations; and (ii) those government inputs have an effect on economic outcomes.

Note that our emphasis is on identifying within-state distortions in the allocation of government inputs. Policies with state-level effects, such as overall improvements in government performance or policies, are outside the scope of this study.

Two papers find results closely related to ours. Brollo and Nannicini (2012) find that municipalities with state-aligned incumbents in Brazil receive greater transfers in election years than municipalities with non-aligned incumbents. They find evidence that this effect is driven by non-aligned municipalities, suggesting that the center is actively involved (by withholding funds) even in jurisdictions where it does not hold formal power. Arulampalam et al. (2009) find that center-to-state transfers in India are higher when state parties are aligned with the federal coalition. This paper takes these political behaviors as given, and is focused on measuring their economic impact, and the mechanisms behind these impacts.

⁸Appendix B describes how we can extend this 2-party framework and empirical strategy to take into account many parties and dynamic coalitions.

3 Data

This section describes how we constructed the economic census of firms, as well as the other data sources used in this paper.

The standard economic datasets used in India report data at the level of districts, which are approximately ten times larger than legislative constituencies. We matched the village and town-level Economic Census and Population Census of India to legislative constituencies, creating, to our knowledge, the first dataset linking economic and population outcomes to legislative elections.

The Economic Census of India is a complete enumeration of all establishments except those engaged in crop production and plantation; there is no minimum firm size, and both formal and informal establishments are included. We use the Economic Censuses conducted in 1990, 1998 and 2005.⁹

The Census is based on the houselisting from the Population Census, and records information on the location of the establishment (village for rural areas and ward-block for towns), the number of employees, the main product (in 1 of 250 categories), and whether the firm is public or private. More detailed information on output or capital use is not included. The strengths of the data are its comprehensiveness, and rich detail on spatial location and industrial classification of firms.

The Economic Census is typically released as a cross section without local identifiers. We obtained location directories from the Ministry of Statistics and Programme Implementation, and used a series of fuzzy matching algorithms to match villages and towns by name to the population censuses of 1991 and 2001. We were able to match on average 2,923 (62%) of towns and 515,114 (93%) of villages. As the Economic Census has not been widely used by researchers, we validated it by comparing total employment in state level manufacturing

⁹The most recent census was conducted in 2012, but data was not available at the time of writing.

firms to the more widely used Annual Survey of Industries.¹⁰

We purchased geographic coordinates for population census locations from a mapping firm (ML Infomap) and matched them to the bounding polygons of legislative constituencies. All population and economic census data were then aggregated to constituencies. We measure employment growth as change in constituency-level employment from 1990-98 and 1998-2005.

We downloaded election results for the period 1990-2012 from the web site of the Election Commission of India. We created a time series of political parties by manually matching party names, taking into account party fragmentation and consolidation. We constructed state coalition alliances, and poll and election dates from newspaper articles.

As states follow distinct electoral calendars, we define electoral variables based on the first election in a state after the baseline measurement period. We ignore additional elections in the census period, and test robustness over different inclusion rules. Figure 2 illustrates the set of elections used.¹¹ Given that the economic outcome periods span seven or eight years, many constituencies classified as majority will have some years of minority status in our measurement period, biasing our results downward.¹²

For stock prices and market indices, we use monthly returns from Datastream, National Securities Depository Limited, and Prowess, assembled by Campbell et al. (2013) and generously shared with us. We matched companies to sectors using Orbis and to Indian legislative constituencies using headquarter pincodes and pincode geocoordinates from the GeoNames pincode database. We limited the sample to companies located outside of India's major

¹⁰State-level total employment in large and small firms is similar in the Economic Census and the Annual Survey of Industries (ASI). We expect the Economic Census to be less precise on employment numbers of very large firms, since the survey is not as detailed. All our results are robust to the exclusion of firms with more than 200 employees; results are available from the authors.

¹¹We dropped Bihar (2000) and Uttar Pradesh in both periods because governments were so unstable as to make classification of candidates for an entire census period impossible. We dropped Assam in 1991 because the coalition party ran as independents, making it impossible to identify party membership before the election.

¹²If incumbents were always re-elected, this downward bias would disappear. But incumbency conveys a weak electoral disadvantage in Indian state politics (Uppal, 2009).

cities, as companies located in major cities are less likely to have a significant share of their operations in the constituency where their headquarters are located.

We constructed industry-level measures of government-controlled obstacles to growth, using international data from the World Bank’s Enterprise Surveys. These are based on firm-level surveys undertaken in 138 countries, including India, covering a range of topics about the business environment. We describe the construction of these measures below.

In addition the above measures, we use village and town demographic and public good data from the Population Census of India (1991, 2001), and data on the locations and dates of reconnaissance permits, prospecting licenses and mining leases granted from the Bulletin of Mineral Information, a publication of the Indian Bureau of Mines.

Table 1 shows constituency means of all variables at baseline, displayed separately for locations that end up with majority and minority status. The t statistic for the difference of means is displayed, as well as the t statistic from estimating Equation 1 with the baseline value as the dependent variable.

4 Empirical strategy

Our goal is to test whether majority locations experience different economic outcomes from minority locations.

4.1 Local Economic Outcomes

We could run the following regression of constituency majority status on an economic outcome:

$$Y_{cst} = \beta_0 + \beta_1 * majority_{cst} + \eta_s + \gamma_t + \epsilon_{cst}$$

Y_{cst} is an economic outcome in constituency c in state s at time t . $majority_{cst}$ is an indicator for whether the politician representing constituency c is a member of the majority party at the state level, and η_s and γ_t are state and year fixed effects. The term ϵ_{cst} is an orthogonal error term.

The problem with this approach is that constituencies that elect politicians from the governing party may differ in unobserved ways from constituencies that elect opposition party politicians. Coalition party success could be correlated with many unobserved factors that could affect growth.

To account for unobserved differences between majority and minority constituencies, we focus on very close elections between majority and minority politicians. If these elections are sufficiently close, they provide nearly random variation in the identity of the winning candidate (Lee, 2008; Lee and Lemieux, 2010). The underlying assumption of our regression discontinuity strategy is that a constituency barely won by the majority candidate is similar to a constituency barely lost by the majority candidate on all unobserved characteristics that are correlated with the dependent variable. We run a standard set of tests of this assumption below.¹³

India is characterized by a large number of parties and candidates contesting elections. For simplicity, we first present our empirical design in a two-party context; further below we bring in the possibility of additional candidates and dynamic coalitions.

Consider a state with K constituencies, and candidates from two parties B and C contesting each electoral seat. The party which obtains a plurality of seats becomes the governing party.

In each constituency, let v^a represent the number of votes for the majority candidate,

¹³Our empirical strategy is designed to ensure that majority and minority constituencies are similar on unobservables. By construction, places with close elections are exactly those places where majority candidates are less successful than average and minority candidates are more successful than average (Caughey and Sekhon, 2011; Ferraz and Finan, 2011). If success is correlated with candidate quality, then this biases our results downward, because minority legislators will be higher quality.

v^n the votes for the minority candidate, and v^{tot} the total number of votes. We define the running variable *margin* in constituency c , state s and time t as

$$margin_{cst} = \frac{v_{cst}^a - v_{cst}^n}{v_{cst}^{tot}}.$$

Without loss of generality, let B be the majority party, so that the definition of margin is:

$$margin_{cst} = \frac{v_{cst}^B - v_{cst}^C}{v_{cst}^{tot}}.$$

By construction, $margin_{cst}$ is positive if the candidate from party B has won the election in constituency c , and negative if B has lost. We thus define the forcing variable $majority_{cst}$ as an indicator equal to one if $margin_{cst}$ is greater than zero.

Since $margin_{cst}$ may covary with the outcome variable, we want to limit the test to locations with almost identical values of $margin_{cst}$. In the limit, these are constituencies where the election is decided fully at random. The population estimator β is defined by:

$$\beta = \lim_{m \rightarrow 0^+} \mathbb{E}[Y_i | margin_i = m] - \lim_{m \rightarrow 0^-} \mathbb{E}[Y_i | margin_i = m].$$

We use two standard specifications to generate sample estimates of this parameter, following Imbens and Lemieux (2008). Both tests estimate, separately for majority and minority constituencies, a regression of the outcome variable on *margin*. The predicted outcome at the tipping point where margin is equal to zero is then compared across majority and minority constituencies.

The first test uses a local linear regression, with a bandwidth of 5.1 percentage points, optimally calculated according to Imbens and Kalyanaraman (2012). We allow for the relationship between *margin* and the outcome variable to differ across majority and minority constituencies. The specification is described by Equation 1:

$$Y_{cst} = \beta_0 + \beta_1 \text{majority}_{cst} + \beta_2 \text{margin}_{cst} + \beta_3 \text{margin}_{cst} * \text{majority}_{cst} + \boldsymbol{\zeta} \mathbf{X}_{cst} + \boldsymbol{\gamma}_t + \boldsymbol{\eta}_s + \epsilon_{cst}, \quad (1)$$

where Y_{cst} is a constituency-level economic outcome, \mathbf{X}_{cst} is a vector of time-variant constituency controls, and $\boldsymbol{\eta}_s$ and $\boldsymbol{\gamma}_t$ are state and year fixed effects. ϵ_{cst} is clustered by election. Baseline constituency controls and fixed effects are not necessary for identification but improve the efficiency of the estimation. We include the outcome variable at baseline, log population, urbanization rate, and a vector of constituency averages of town and village-level public goods. The effect of majority status is identified by β_1 ¹⁴

The second test regresses the outcome variable on a polynomial function of the running variable *margin* across the entire sample of elections, and estimates a discontinuity at the point where *margin* becomes positive. The estimating equation is:

$$Y_{cst} = \beta_0 + \beta_1 * \text{majority}_{cst} + f(\text{margin}_{cst}) + g(\text{margin}_{cst}) * \text{majority}_{cst} + \boldsymbol{\zeta} \mathbf{X}_{cst} + \boldsymbol{\gamma}_t + \boldsymbol{\eta}_s + \epsilon_{cst}, \quad (2)$$

where $f(\cdot)$ and $g(\cdot)$ are polynomial functions, and other variables are defined as in equation 1. The interaction between the polynomial function and *majority*_{cst} allows for a separate function for the running variable in majority and minority constituencies. β_1 estimates the effect of majority status at the point where $\text{margin}_{cst} = 0$.

In more than half of our sample the leading party was part of a coalition. Appendix B explains how we extend the empirical strategy above to account for more than two parties and dynamic coalition formation. In short, we assign parties to coalitions based on information known before the election takes place. We use newspaper articles or other documentation describing pre-election coalitions, or we predict coalitions based on alliances from the pre-

¹⁴More precisely, the effect of majority status is identified by $\beta_1 + \beta_3 * \text{margin}$, at the point where margin equals zero, so the second term drops out.

vious election, if we could not find a description of pre-election coalition membership. This approach ensures that our result is not biased by the possibility that some unobserved factor (e.g. party competence) drives both entry into the coalition and the economic outcome. From this point forward, we use the term majority status to mean predicted majority status rather than ex-post majority status.

We exclude constituencies where the top candidate ran as an independent, as we cannot observe whether independent candidates vote with or against the ruling coalition.¹⁵

4.2 Stock prices

The second set of empirical tests examines whether stock prices increase in the month following the election of a majority candidate in a firm’s headquarter constituency. We use a repeated “event study” methodology, using monthly stock returns from India’s two major stock exchanges, the Bombay Stock Exchange and the National Stock Exchange. We use monthly data because of the long lag between voting and official announcement of election results. Information is revealed throughout this period, so it is not possible to identify a single date when the information is assimilated by the market.¹⁶

For each event, we calculate cumulative abnormal returns as the residual from a market model estimated on the 24 months prior to an election. Our beta measures are fitted values from a panel regression of realized monthly betas and other stock characteristics, and come from Campbell et al. (2013).

We estimate Equation 3 to determine whether majority status generates abnormal returns

¹⁵Candidates from unofficial parties are reported by the Electoral Commission as independents, so cannot be distinguished from true independents and are excluded from the sample.

¹⁶Voting often takes places on multiple days, and results may not be officially announced for days or weeks after voting ends. We define the end of our period as the last day of the month in which official electoral results were reported.

for local firms in the month following a close election:¹⁷

$$CAR_{i,c,t} = \beta_0 + \beta_1 majority_{c,t} + \beta_2 margin_{c,t} + \beta_3 margin_{c,t} * majority_{c,t} + \zeta \mathbf{X}_{c,t} + \gamma_t + \eta_s + \epsilon_{i,s,t}, \quad (3)$$

where $CAR_{i,t-1 \rightarrow t+1}$ is the cumulative abnormal return of stock i in the election month, and other variables are defined as in Equation 1. We limit the sample to close elections as above, cluster standard errors at the election level, and weight with a triangular kernel.

The *margin* variable in Equation 3 takes into account the fact that closer elections reveal more new information to the market. If a winner was widely expected, we would expect that effect to be priced in even before the election. Estimating Equation 3 without the *margin* variable would thus bias β_1 downwards.¹⁸

4.3 Identifying the mechanisms

To shed light on the mechanism behind any relationship between majority status and growth, we partition our sample of firms according to industry characteristics. If a mechanism (for example, dependence on regulation) is important, we should see larger treatment effects in the sample of firms that are particularly dependent on that mechanism. We discuss the creation of these industry measures in Section 5.

To estimate the difference in treatment effect between two partitions of firms, we use Seemingly Unrelated Regression to simultaneously estimate 1 on the two partitions:

¹⁷Closeness of election in this case provides identification of the RD, and also implies that the local election result will be information that the market did not know before the election.

¹⁸Note that the win margin is an imperfect measure of the uncertainty over the result in advance of an election. For example, if an election turns out to be closer than expected, we are overestimating the ex ante closeness. However, we know of no data on advance polls or expectations of races for individual legislative constituencies, hence our use of win margin as a proxy for ex ante closeness.

$$Y_{c,s,t,i \in I_{LOW}} = \beta_{0,LOW} + \beta_{1,LOW}majority_{c,s,t} + \beta_{2,LOW}margin_{c,s,t} + \beta_{3,LOW}margin_{c,s,t} * majority_{c,s,t} + \zeta_{LOW} \mathbf{X}_{c,s,t} \quad (4)$$

$$Y_{c,s,t,i \in I_{HIGH}} = \beta_{0,HIGH} + \beta_{1,HIGH}majority_{c,s,t} + \beta_{2,HIGH}margin_{c,s,t} + \beta_{3,HIGH}margin_{c,s,t} * majority_{c,s,t} + \zeta_{HIGH} \mathbf{X}_{c,s,t} \quad (5)$$

The difference between $\beta_{0,HIGH}$ and $\beta_{0,LOW}$ identifies the extent to which the second partition of firms is disproportionately affected by majority representation. ¹⁹

Note that the industry characteristic is not randomly assigned, and it remains possible that any industry result that we find is in fact driven by unobserved variation that is correlated with the industry variable.

4.4 Balance Tests

The identifying assumption of the regression discontinuity is that constituencies where the majority candidate barely wins have similar unobservable characteristics to constituencies where the majority candidate barely loses. This notion is challenged by recent work by Grimmer et al. (2012), who find that candidates who enjoy structural advantages in U.S. elections disproportionately win elections that are very close.²⁰ This would violate the identifying assumptions, for example, if powerful parties selected which close elections to win based

¹⁹An alternate approach would be to create a constituency-industry panel using the 217 product classification codes provided in the Economic Census. While this methodology is also sound, it produces extremely noisy estimates due to (i) the large number of zeroes in the full constituency-industry panel, since most constituencies do not produce most products; (ii) the large variation in the size of industries within a given constituency; and (iii) narrow misclassification of certain industries from one census period to the next. For example, coding appears to be inconsistent across the categories of “Manufacture of made-up textile articles (except apparel)” and “Manufacture of blankets, shawls, carpets, rugs and other similar goods.” The result is that some locations show large growth in one industry and large decline in the other, when it is more likely only the classification has changed. However, these industries share many characteristics, so much of this noise is eliminated when we aggregate to constituency-industry groups.

²⁰Examples of structural advantages include alignment with the state majority party, the state Governor, or the Secretary of State’s office.

on characteristics unobserved by the researchers. Eggers et al. (2015) finds that Grimmers' results are an exception and that most U.S. elections in fact support the identifying assumption. Nevertheless, we take extra care to perform a large number of tests to demonstrate that these types of advantages do not drive the outcomes of close elections in India.

We test for continuity of all baseline covariates around the treatment threshold, as well as the density of the running variable. Figure 3 shows the density of the forcing variable, *margin*. Constituencies with $margin > 0$ are those that were narrowly won by majority legislators, while those with $margin < 0$ were narrowly lost by majority legislators. Panel A shows the distribution of the win margin across our sample of Indian elections from 1990 to 2012. There is no apparent excess density to the right of zero.²¹

Panel B shows the fit of a McCrary test of continuity in the density of the running variable around the treatment threshold of zero (McCrary, 2008). The test does not reject continuity in the running variable at the majority threshold, indicating that majority candidates do not have the ability to selectively push themselves across the win margin.

Figure 4 runs tests analogous to those performed by Grimmer et al. (2012). We analyze the tendency of close elections to be won or lost by candidates with two types of structural advantage: (i) local incumbency, or (ii) membership in an incumbent coalition, that is, a party in control of state institutions when the election takes place. Each point in the figure represents the mean share of candidates with structural advantage, among candidates who won or lost by the margin on the X axis. If advantaged candidates did better in close elections, we would see more of them winning by small margins than losing. We find no evidence for this.

If a close election provides variation in the winning candidate that is as good as random assignment, then constituencies narrowly lost by majority candidates should be indistinguish-

²¹The mode of the *margin* distribution is to the right of zero because on average the ruling coalition wins more often than it loses.

able on observables from constituencies narrowly won by majority candidates. Columns 4 and 5 of Table 1 shows the point estimate and t statistics from estimating equation 1 on baseline constituency characteristics. The coefficient on the forcing variable *majority* is significant at the 10% level in only one of these thirteen cases (rural electrification), indicating that majority and minority constituencies are alike on observables.

Finally, Figure 5 is a visual representation of six of these balance tests. The figures plot the expectation of each outcome, conditional on the forcing variable margin, with allowance for a discontinuity at the majority threshold. Each point in the figure represents about 60 constituencies. Consistent with Table 1, there is no noticeable difference between constituencies narrowly won and narrowly lost by majority candidates.²²

5 Results

This section provides evidence that majority constituencies have significantly higher private sector employment growth, and higher stock prices of firms. These findings are robust to a range of regression discontinuity specifications. The effect is driven by firms in sectors that tend to be highly constrained by licensing, regulation and taxation, that is, sectors where we would expect bureaucrats to be able to hold up firms. Finally, we show in a single sector, mining, that more permits are granted in majority constituencies.

²²Given the widely documented corruption and electoral fraud in India, it is perhaps surprising to find no imbalances around close elections. It is worth noting that India’s federal electoral commission is perceived to have been an island of bureaucratic excellence since independence, explaining the country’s largely non-violent history of elections. Indian incumbents are also not particularly entrenched; both state parties and politicians turn over very frequently in the period studied. Finally, the relative lack of polling in many state elections implies that politicians may not know which electoral races will be close, making it more difficult for richer parties to precisely target funds to the closest races.

5.1 Economic outcomes

Table 2 presents regression discontinuity estimates of the effect of majority status on constituency-level log employment growth. Column 1 presents local linear regression estimates from Equation 1 with year and state fixed effects. The estimate on *majority* indicates that where elections were closest, constituencies with majority legislators grew 1.1 log points more per year than minority constituencies, over a seven year period. The measured effect over the 7- or 8-year census period is 8 percentage points.

Controls are not necessary for identification, but their inclusion increases the efficiency of the estimator. Columns 2 and 3 add lagged constituency controls and lagged town and village-level controls respectively. To generate a measure indicative of total employment in the sample, column 4 weights observations by lagged employment. The point estimates are unchanged, and standard errors fall with more controls, as expected.

Columns 5 and 6 present analogous estimates, using a full sample polynomial specification (Equation 2) on the same outcome. The polynomial specification generates slightly smaller estimates of 0.9 and 0.7 log points per year, with and without controls, with similar statistical significance to the local linear specification.²³

Figure 7 plots estimates from Equation 1 with a range of bandwidths, an alternate kernel and a different window of election years. The local linear results are very stable. The full polynomial estimates in Panel D range from 0.07 to 0.15 as the sample is widened from all elections with win margins below 10% to a sample with win margins from 60%. The premise of the regression discontinuity approach is that the identified treatment effect is only valid for very close elections; the sensitivity to inclusion of observations with very large win margins makes the polynomial specification less desirable (Gelman and Imbens, 2014), motivating us to focus on the local linear method for the analysis below. Reassuringly, the

²³Appendix Table C1 runs standard placebo tests of these regressions, with simulated discontinuities at the 1st and 3rd quartile of the distribution of the win margin, as suggested by Imbens and Lemieux (2008). The placebo estimates are insignificant and close to zero.

polynomial estimates are positive and highly significant for all samples used, and the local linear estimates fall at the midpoint of the range of polynomial estimates.

Figure 6 presents a visual representation of the regression discontinuity estimates. Like Figure 5, the win margin for the majority candidate is plotted on the x-axis, and the conditional expectation of log employment growth is on the y-axis. Each point represents the mean log employment growth in about 15 constituencies in the given margin range. Locations just to the right of zero (the solid vertical line) were narrowly won by majority candidates, while locations just to the left of zero were narrowly lost. The regression lines show the value and 95% confidence interval of a 4th degree polynomial function fitted to the raw data, with separate specifications for majority and minority candidates. The jump in the regression line at zero is a visual analog of the estimates in Table 2.

We draw attention to three characteristics of this graph. First, the effect of majority representation is large and significant when elections are close. Second, the majority effect appears to be highly local; constituencies won by a large margin do not grow employment at a different rate from those lost by a large margin. This finding is consistent with our model: politicians target their energy to competitive constituencies, as these investments have the highest potential electoral returns.

Third, the majority effect appears to be driven by a fall in growth in minority constituencies rather than an increase in majority constituencies. We emphasize that the regression discontinuity design does not identify this interpretation without further assumptions. There could be important unobserved variation between constituencies with close elections and those with wide victory margins.²⁴ Our empirical design allows us to make a causal claim only about the difference between majority and minority constituencies. That said, the

²⁴One possibility is that close elections makes firms reluctant to invest because of uncertainty over the power of their political connections. If growth is lower when elections are close even in the absence of political intervention, then it is more difficult to determine whether the majority effect is coming from majority or minority constituencies.

visual effect is striking, and we will discuss it in Section 6.

Table 3 presents estimates of Equation 1, separately for employment in private and government-owned establishments, the latter of which include administrative offices of government. Columns 1 and 2 report estimates for private firms, respectively with and without constituency controls, and Columns 3 and 4 show the same for public firms. Point estimates are identical for public and private firms; we can thus rule out that the effect of majority representation on employment growth is driven by public sector hiring.²⁵

5.2 Stock prices

Private sector employment growth does not by itself imply that firms are better off. If a politician forces a firm to hire workers beyond the point of efficiency (as in Shleifer and Vishny (1994)), employment growth could make a firm worse off. We test whether a firm's stock market value rises when a majority candidate is elected in the constituency of the firm's headquarters. In an efficient market, the prices of publicly traded firms reflect the information of all market participants.²⁶

If an election between a majority and a minority candidate is expected to be close, the pre-election share price of a local firm will be a weighted mean of the value of the firm under a majority politician, and the value of the firm under a minority politician. After the election, the uncertainty is resolved and the share price reflects the value of the firm under the winning politician (Malatesta and Thompson, 1985). By comparing stock returns of firms in locations where the majority candidate won with those where the majority candidate lost,

²⁵Standard errors are larger because there are fewer firms in each group; the sample size remains constant because the unit of observation is the constituency.

²⁶The use of stock prices to identify the importance of political factors to firm value was first demonstrated by Roberts (1990) and has been used by Fisman (2001) and Jayachandran (2006). While the latter papers are based on direct relationships between politicians and individual firms (based respectively on family and political contributions), we focus on the inherent relationship between a firm's place of business and the local politician there.

we estimate the value placed by the market on majority representation.²⁷

Columns 1 to 3 of Table 4 report estimates from Equation 3, which identifies the effect of majority status on the share prices of local firms under different fixed effect specifications.²⁸ The election of a majority politician is associated with a positive abnormal return in the range of 9-15% in the month following the election. Columns 4 and 5 are placebo tests, using the cumulative abnormal return in the month before the election as the dependent variable. If election results are truly a surprise, we should identify no effect of election outcomes on pre-election returns. As expected, the coefficients are small and not statistically distinguishable from zero.

Figure 8 shows mean cumulative abnormal returns, sorted by the win or loss margin of the local majority candidate. Returns are visibly higher immediately on the positive side of the threshold.

This result tells us four things: (i) The effects of majority representation on total employment are corroborated by stock market data; (ii) Firms are increasing employment and value, suggesting that the observed employment growth is not value-destroying; (iii) market traders are aware of this effect and price it into stocks; and (iv) the timing of valuation increases matches elections precisely. This last point should alleviate concern over the mismatch between election cycles and rounds of the Economic Census.

5.3 Mechanisms

We next investigate mechanisms by which politician majority status could help or hinder firm growth. Our broad strategy is to partition firms according to what they produce, and

²⁷A single firm's price response to the election of a majority candidate would capture a combination of the economic effect of majority status with the estimated ex ante probability of the majority candidate winning. By comparing price movements of firms in locations that elect majority legislators with those that elect minority legislators, we will capture the full economic effect, as long as we have a sufficient number of firms in locations with close elections.

²⁸The observation count falls as we add sector fixed effects because we were not able to match all NSDL firms to Orbis.

use Seemingly Unrelated Regression to identify the set of firms most dependent on local politicians.²⁹

We created a new set of indices of industry-level characteristics using the World Bank’s Enterprise Surveys, which ask firms in 138 countries a range of questions about the business environment. We focused on the set of questions asking firms about major obstacles to growth, which are listed in Appendix C4. For ease of exposition, consider the survey question about how constrained a firm is by the need for business licenses and operating permits.

Our goal is to isolate variation across industries, holding countries constant. A challenge is that questions are posed on a Likert scale (see Appendix C4 for the precise language) with ordinal categories, but different scales were used in different places and at different times. Even if the same scale were used, questions could have different subjective interpretations in different countries.

We therefore constructed our measure strictly from pairwise comparisons of industries appearing within countries. To do this, we created a dyadic dataset of all pairs of industries within each country, and defined an indicator variable that is 1 if the first industry had a higher mean response than the second, 0 if the second industry had a higher response, and 0.5 if the mean responses were statistically indistinguishable at the 10% level.

Our goal is to assign a score $\lambda_{i,m}$ to each industry, for each characteristic m of the business environment. $\lambda_{i,m}$ is defined such that, if a country is chosen at random, the probability that a random firm from industry 1 will be more constrained on dimension m than a random firm from industry 2 is given by the following relationship:

$$P(m_1 > m_2) = \frac{\exp^{\lambda_{1,m} - \lambda_{2,m}}}{1 + \exp^{\lambda_{1,m} - \lambda_{2,m}}} \quad (6)$$

We use a Maximum Likelihood Estimator to assign $\lambda_{i,m}$ values to each industry to min-

²⁹It would be preferable to use direct firm responses on government-related constraints, but these are rarely available in large scale firm surveys, and not in our data.

imize the joint probability of all the rankings of dyadic pairs that we observe. We assign weights to observations so that each country is weighted equally, and each industry is weighted equally within country.³⁰

Finally, we use these $\lambda_{i,m}$ measures to partition the set of firms into industries that face above- and below-median constraints on dimension m . These partitions identify a set of firms as being more or less constrained by a given common obstacle to doing business, based solely upon what they produce. To limit multiple testing, we focus on constraints that are potentially within the power of local politicians to change (for example, we do not consider the constraint of an inadequately educated workforce), and we join indices into four broad categories using the principal component. The four categories describe the extent to which firms are constrained by: (i) regulation; (ii) taxation and tax administration; (iii) access to credit; and (iv) infrastructure. Appendix C4 shows the correspondence between survey questions and these four indices.

Table 5 reports regression discontinuity estimates of the impact of majority status on employment growth, separately for the two groups of firms partitioned according to each given constraint. Taking Column 1 (constrained by regulation) as an example, Rows 1 and 2 show the treatment effect (β_4) and standard error in the sample of firms in sectors that are report above median regulatory constraints in the international data (Equation 5). Rows 3 and 4 show the treatment effect in sectors that report below median regulatory constraints 4. Rows 5 and 6 describe the difference between these coefficients, estimated with SUR, and are the result of interest: they show whether a sector characteristic makes a firm particularly vulnerable to characteristics of the local politician. The remain columns show estimates for the other three obstacles.

The estimates show that majority representation is most important for sectors that are

³⁰The Enterprise Surveys are representative at only very coarse industrial categories (e.g. manufacturing vs. services, in many cases), so it is not possible to weight by industry size.

constrained by regulation and taxation. Credit constraints and infrastructure do not interact significantly with politician characteristics.

Appendix Table C5 presents additional results along this dimension, showing that we find similar positive effects when we partition firms according to: (i) their presence on lists of highly regulated firms under the License Raj; (ii) effective tax rates in India; (iii) additional questions from the Enterprise survey addressing susceptibility to graft and inconsistent regulation.

Unfortunately, it is difficult to find data that describes implementation of regulation at a very local level. We are limited to a single sector for which we were able to obtain data on license issuance: mining. We digitized data from the Indian Bureau of Mines, which reports dates and locations corresponding to reconnaissance permits, prospecting licenses and mining leases granted by the state governments. Under the Mines and Minerals Development and Regulation Act of 1957, state governments have the authority to grant or refuse such requests.

Table 6 reports estimates of Equation 1 on outcomes related to granted of mining clearances. In columns 1 and 2, the dependent variable is a dummy variable indicating that at least one mining permit was granted in the electoral cycle. In columns 3 and 4, the dependent variable is the log of the total area of permitted mines. The estimates show that mines are both more likely to be permitted, and to be permitted for larger areas, in majority constituencies.³¹

Additional evidence that public goods are not a major driver of our results is presented in Appendix Tables C2 and C3, which show results from estimating Equation 1 on changes in urban and rural public goods between 1991 and 2001. We find no statistically significant effects, though the standard errors on the urban sample leave open the possibility of mod-

³¹The Bureau of Mines does not report application dates or rejected applications, so we cannot test whether applicants time their applications to coincide with majority candidates. If this takes place, these results may be driven by applications rather than State government choices; nevertheless, such an interpretation would suggest that firms expect more support from majority politicians.

erately positive effects. Nevertheless, the null result on firms in infrastructure-constrained sectors is consistent with a lack of finding here. It does not appear that differential investment in public goods is driving the impact of politicians on firms.³²

6 Discussion

Our results support a model where the governing party strategically allocates government services, privileging majority constituencies and limiting services to minority constituencies. The primary mechanism by which this activity affects firm employment and value appears to be the local implementation of regulation and enforcement of tax collection. While the substance of regulatory policy has been widely discussed as an impediment to growth in India, this cannot drive the difference between majority and minority constituencies, which are all subject to the same official rules. Our claim is rather that the same regulatory and tax policies are being implemented differentially within a given state, according to political factors. The non-results we found on local public goods and credit from state banks suggests that either: (i) these goods are not being strategically allocated based on majority status; or (ii) the allocation of these goods does not create a major impediment to firm growth in India.

Our interpretation of our results is consistent with other research on the relationship between Indian politicians and bureaucrats. While governing parties cannot directly hire and fire bureaucrats, it can reassign them to undesirable posts, and many have a reputation for doing so (Iyer and Mani, 2012). It is widely believed that they use this ability to control the behavior of local bureaucrats, though the existing evidence is largely qualitative (Jensenius, 2013)³³.

³²These findings are consistent with other work on India, which finds that citizen mobilization and national political agendas have played the dominant role in determining which regions gained public goods (Banerjee et al., 2005; Banerjee and Somanathan, 2007).

³³Some anecdotal examples of politician control over bureaucrats are described in Chaudury (2009) and

In addition to the License Raj rules, which were lessened but remained relevant during our study period, bureaucrats in India can affect firms through many channels. India's 1947 Industrial Disputes Act, still effective, requires companies above a certain size to seek government permission before firing any workers (Besley and Burgess, 2004). In practice, state legislators and bureaucrats play key roles as mediators in labor conflict in India. In addition to acting as bottlenecks when firms require government inputs, state legislators and bureaucrats have the ability to initiate tax audits and investigations; they can also control the intensity of investigations that have already begun. Less lawfully, police and bureaucrats can also exercise their influence to make life difficult even for firms that are complying with regulations.

Given political control over bureaucrats, and the many dimensions of firm operations that are influenced by bureaucrats, it is perhaps unsurprising that we find this channel to have important effects on growth.

Why should control over regulation be more important than other possible government inputs controlled by the governing party? One possibility, consistent with the discussion above, is that regulation is the most binding constraint on many Indian firms. Our results are consistent with a situation where politicians distort the allocation of many government inputs, but control over regulation has the largest real effects. For example, Cole (2009) and Khwaja and Mian (2005) both find that politically motivated loans have high default rates and limited real effects.

Another possibility is that control over regulation is very easily politicized. The governing party has a set of policy tools at its disposal, but some of them are more costly to implement than others. Public goods are costly to construct, and credit from state banks and direct transfers are inherently constrained by their cost. Control over bureaucrats does not have a

The Hindu (2012). The latter article describes a bureaucrat reassigned dozens of times over a few years after speaking out against corruption.

comparable economic cost. With the implicit threat of reassignment, a bureaucrat may do a politician's will and in equilibrium, little reassignment needs to take place.

Two more factors make unequal enforcement of regulation particularly desirable as a political tool. First, a politician is evaluated in part for his ability to influence local bureaucrats (Jensenius, 2013). By encouraging bureaucrats to be more or less helpful, the coalition party can strongly influence a politician's ability to do exactly what voters expect him or her to do. Second, increasing the enforcement of regulation (even if disproportionately in some places) can give a party the appearance of protecting the public interest, especially in India where suspicion of industry remains high.

Finally, we discuss the possibility that the majority effect is driven primarily by a growth decline in minority constituencies. As discussed above, our methodology cannot distinguish decreased growth in minority places from increased growth in majority places. However, under an assumption that win margin does not affect growth except through the mechanisms described in our model, Figure 6 would suggest that majority status has an asymmetric impact; electing a majority politician has no effect on growth, but narrowly electing a minority politician has deleterious effects.

Several recent papers have evidence that political activity can depress growth. Using a regression discontinuity similar to ours, Brollo and Nannicini (2012) find a similarly-shaped treatment effect and conclude that the governing party systematically punishes non-aligned municipalities. Hsieh et al. (2011) find that the government of Venezuela specifically targeted citizens who revealed themselves to be opposed to the government, and that these citizens were made more poor as a result.

This finding in our context fits well with our hypothesis about the mechanism of regulatory enforcement. The model predicts that the ruling party gets equal benefit from increasing government inputs to majority locations and decreasing inputs to minority locations. Regulation is plausibly a tool with an asymmetric effect: stricter enforcement of red tape can

immediately halt economic activity, while more lenient enforcement may not have the same effect on increasing economic activity. Consider a simple model in which a firm needs to pass multiple bureaucratic processes in order to operate. A barrier to any of these processes will halt firm operation. Removal of barriers requires more coordination, as all constraints must be loosened before the firm can grow. Even if politicians put equal effort into tightening regulation in minority constituencies and loosening regulation in majority constituencies, the economic effects may be greater in the areas where regulation is tightened. It remains possible that politicians behave asymmetrically toward majority and minority places: Iyer and Mani (2012) finds that bureaucrats receive more post-election reassignments in minority constituencies.

7 Conclusion

Firms in developing countries rely heavily on government-provided inputs, access to which often depends on local politicians and bureaucrats. This paper draws on highly localized firm-level employment data to show that politician identity significantly affects firm growth in India, and that variation in the enforcement of regulation appears to be the channel with the greatest real impacts.

Exploiting exogenous variation in politician identity induced by close elections, we show that representation by a politician in the majority party at the state level strongly predicts increased private sector employment growth in the range of a percentage point per year. In the month following elections, firms headquartered in majority constituencies experience a 9-15% cumulative abnormal return, providing further evidence that majority status is valuable to firms.

The industries most affected by majority status are those with a high dependence on local bureaucrats. Regulatory policy is held constant, but the evidence suggests that the majority

party can control how regulation is enforced across space, giving the party significant control over local firms. Political control over bureaucrats through threat of reassignment, widely discussed in the literature on India, is a likely channel.

The evidence supports a model of rational politicians who politicize the most expedient policy tools at their disposal. Regulatory discretion is a relatively low cost tool; in equilibrium, bureaucrats will be pliable even if no transfers take place. One major difference between the Indian context and that of studies that have found significant political effects on public infrastructure and public employment where we find none (e.g. Albouy (2009), Cohen et al. (2011), and Ferraz and Monteiro (2010)) could be that India's highly regulated economy gives Indian politicians a very cheap policy tool that is less easily manipulated in other countries.

Our empirical design cannot identify whether the majority effect is distortionary in the aggregate. While visual inspection of Figure 6 suggests that potential jobs are being destroyed in places narrowly lost by the majority party, it is difficult to determine whether these jobs are disappearing from the economy or shifting to other locations. However, the mechanism at play may be informative. Public infrastructure is ultimately subject to a budget constraint; the construction of a road in one location may preclude its construction in another. The intensity of regulatory enforcement is less likely to be budget-constrained. If bureaucrats in some places raise the level of enforcement or harassment, this need not imply that enforcement in other locations is decreasing.³⁴

India is well-known for its history of onerous regulation and barriers to doing business. While the high costs of adhering to regulation for Indian firms have been widely discussed, this paper sheds light on an additional cost of the regulatory state: if political control over

³⁴This said, if the equilibrium value of regulation is too low, increases in regulation could be good for citizen welfare, even if they have a negative effect on employment. It is also possible that the party is increasing regulatory enforcement through assignment of stricter bureaucrats, in which case other locations might indeed experience less enforcement.

regulatory enforcement is cheap, politicians may create additional distortions in pursuit of their electoral interests. This in turn provides one possible explanation for the persistence of high regulation in India: public officials may be reluctant to give up on a tool that affords them a low cost way to influence voters.

Table 1
Summary Statistics

Variable	Majority constituencies	Minority constituencies	t-stat on difference	RD estimate	t-stat on RD estimate
Baseline employment	12547	12894	-0.58	457	0.44
Baseline public sector employment	2107	2187	-0.49	181	0.48
Number of establishments	5313	5373	-0.24	218	0.64
Mean firm size	2.36	2.35	0.08	0.01	0.10
Baseline population	162430	177099	-1.68	6374	1.12
Urban population share	0.25	0.24	0.20	0.03	0.62
Share of villages with tar access road	0.59	0.61	-0.65	-0.00	-0.14
Share of villages with power supply	0.85	0.84	0.28	0.03	1.68
Rural primary schools per village	0.87	0.86	0.91	0.00	0.02
Share of land that is irrigated	0.20	0.13	2.84	0.02	0.93
Urban tar roads (km)	13.41	13.01	0.28	2.91	0.62
Urban electricity connections	3214	2958	0.57	1036	0.74
Urban primary schools	8.81	9.62	-0.81	1.59	0.70

The table presents mean values for all variables used, measured in the baseline period. The baseline period is 1990 for employment variables, and 1991 for other variables. Column 1 shows means for constituencies that eventually elect majority candidates, while Column 2 shows means for constituencies that elect minority candidates. Column 3 shows the t statistic for the difference of means across columns 1 and 2. Column 4 shows the kernel regression discontinuity estimate of the effect of majority status on the baseline variable, and column 5 is the t statistic for this last estimate.

Table 2
Effect of majority status on log employment growth

	1	2	3	4	5	6
Majority	0.014 (0.005)**	0.014 (0.004)***	0.014 (0.004)***	0.014 (0.004)***	0.010 (0.004)**	0.008 (0.004)**
Margin of victory	-0.151 (0.164)	-0.118 (0.157)	-0.139 (0.155)	-0.149 (0.152)	-0.127 (0.045)***	-0.093 (0.035)**
Margin * Majority	0.122 (0.213)	0.009 (0.225)	0.021 (0.228)	0.037 (0.216)	0.114 (0.050)**	0.069 (0.046)
Baseline		-0.021 (0.004)***	-0.020 (0.004)***	-0.021 (0.004)***		-0.017 (0.002)***
Constant	0.028 (0.004)***	0.233 (0.037)***	0.206 (0.042)***	0.228 (0.038)***	0.025 (0.009)***	0.170 (0.024)***
N	768	768	742	768	3712	3712
r ²	0.12	0.22	0.22	0.22	0.07	0.18

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows regression discontinuity estimates of the effect of majority representation on annualized constituency log employment growth from 1990-98 and 1998-2005. Columns 1-4 present triangular kernel-weighted local linear estimates (Equation 1), and columns 5-6 present full sample polynomial estimates (Equation 2). All columns include state fixed effects. Column 2 and 6 add lagged constituency controls, and column 3 adds town and village characteristics, not available for all observations. In Column 4, observations are weighted by baseline employment. Standard errors are clustered at the state-election level.

Table 3

Effect of majority status on log employment growth: Private sector vs. public sector

	Public	Public	Private	Private
Majority	0.003 (0.011)	0.006 (0.009)	0.014 (0.006)**	0.014 (0.005)***
Margin of victory	-0.021 (0.299)	0.031 (0.241)	-0.139 (0.169)	-0.104 (0.163)
Margin * Majority	0.338 (0.519)	0.067 (0.406)	0.119 (0.211)	-0.007 (0.230)
Baseline Public		-0.047 (0.012)***		
Baseline Private				-0.022 (0.004)***
Constant	0.023 (0.007)***	0.373 (0.102)***	0.030 (0.004)***	0.248 (0.034)***
N	768	768	768	768
r2	0.17	0.34	0.11	0.21

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows kernel regression discontinuity estimates of the effect of majority representation on constituency log employment growth from 1990-98 and 1998-2005. The dependent variable in columns 1-2 is log employment growth in public sector firms. The dependent variable in columns 3-4 is log employment in private sector firms. Standard errors are clustered at the state-election level. The difference between private and public point estimates is not statistically significant at the 10% level.

Table 4
Effect of majority status on post-election stock returns

	CAR			CAR (placebo)	
	1	2	3	4	5
Majority	0.091 (0.045)**	0.155 (0.063)**	0.102 (0.052)*	0.023 (0.033)	-0.026 (0.037)
Margin of Victory	-1.416 (1.623)	-2.714 (2.087)	-3.081 (1.667)*	0.426 (1.238)	0.444 (1.493)
Margin * Majority	0.431 (2.192)	1.003 (2.657)	2.684 (1.951)	-0.414 (1.938)	0.739 (2.277)
Constant	0.285 (0.178)	0.311 (0.160)*	-0.028 (0.108)	0.356 (0.070)***	0.251 (0.103)**
State Fixed Effects	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effects	No	Yes	Yes	No	No
Year Fixed Effects	No	No	Yes	No	No
N	1178	874	874	1219	1161
r ²	0.08	0.21	0.33	0.07	0.05

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows regression estimates of cumulative abnormal returns of publicly traded firms in the month following election. The independent variable *Majority* indicates that the winner of the constituency where the firm's headquarters are located is a member of the state-level governing coalition. Returns are measured against a market model with a value-weighted index of Indian securities representing the market, controlling for individual stock betas. Columns 1 to 3 present different fixed effect specifications. The final two columns are placebo tests, where the dependent variable is the cumulative abnormal return in the month before (Column 4) and two months before (Column 5) the election. All standard errors are clustered at the state-election level.

Table 5
 Effect of majority status on log employment growth, interacted with industries' reported obstacles
 to doing business

	Regulation	Taxes	Credit	Infrastructure
High	0.014	0.020	0.007	0.013
	0.005***	0.005***	0.005	0.006**
Low	-0.004	0.005	0.009	0.008
	0.007	0.005	0.006	0.005*
Diff	0.018	0.015	-0.002	0.004
	0.007**	0.007**	0.008	0.007

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table reports kernel regression discontinuity estimates of the effect of majority status on annualized log employment growth, in subsets of firms defined by industry-level dependence on certain government inputs. Rows 1 and 2 show treatment effects from Equation 5 on firms in industries that report facing major obstacles related to (column 1) business regulation and licensing; (column 2) taxes and tax administration; (column 3) access to credit; and (column 4) electricity and transportation infrastructure. Rows 3 and 4 show results for firms in sectors report below-median obstacles in these areas. Rows 5 and 6 report Seemingly Unrelated Regression estimates of the difference in treatment coefficients across these two partitions of firms. A positive coefficient in Row 5 indicates that majority representation is disproportionately beneficial to firms that face a certain kind of obstacle to growth. Standard errors are clustered at the state-election level.

Table 6

Effect of majority status on granting of clearances for mining activities

Dependent Variable	Permit Dummy		Log Area	
	(1)	(2)	(3)	(4)
Majority	0.062 (0.030)*	0.064 (0.026)**	0.332 (0.155)*	0.311 (0.119)**
Margin of Victory	-0.509 (0.592)	-0.171 (0.594)	-3.482 (2.794)	-2.177 (1.462)
Majority * Margin	0.252 (0.984)	1.251 (0.729)	2.154 (4.082)	6.084 (3.718)
BJP Representative		-0.018 (0.042)		0.029 (0.159)
Congress Representative		0.042 (0.038)		0.162 (0.147)
Constant	0.102 (0.055)	-0.053 (0.023)*	0.364 (0.198)	-0.249 (0.097)**
State-Election Fixed Effects	No	Yes	No	Yes
N	348	348	348	348
r ²	0.00	0.22	0.01	0.18

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows kernel regression discontinuity estimates of the effect of majority representation on outcomes related to mining permits. In Columns 1 and 2, the dependent variable is an indicator variable that takes the value 1 if a reconnaissance permit, prospecting license or mining lease was granted in the constituency during the given electoral cycle. In Columns 3 and 4, the dependent variable is the log total area of licenses and leases granted. Standard errors are clustered at the state-election level.

Figure 1
Sample selection

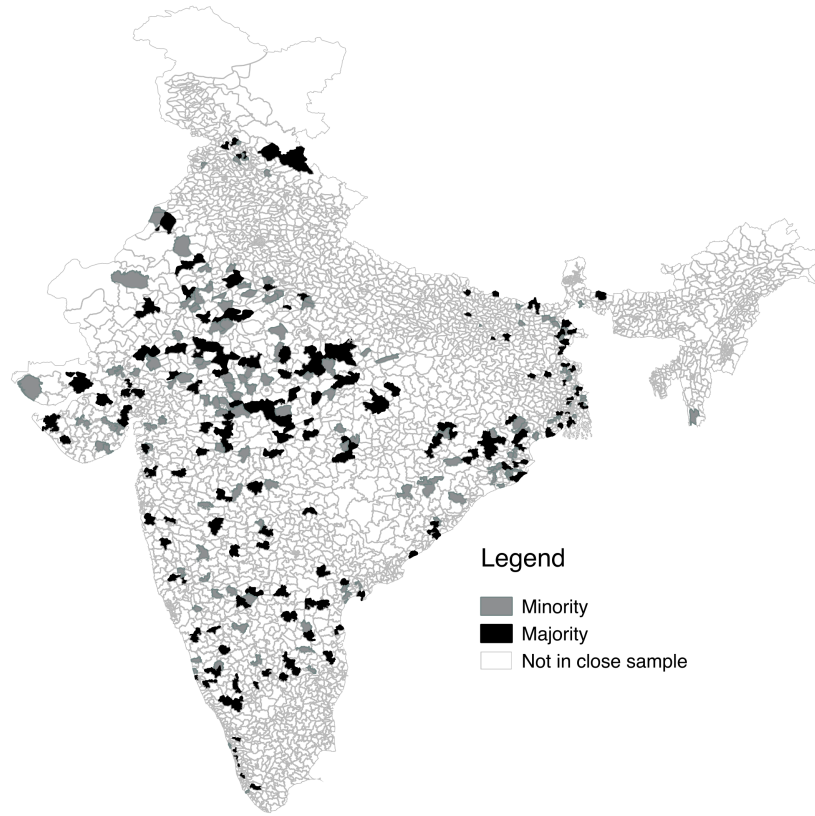
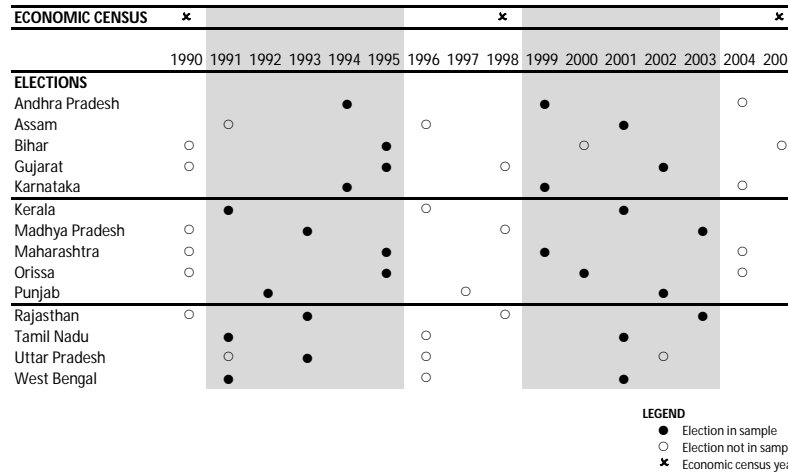
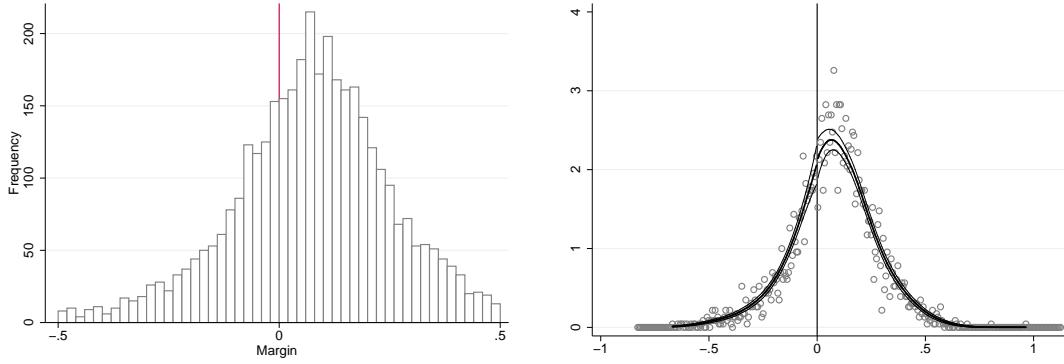


Figure 2
Matching electoral variables to Economic Census rounds



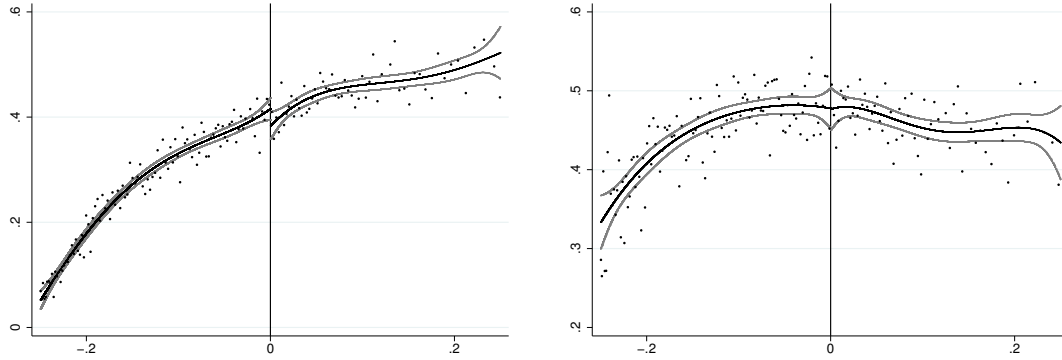
The figure shows the period of years used for construction of variables used from census and electoral data. The economic census was undertaken in 1990, 1998 and 2005. Elections happen at five-year intervals, with dates staggered across states. We explore changes in census values from 1990-98 and from 1998-2005. We match the first election in each state that occurred after the baseline observation period. We exclude elections in Uttar Pradesh in 1991 and 2002 because governments were very short lived. We exclude Assam 1991 because the dominant party was unregistered and ran as independents, making it impossible to code majority status. We exclude Bihar in 2000, because of the large number of post-election coalition changes.

Figure 3
Distribution of Running Variable (Win Margin)



The figure shows the distribution of electoral win margin, defined as vote share of the best performing majority candidate minus the vote share of the best performing minority candidate. The left panel is a histogram of this margin across sample elections from 1990-2003, which we use in the main specification. The right panel plots a non-parametric regression to the left- and right-hand sides of the same data following (McCrary, 2008), testing for a discontinuity at zero. The McCrary point estimate for the discontinuity at zero is 0.02, with a standard error of 0.09.

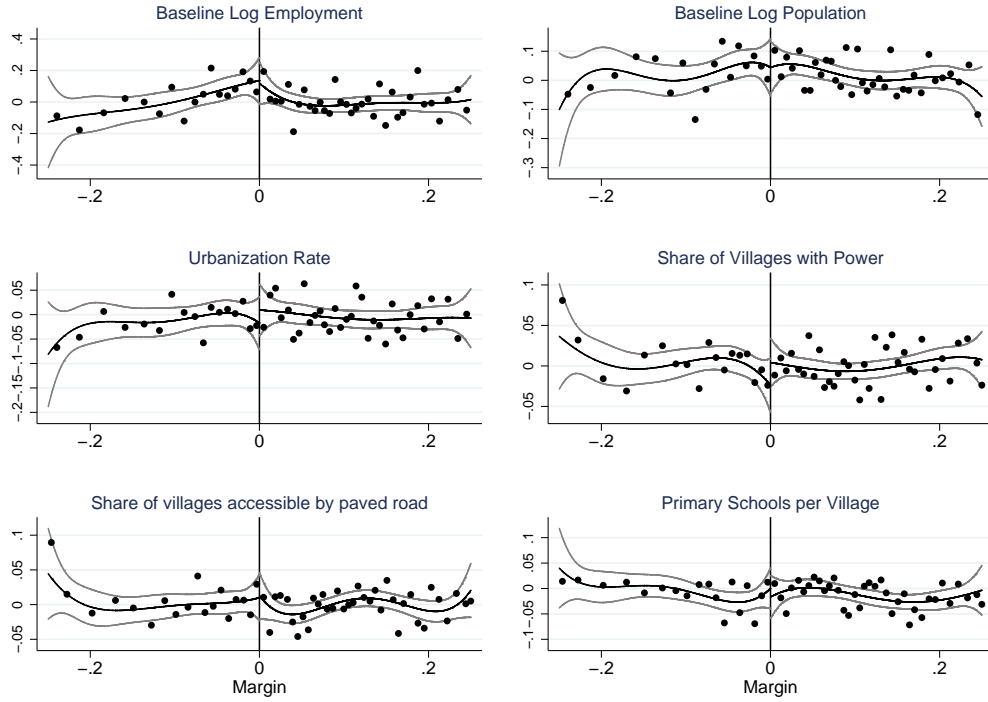
Figure 4
Mean structural advantage of candidates and margin of victory/loss



The figure plots the conditional expectation function of the share of candidates with a potential electoral structural advantage (as defined in Grimmer et al. (2012)), against their margin of victory or loss. In both panels, margin of victory is defined as the vote share of the local winner minus the 2nd place candidate. Within each percentage point sized bin, the point indicates the share of candidates with that result who were (left panel) incumbents or (right panel) members of the majority party. The sample is all candidates who ran for a legislative seat between 1990 and 2005. If incumbents or majority party members have structural advantages in close elections, these shares should be discontinuously higher to the right of zero.

Figure 5

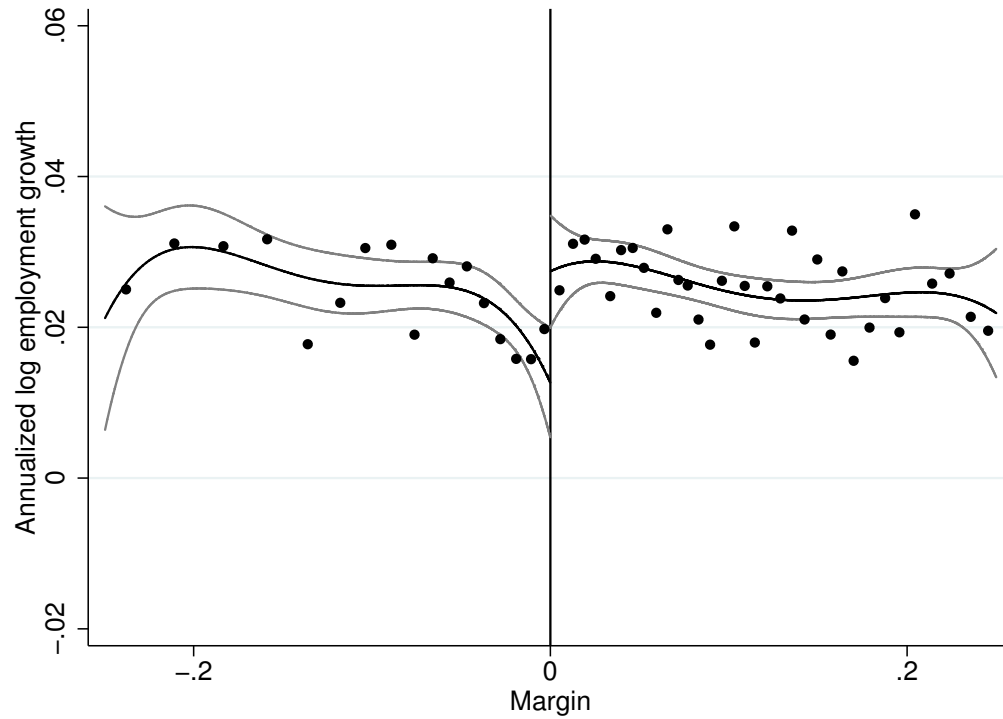
Balance tests: Baseline variables vs. majority win margin



The figures plot the conditional expectation function of baseline constituency characteristics, conditioning on the win margin of the majority candidate. Points to the right of zero are seats won by ruling parties, while points to the left of zero are seats lost by ruling parties. Each point represents approximately fifty observations. A 4th degree polynomial function is fitted separately to each side of 0, with 95% confidence intervals displayed.

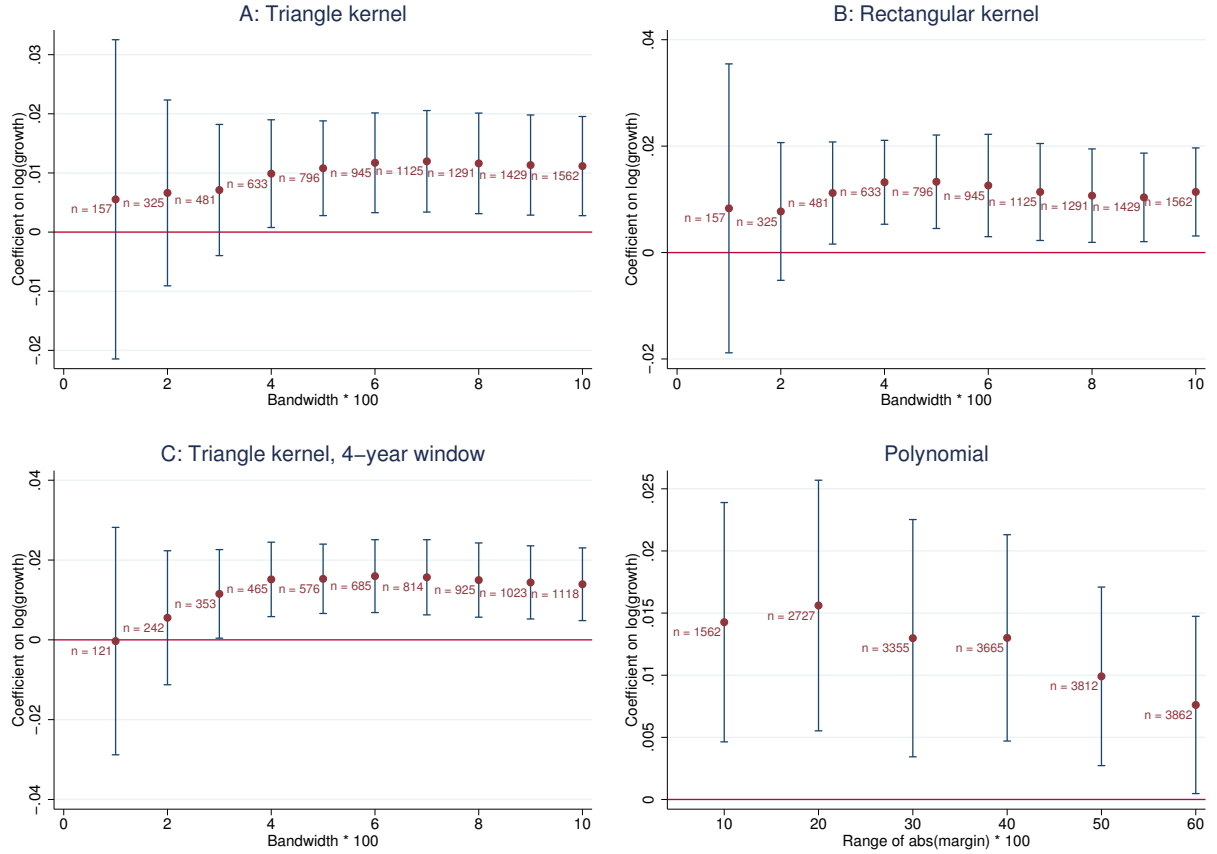
Figure 6

Log employment growth vs. win margin of governing party candidate



The figure plots the conditional expectation function of the mean of log employment growth, conditioning on the win margin of the majority candidate. Points to the right of zero indicate growth in locations won by the governing party candidate, while points to the left of zero indicate growth in locations lost by the governing party candidate. There are approximately fifty observations in each bin. A 4th degree polynomial function is fitted separately to each side of 0, and 95% confidence intervals are displayed.

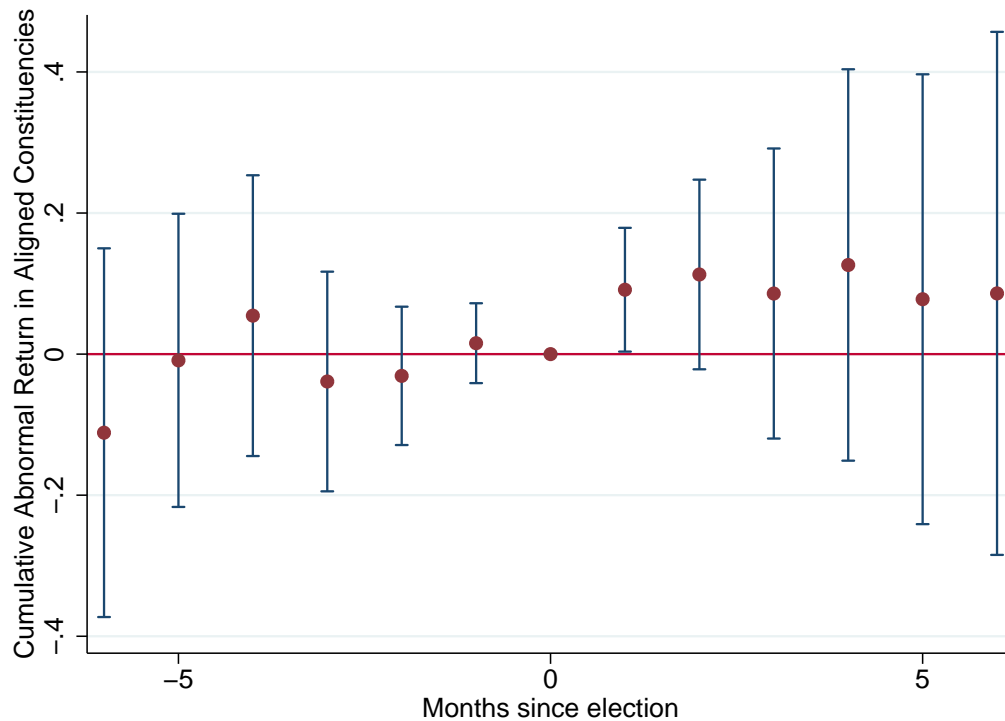
Figure 7
Robustness of employment effect to alternate specifications



Panel A shows the treatment effect of equation 1 with bandwidths from 1-10% of vote share. Panel B shows the same information using a rectangular kernel in place of the triangular kernel in Panel A. In Panel C, the sample is limited to a 4-year window of elections instead of the 5-year window used in Table 2 and Panel A. Panel D shows the effect of limiting the range of the running variable when running the polynomial regression discontinuity specification of equation 2.

Figure 8

Effect of majority status on monthly abnormal returns near time of election



The figure shows point estimates and 95% confidence intervals from a firm-level regressions of market-adjusted monthly cumulative abnormal return (CAR) on the majority status of the constituency in which the firm is headquartered. Regressions include state fixed effects and controls for major parties, and standard errors are clustered at the state-election level. The figure shows CARs in the months leading up to the election of a majority candidate below zero on the X axis, and CARs in the months after the election of a majority candidate above zero on the X axis.

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A Appendix: model

There are two parties, A and B , with respective policies on a one-dimensional continuum, X_A and X_B . Without loss of generality, let A be the majority party. The majority party allocates a fixed amount of government resources across K constituencies, assigning γ_k to constituency k , subject to the budget constraint $\sum_{k=1}^K \gamma_k = 1$.

Each constituency has two politicians, characterized by an inherent ability $\theta_{i,k}$ where $\theta \in [0, 1]$, $\mathbb{E}(\theta) = 0.5$ and $i \in \{A, B\}$. This represents the politician's ability to bring useful government inputs to his constituency. After allocations have been decided by the central party, the value of government inputs received by voters in constituency k is equal to $\gamma_k \cdot \theta_{I,k}$, where I represents the incumbent politician in constituency k . A low ability candidate dissipates the value of government inputs; this could be because he allows them to be stolen, or because he obtains inputs that are not useful to his constituency. All candidates are committed to the policy position of their party.

Voter j in constituency k is characterized by a policy position $X_{j,k}$. Voter j 's expected utility from electing candidate i is linear in candidate quality and convex in the candidate's distance from the voter's optimal policy:

$$U_{j,k,i} = (X_i - X_{j,k})^2 + \hat{\theta}_{i,k},$$

where $\hat{\theta}_{i,k}$ is the voter's perception of the ability of candidate i in constituency k .

Taking a probabilistic voting approach, the probability that candidate A is elected is given by:

$$P(A \text{ wins}) = \Phi \left(- (X_A - X_{M,k})^2 + (X_B - X_{M,k})^2 + \hat{\theta}_{A,k} - \hat{\theta}_{B,k} \right),$$

where $\Phi()$ is the normal c.d.f. and $X_{M,k}$ is the optimal policy of the median voter in

constituency k . Candidate ability affects success only if the median voter does not have strong preferences for either party position.

Voters cannot observe a candidate's θ ; they can only see $\gamma \cdot \theta$, which is the final value of government inputs received. Voters discount their observation of government inputs received by their prediction $\hat{\gamma}_k$ of how much the governing party has chosen to favor their constituency:

$$\hat{\theta}_{I,k} = \frac{\gamma_k \cdot \theta_{I,k}}{\hat{\gamma}_k}.$$

The party seeks to maximize the probability of re-election, paying a convex cost of deviating from equal provision of inputs to all constituencies.³⁵ The party's optimization problem is as follows (assuming A controls the government):

$$\max_{\{\gamma_1, \gamma_2, \dots, \gamma_K\}} \sum_{k=1}^K \gamma_k^\alpha + P(\text{A wins} | \gamma_k, X_{M,k}, \hat{\theta}_{A,k}, \hat{\theta}_{B,k}),$$

where $0 < \alpha < 1$, and

$$P(\text{A wins} | \gamma_k, X_{M,k}, \hat{\theta}_{A,k}, \hat{\theta}_{B,k}) = \Phi \left((X_B - X_{M,k})^2 - (X_A - X_{M,k})^2 + \hat{\theta}_{A,k}(\gamma_k) - \hat{\theta}_{B,k}(\gamma_k) \right).$$

Voters estimate candidate ability as:

$$\hat{\theta}_{i,k}(\gamma_k) = \begin{cases} \frac{\theta_{i,k} \cdot \gamma_k}{\hat{\gamma}_k} & \text{if } i \text{ is the incumbent} \\ \mathbb{E}(\theta) & \text{if } i \text{ is not the incumbent} \end{cases}.$$

Denote the median voter's preference for policy A over policy B as:

$$\eta_k = (X_B - X_{M,k})^2 - (X_A - X_{M,k})^2$$

³⁵This cost could reflect a preference for citizen welfare, a political cost of appearing to engage in patronage, or simply an administrative cost of distorting the allocation of inputs from the status quo.

The first order condition defines the relationship between the supply of government inputs across two constituencies:

$$\alpha\gamma_k^{*\alpha-1} + \phi\left(\eta_k + \hat{\theta}_{A,k} - \hat{\theta}_{B,k}\right) \left(\frac{\partial\hat{\theta}_{A,k}}{\partial\gamma_k} - \frac{\partial\hat{\theta}_{B,k}}{\partial\gamma_k}\right) = \alpha\gamma_l^{*\alpha-1} + \phi\left(\eta_l + \hat{\theta}_{A,l} - \hat{\theta}_{B,l}\right) \left(\frac{\partial\hat{\theta}_{A,l}}{\partial\gamma_l} - \frac{\partial\hat{\theta}_{B,l}}{\partial\gamma_l}\right).$$

The first term indicates the cost of deviating from equal provision. The density function ϕ indicates the marginal electoral return from getting more votes in constituency k : if $|\eta_k|$ is large, then $\phi = 0$ and the party cannot affect the outcome in this location. The same quantity of inputs will therefore be provided to all non-swing constituencies.

The final term indicates the party's ability to shift voters' perceptions of the quality difference between the candidates. This depends on incumbency, as government spending does not affect perceptions of the non-incumbent candidate:

$$\left(\frac{\partial\hat{\theta}_{A,k}}{\partial\gamma_k} - \frac{\partial\hat{\theta}_{B,k}}{\partial\gamma_k}\right) = \begin{cases} \frac{\theta_{A,k}}{\hat{\gamma}_k} & \text{if A is the incumbent} \\ -\frac{\theta_{B,k}}{\hat{\gamma}_k} & \text{if B is the incumbent} \end{cases}$$

Comparing two majority constituencies, we get the expression:

$$\alpha\gamma_k^{*\alpha-1} + \phi_k(\cdot) \left(\frac{\theta_{A,k}}{\hat{\gamma}_k}\right) = \alpha\gamma_l^{*\alpha-1} + \phi_k(\cdot) \left(\frac{\theta_{A,l}}{\hat{\gamma}_l}\right),$$

that the candidate in a closer election (indicated by a larger value of $\phi_k(\cdot)$) will receive more resources. Conversely, comparing two minority constituencies, the sign on the $\frac{\theta}{\gamma_k}$ changes, and the candidate in the closer election will receive fewer resources.³⁶

³⁶Another implication of the model which we do not exploit is that if the party can observe ability, then higher ability majority candidates will receive more resources, as the higher θ makes those resources more visible to voters. Conversely, high ability minority candidates receive fewer resources for the same reason.

Comparing a majority and a minority constituency, we find:

$$\alpha \gamma_k^{*\alpha-1} + \phi(\cdot) \left(\frac{\theta_{A,k}}{\hat{\gamma}_k} \right) = \alpha \gamma_l^{*\alpha-1} + \phi(\cdot) \left(-\frac{\theta_{B,l}}{\hat{\gamma}_l} \right).$$

The majority constituency will receive more spending than the minority constituency, but only if one of the two elections is close. The differential is highest if elections are close in both constituencies.

Note that the voters in this model are fully rational, and they understand that the party is trying to influence their perceptions of local candidates. In equilibrium, $\hat{\gamma}_k = \gamma_k^*$. In words, voters expect electoral strategy to affect the distribution of government resources (consistent with our results on stock prices), and so they discount the signal received in swing constituencies. But this discounting does not obviate the need for strategic spending - if the party delivers a non-distorted amount of resources to a constituency that voters expect to be favored, then voters' perceptions of the candidate there will be biased downward. This result is analogous to the idea that firms may manipulate their earnings reports upwards in equilibrium even if investors are aware that manipulation is taking place.

The model can be generalized to any kind of cost function for deviating from equal provision of government inputs across constituencies. In the limit where the party can costlessly reallocate inputs, the party would dedicate zero inputs to minority constituencies, but continue to give the most inputs to narrowly won majority constituencies.

B Appendix: Coalitions and multiple candidates

This section describes how we extend the 2-party empirical strategy in section 4 to a situation with more than two parties and coalitions which may change after election results are revealed.

Assume that candidates from N parties contest the election in a given constituency, one of whom is a member of the majority party. *margin* is now defined as the scaled vote distance from the majority candidate to the minority candidate with the highest number of votes:

$$margin_{cst} = \frac{v_{cst}^a - v_{cst}^{maxn}}{v_{cst}^{tot}},$$

where v_{cst}^{maxn} is the vote share of the minority candidate with the highest number of votes. *margin* can now be interpreted as the share of votes that would need to be changed to turn a majority constituency into a minority constituency, or vice versa. As before, *margin* is positive for majority constituencies, negative for minority constituencies, and elections are closest when $|margin|$ is small.

The formation of coalitions presents a potential source of bias to our identification strategy. Coalitions may be formed before or after an election. If a coalition forms after an election, it is possible that unobserved characteristics of a successful candidate may affect both her likelihood of joining the governing coalition, and economic outcomes in her constituency. For example, if small parties with high ability candidates are more likely to join governing coalitions, Equation 1 could overestimate the majority effect.

To eliminate this bias, we define coalitions of parties strictly on the basis of information that was known before an election takes place. In many cases, alliances of parties are announced in advance; when possible, we define coalitions according to this information, which we collected from news reports. We then treat coalitions of parties as a single party. When we are unable to find information on coalitions before the election, we predict party

alliances on the basis of the previous election in the same state.

In cases where coalitions have shifted during the electoral cycle, this method may incorrectly label coalition parties as non-coalition and vice versa. This contaminates the RD design, biasing our estimates toward zero. The bias is most likely small: we accurately predict candidate majority status in 93% of cases.

C Appendix: Additional figures and tables

Table C1

Placebo regression discontinuity estimates at sample quartiles

	1	2	3	4
Majority	0.002 (0.008)	-0.002 (0.006)	-0.011 (0.007)	-0.005 (0.006)
Margin of victory	-0.103 (0.212)	0.047 (0.148)	-0.072 (0.157)	-0.065 (0.155)
Margin * Majority	0.519 (0.339)	0.334 (0.284)	0.210 (0.330)	0.069 (0.319)
Baseline		-0.021 (0.006)***		-0.017 (0.005)***
Constant	0.033 (0.006)***	0.211 (0.058)***	0.027 (0.002)***	0.153 (0.054)**
Placebo	Low	Low	High	High
Controls	No	Yes	No	Yes
N	478	478	471	471
r2	0.12	0.26	0.13	0.28

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows placebo kernel regression discontinuity estimates of Equation 2. Columns 1 and 2 estimate a discontinuity at the median margin below zero, and columns 3 and 4 estimate a discontinuity at the median margin above zero. Columns 1 and 3 estimate local linear regressions with state and year fixed effects. Columns 2 and 4 add lagged constituency controls. Standard errors are clustered at the state-election level.

Table C2

Effect of majority representation on rural public infrastructure

	Roads	Power	Schools	Irrigation
Majority	0.004 (0.018)	0.011 (0.012)	0.024 (0.021)	-0.002 (0.019)
Margin of Victory	-0.250 (0.745)	-0.274 (0.432)	0.120 (0.590)	-1.236 (1.075)
Majority * Margin	-0.290 (0.849)	-0.093 (0.574)	-0.868 (0.896)	1.049 (1.415)
Constant	0.741 (0.122)***	0.497 (0.083)***	0.379 (0.090)***	-0.098 (0.171)
N	453	453	455	440
r ²	0.82	0.85	0.61	0.60

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows kernel regression discontinuity estimates of the effect of majority representation on changes in the levels of local rural public infrastructure. The dependent variables have been normalized by the baseline level, so the coefficients can be interpreted as standard deviations. The dependent variables represent the: (1) share of villages with a paved access road; (2) share of villages with an electricity connection; (3) share of villages with a primary school; and (4) share of village land that is irrigated. All regressions are run at the constituency level, with data aggregated from individual villages. The data sources are the 1991 and 2001 Population Censuses. All regressions include state-election fixed effects. Standard errors are clustered at the state-election level.

Table C3
Effect of majority representation on urban public infrastructure

	Roads	Power	Primary Schools	Secondary Schools	Hospitals
Majority	0.080 (0.156)	0.084 (0.110)	0.004 (0.130)	-0.024 (0.049)	-0.094 (0.220)
Margin of Victory	0.135 (3.963)	8.295 (3.000)**	-0.572 (2.283)	-0.906 (1.918)	1.417 (4.453)
Majority * Margin	-3.942 (5.623)	-16.985 (5.353)***	1.616 (3.749)	3.508 (3.406)	0.704 (5.063)
Constant	1.219 (0.519)**	5.777 (0.695)***	2.026 (0.406)***	2.401 (0.475)***	1.066 (0.373)**
N	241	263	293	236	211
r ²	0.75	0.78	0.82	0.82	0.55

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table shows kernel regression discontinuity estimates of the effect of politician majority status on changes in the levels of local urban public infrastructure. The dependent variables have been normalized by the baseline level, so the coefficients can be interpreted as standard deviations. The dependent variables represent the following: (1) km of paved urban roads; (2) number of urban electrical connections; (3) number of primary schools; (4) number of secondary schools; and (5) number of hospitals. All regressions are run at the constituency level, with data aggregated from individual towns. The data sources are the 1991 and 2001 Population Censuses. All regressions include state-election fixed effects. Standard errors are clustered at the state-election level.

Table C4
List of industry constraints surveyed in Enterprise Surveys

Question	Indicator
Access to Finance	Credit
Access to Land	
Licenses and Permits	Regulation
Corruption	Regulation
Courts	
Crime, Theft and Disorder	
Customs and Trade Regulations	Regulation
Electricity	Infrastructure
Inadequately Educated Workforce	
Labor Regulations	Regulation
Political Instability	
Practices Of The Informal Sector	
Tax Administration	Taxes
Tax Rates	Taxes
Transportation	Infrastructure
The table lists the full set of constraints asked about in the World Bank Enterprise Surveys. The second column lists the index into which a given question had a weight. All questions are phrased as follows: Is _____ No Obstacle, a Minor Obstacle, a Moderate Obstacle, or a Very Severe Obstacle to the current operations of this establishment?	

Table C5

Effect of majority status on log employment growth, interacted with additional industry characteristics

	Regulated (1985)	Regulated (1991)	Tax rate	Incidence of Graft Index	Inconsistent Regulation
High	0.021 0.007***	0.020 0.017	0.021 0.006***	0.017 0.005***	0.017 0.005***
Low	0.005 0.005	0.008 0.005	0.002 0.005	0.006 0.006	-0.010 0.005**
Diff	0.017 0.009*	0.012 0.018	0.020 0.007***	0.011 0.007*	0.027 0.008***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The table reports kernel regression discontinuity estimates of the effect of politician majority status on annualized log employment growth, in subsets of firms defined by industry-level dependence on certain government inputs. Rows 1 and 2 show treatment effects from Equation 5 on firms in industries that (column 1) were licensed (regulated) in 1985 ; (column 2) licensed in 1991; (column 3) face above median taxes; (column 4) score highly on the World Bank Incidence of Graft Index; and (column 5) report that regulation in their sector is not consistently enforced. Rows 3 and 4 show results for the complementary set of firms, those that have below-median values in these dimensions of government dependence. Rows 5 and 6 report Seemingly Unrelated Regression estimates of the difference in treatment coefficients across these two partitions of firms. A positive coefficient in Row 5 indicates that majority representation is disproportionately beneficial to firms that face a certain kind of obstacle to growth. Standard errors are clustered at the state-election level.