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Voting for development? Ruling coalitions and literacy in India

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ABSTRACT

Across the world, governments skew the distribution of state resources for political gain. But does such politicisation of resource allocation affect development trajectories in the long run? We focus on the long-term effects of voting for the ruling coalition on primary education in India. Using a close-election instrumental variable design and drawing on a new socio-economic dataset of India's state assembly constituencies in 1971 and 2001, we examine whether areas represented by members of ruling coalitions experienced greater increases in literacy over 30 years. We find no evidence of this being the case, in the overall data or in relevant sub-samples. The null results are precisely estimated, and are consistent across OLS and 2SLS specifications and several robustness checks. These findings suggest the politicised distribution of some funds in the short run does not affect long-term development trajectories.

1. Introduction

Politicians in democracies face electoral incentives to asymmetrically distribute state resources for political gain. Evidence from across the world has found that areas or groups that support ruling parties tend to be rewarded with government largesse (e.g., Ansolabehere and Snyder, 2006; Boex and Martinez-Vazquez, 2005; Brollo and Nannicini, 2012; Khemani, 2010a; Kramon and Posner, 2013; Tavits, 2009). But does the partisan distribution of resources also affect overall development trajectories in the long run?

Endogeneity concerns and data scarcity have made it difficult to study the effects of alignment on long-term development outcomes. The endogeneity problem stems from the fact that under conditions of at least some retrospective voting, development outcomes will affect political outcomes in addition to political outcomes affecting development patterns. This circularity makes it difficult to recover the causal effect of political power on development. This problem is compounded by a host of data challenges, including that few development indicators can be traced reliably over a long period, that states collect development data for administrative units that often do not match political units, and that the borders of both administrative and political units often change, making it hard to examine the associations between elections and development over time.

We address these challenges in the context of India, by examining whether state-level electoral districts (referred to as assembly constituencies or ACs) whose representatives are in the state governing coalition experience greater improvements in literacy over 30 years. To do so, we build a new dataset of literacy and demographic variables for the more than 3,000 state assembly constituencies in India's 15 largest states in 1971 and 2001.[1] To our knowledge, this is the first dataset that includes development outcomes at the AC level in India over a long period. We merge these data with electoral returns data for each constituency, as well as with data on state-level governing coalitions. This dataset allows us to examine the effects of political alignment on development patterns over 30 years. Our constituency-level analysis enables us to hold a number of institutional and cultural factors constant, and has the statistical power with which to detect even small effects of politics on literacy.

To address the possibility of reverse causality we use a close-election instrumental variable design, which leverages the fact that winning or losing in close elections in India is quasi-random (see Eggers et al., 2015).[2] We use the proportion of time that a constituency was won by a

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[1] These data are supplemented with data on a broader array of development outcomes for the period 1991 to 2001.

[2] Note that Eggers et al. (2015) show that the results of India's close elections are quasi-random, despite the concerns raised by Grimmer et al. (2011) and Caughey and Sekhon (2011) that close elections in the USA can not be considered quasi-random.

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member of the ruling coalition *in close elections* as an instrument for the total proportion of time the constituency was won by members of the ruling coalition. This is a strong instrument that allows us to study the causal impact of being politically represented by members of the ruling coalition in the state, while addressing the possibility of reverse causality. A similar, though not identical, research design has previously been used by Rehavi (2007) and Clots-Figueras (2012).

India is an important case for studying the link between political power and long-term development trends. The country is home to about a third of the world's poor, political campaigns in India usually focus on development issues, and there is at least some degree of political responsiveness to public demands (Sen, 1999; Besley and Burgess, 2002). Further, the distribution of several types of state resources in India has been found to be deeply politicised. Scholars characterise Indian politics as riddled with patron-client relations, favouritism, vote- and turnout-buying, patronage, pork-barrel politics and corruption (Chandra, 2004; Wilkinson, 2006; Banks, 2011; Witsoe, 2012; Bussell, 2012). Several studies of India have found that states with governments aligned with the central government receive more fiscal transfers (Khemani, 2003; Rodden and Wilkinson, 2004; Bhavnani and Lacina, 2017). Studies also showthat alignment affects the distribution of public goods in the short run (Bohlken, 2018; Jensenius and Chhibber, 2018). But to our knowledge, no previous study has examined the long-term effects of partisan alignment.

We employ literacy as our main outcome variable since it is widely recognized as a key component of development (it is, along with GDP per capita and life expectancy, a component of the UN Human Development Index); because changes in the census literacy variables in India are highly correlated with changes in the provision of other public goods like electricity, roads and water (Banerjee and Somanathan, 2007); and because this is the most reliable development indicator for which it is possible to get data going back several decades. Importantly for our research design, state governments have the power to affect variation in literacy in India, and state-level governments have the power to geographically target resources for building schools, hiring teachers, and implementing education schemes. Primary education is also something many voters care about, and studies of MPLADS funds (politicians' discretionary development funds) show that providing school buildings or materials is a priority for many politicians (Jensenius and Chhibber, 2018). Ideally, we would examine the effects of being represented by the ruling coalition on a broader array of development indicators, as the politicisation of resource distribution may be present for some types of goods and not others (Kramon and Posner, 2013), but this type of information is not available at a disaggregated level in India over time. The examination of constituency-level changes in literacy between 1971 and 2001 is itself a contribution to existing literature. That said, as discussed in Section 4, our results are robust to the use of alternative outcome variables that are available for a shorter span of time.

Despite remarkable overall increases in literacy in India between 1971 and 2001, our analysis shows that electing state-level politicians from ruling coalitions does not result in higher constituency-level literacy rates in the long run. The same holds for the literacy of the Scheduled Caste (SC) community—a particularly marginalised group that has been the target of many development programs. The null results are precisely estimated, and are consistent across OLS, 2SLS specifications and several robustness checks. We explore various explanations for these results, specifically whether literacy is politicised in particular constituencies (those represented by the Indian National Congress, party strongholds, governments in specific states, or those subjected to high media scrutiny); whether governments do invest in schools, but that this fails to translate into improved literacy; and lastly, whether strong bureaucracies prevent the politicisation of literacy. The data are inconsistent with these alternative explanations. Whereas some government resources might be strategically allocated by politicians in India, our findings suggest that the great variation in the improvement in literacy that India experienced in the decades since 1971 has not been influenced by whether an area's political representative was part of a state's ruling coalition.

Whether areas benefit from supporting the parties that dominate the political arena is of both academic and policy interest. Pork barreling, clientelism and corruption receive considerable attention in academic writing, policy debates, and the media, sometimes to the extent that one is led to believe that no positive development takes place at all. To better understand how, and the extent to which, such practices affect people's lives, it is important to analyse their impact on overall long-term development outcomes. The recent trend in the study of politics and economics of focusing in on cleanly identifying causal effects has led us to many important findings, but may have resulted in too much of a focus on fairly inconsequential marginal effects rather than on overall and long-term development patterns. Our analysis shows that there has been a dramatic improvement in literacy rates across India in recent decades, and that these changes have by-and-large been unrelated to the political alignment of elected politicians.

The paper proceeds as follows. In section 2, we discuss our theoretical expectations. We then introduce our empirical strategy and data in section 3. Section 4 presents the results of our empirical analysis, associated robustness checks, and explores mechanisms. Section 5 concludes.

2. Context and expectations

A central concern in the study of political economy is how, and under what circumstances, politicians use state resources strategically for political gain. The theoretical literature on distributive politics has focused on understanding who (voters or non-voters, core or swing overs, voters with different identities, etc.) politicians should logically be trying to court in order to be reelected (see Lindbeck and Weibull, 1987; Dixit and Londregan, 1996; Besley and Coate, 1997; Osborne and Slivinski, 1996 and others). Consistent with these works, the empirical literature has found considerable evidence that governments across the world use fiscal transfers and government programs to strategically channel resources for political gain (e.g. Ansolabehere and Snyder, 2006; Boex and Martinez-Vazquez, 2005; Brollo and Nannicini, 2012; Dahlberg and Johansson, 2002; Khemani, 2010a; Kramon and Posner, 2013; Schady, 2000; Tavits, 2009).

Building on these works, a growing literature has shown that there are benefits to being politically aligned with those in power. Khemani (2003), Bhavnani and Lacina (2017) and Rodden and Wilkinson (2004) show that India's central government distributes more resources to states with governments that are politically aligned with the centre. Asher and Novosad (2017) find that areas with MLAs aligned to the ruling state government attract more private sector jobs. Members of Parliament have been found to spend consistently more of their discretionary funds in areas with an aligned member in the legislative assembly (Bohlken, 2018), and more in villages that voted for them in higher numbers in the previous election (Jensenius and Chhibber, 2018). There is also evidence that village-level politicians use their power to distribute resources to supporters of their party (Dunning and Nilekani, 2013; Jha et al., 2009).

But what do the highly visible manipulations of resources that have been documented in the literature cumulate to? In the long run, voters arguably care about government outputs such as literacy, rather than government inputs, such as spending. Do the tactical manipulations in government spending well-documented in the literature reflect small manipulations on the margins or the larger-scale and consequential channeling of resources to favored constituencies? On the one hand, the politicised distribution of funds observed in published studies may affect development patterns—perhaps not in the very short run, but after some years. On the other hand, the politicised distributions observed by researchers may be relatively minor, such that the targeting that we observe might not affect development outcomes, and/or the choice to prioritise one area may be evened out by other forms of spending or

different allocation choices at another point in time. Our main question, then, is whether political alignment improves long run development outcomes.

To answer this question we focus in on primary education. This is something voters care deeply about. Surveys have shown that members of disadvantaged groups see education as offering the most promising chance for a better life for their children (Dreze and Sen, 1995). As a result, spending on primary education is also something politicians care about. Consistent with this, Jensenius and Chhibber (2018) show that repairing or constructing school buildings is among the most common ways for politicians to spend their discretionary development funds.

Still, MPLADS spending constitutes a very small part of spending on primary education. According to Khemani (2010b), 21% of India's state budgets between 1980 and 2005 were allocated for education (p. 37). During the period we look at (1971–2001), state resources played a critical role in increasing literacy rates. At the start of the period, the literacy rate was 29%. This was to a large part due to a dearth of schools. In the three decades since the 1970s, massive efforts were made to construct new schools as well as to train and hire teachers, with the constant pressure of growing demand due to a rapidly growing population. As a result, literacy increased by an average of 25 percentage points between 1971 and 2001.[3] With such large changes taking place, efforts to prioritise some areas over others might result in visible differences over a 30-year period.

One may ask whether politicians actually have any influence over investments in primary education. The answer is that they probably do. It is commonly believed that individual politicians have considerable influence over resource allocation to their constituencies, and that being in power in the state is critical to affecting the distribution of all types of resources. In one-on-one interviews, several Indian Members of Legislative Assemblies (MLAs) stated that they felt powerless when they were in opposition and that there would be no development in their constituency until their party was back in power.[4] One experienced MLA in India's largest state Uttar Pradesh argued that being in power was essential for getting anything done in his constituency, that when his party had been in power they failed to listen to the opposition, and now (February 2011) the party in power did not listen to members of his party.[5] Similarly, a senior official of the Samajwadi Party said that members of the opposition never get anything done because the bureaucracy does not listen to them, for fear of being transferred by the ruling coalition to a less attractive posting.[6]

However, as alluded to above, there are also reasons to believe that the targeted distribution of resources is limited. First, there is the question of electoral incentives. Highly visible projects implemented with MPLADS funds might plausibly yield greater electoral benefits than less visible investments through other government funds. Second, evidence suggests that the electoral gains from the allocation of funds accrue to politicians upon the *announcement* of big projects rather than from their implementation. For example, Wilkinson (2006) describes how central funds for infrastructure projects are used strategically to gain political support at the time of elections, but that many of these announced projects are not properly implemented afterward. Third, as much as people talk of the arbitrary nature of the political system, India has a large and a comparatively well-functioning bureaucracy that implements development projects (Potter, 1986). While bureaucrats are often accused of being corrupt and inefficient, the higher bureaucracy is thought to be staffed by intelligent and hard-working civil servants, who could potentially insulate developmental projects from political meddling. Finally, India has been a well-functioning democracy for decades and as such it might be unacceptable to implement blatantly politicised and unfair development plans. Whatever political influence occurs is likely to be marginal, and is unlikely to have major effects on people's lives. Consistent with this account, Burgess et al. (2013) find that the ethnic favouritism in Kenya's road building program is restricted to periods of autocratic rule. They conclude that democracy, however imperfect, works to constrain the political leadership from blatant favouritism. The same might be true in India.

We have just presented anecdotal evidence suggesting that we might see long-term effects of the politicisation of the distribution of investments in education in India, but also several arguments for why we do not expect to see such effects on a large scale. Data scarcity and issues of endogeneity have made it hard to establish whether such systematic patterns exist. In the two studies that most closely relates to ours, Banerjee and Somanathan (2007) and Jensenius (2015) find no evidence of religious or ethnic targeting of resources, but rather that socio-economic outcomes in constituencies converged over time. However, these study did not test for the possible effects of electing members of the ruling coalition (alignment effects) or of having specific parties in power. Using a fine-grained dataset (more than 3,000 state assembly constituencies as compared with 499 parliamentary constituencies in Banerjee and Somanathan, 2007) and an empirical strategy to explicitly rule out reverse causality, we show that electing members of the ruling coalition has not improved constituencies' socio-economic outcomes.

3. Empirical strategy and data

In this paper, we investigate whether having political representatives in the state ruling coalition affected the change in literacy in state assembly constituencies across India in the three decades from 1971. A naïve model of this relationship could be estimated with OLS regressions of the following form:

$$L_{i,2001} = \alpha + \delta L_{i,1971} + \beta P_i + \gamma \mathbf{X}_{i,1971} + \varepsilon_i \quad (1)$$

where the literacy rate (L) of constituency i in 2001 is modelled as a function of the literacy rate in 1971 and the proportion of time (P) between 1971 and 2001 the constituency was represented by an MLA in the ruling coalition, and $\mathbf{X}$ is a vector of observable pre-treatment constituency characteristics from 1971.

The key challenge to obtaining an unbiased causal estimate of the effect of political alignment on literacy (β) is that the election of members of the ruling coalition is endogenous to the performance of politicians in office, and therefore to our main outcome variable. In other words, changes in literacy during one election period might affect who gets voted into the ruling coalition in following elections. This means that our estimate of β might be biased.

To account for this, we take advantage of the fact that the selection of some MLAs into the ruling coalition occurred quasi-randomly, in close elections. In close elections, constituencies are arguably *as if randomly* assigned to one politician or another (see Lee, 2008). While there have been debates about whether this design is valid in the study of US elections (Grimmer et al., 2011; Caughey and Sekhon, 2011), studies of Indian data argue that elections with a smaller margin of victory than 5% can be interpreted as close to randomly assigned to one of the competing political candidates (Uppal, 2009; Eggers et al., 2015). Building on this result, we instrument the proportion of times an MLA was in the ruling coalition with the proportion of close elections

[3] In recent years, a vibrant literature has emerged about the prevalence of teacher absenteeism in India and how this prevents further growth in literacy despite the fact that most regions now have schools and teachers on paper (see Kremer et al., 2005; Banerjee et al., 2010). However, during the years we look at it was the construction of schools that was the main priority for improving education.

[4] The authors conducted interviews with high-level civil servants, MPs, MLAs, and village-level politicians on multiple field trips across India between 2009 and 2012. The bulk of the interviews were conducted in the Northern states of Himachal Pradesh and Uttar Pradesh.

[5] Interview by Jensenius, February 2011.

[6] Interview by Jensenius, November 2010. Indian civil servants have strong job security, but threats of transfers to undesirable locations and positions are frequently cited as a way in which politicians try to influence them.

Table 1
Summary statistics.

	Mean	Std. dev.	Min.	Max.
Overall literacy rate, 2001	54.25	12.92	19.53	86.75
Overall literacy rate, 1971	28.52	13.04	2.74	78.29
Scheduled caste literacy rate, 2001	47.10	14.44	11.81	82.84
Scheduled caste literacy rate, 1971	16.30	11.15	1.97	66.89
Number of primary schools, 2001	189.00	102.25	0.00	965.00
Number of primary schools, 1991	153.23	81.39	0.00	620.00
% of rural pop. with access to medical facilities, 2001	60.77	25.73	0.00	100.00
% of rural pop. with access to medical facilities, 1991	55.46	29.11	0.00	100.00
% of rural pop. with access to communication facilities, 2001	71.66	23.64	0.00	100.00
% of rural pop. with access to communication facilities, 1991	54.30	25.54	0.00	100.00
% of rural pop. with access to paved roads, 2001	74.16	22.79	0.00	100.00
% of rural pop. with access to paved roads, 1991	61.68	26.98	0.00	100.00
Prop. of time in ruling coalition	0.65	0.23	0.00	1.00
Prop. of time minister	0.11	0.15	0.00	1.00
Effective no. of parties	2.85	0.67	1.71	6.81
% turnout	60.38	10.71	24.15	85.52
Prop. of seats won by coalition members in close elections against opposition	0.07	0.11	0.00	0.67
Prop. of coalition v. opposition elections	0.80	0.19	0.00	1.00
Prop. of close coalition v. opposition elections	0.12	0.15	0.00	0.81
Vote margin in close coalition v. opposition elections	8.42	8.24	−28.75	57.50
Vote margin squared	138.84	199.37	0.00	3306.38
Vote margin cubed	2528.55	6377.32	−23766.05	190120.20
% SC, 1971	15.15	8.04	0.22	63.04
% ST, 1971	6.99	15.81	0.00	95.04
Dummy for whether constituency reserved for SCs	0.15	0.36	0.00	1.00
Dummy for whether constituency reserved for STs	0.08	0.27	0.00	1.00
Log male/female ratio, 1971	0.06	0.08	−0.29	0.66
Log no. of houses, 1971	10.11	0.27	8.20	11.59
Log households, 1971	10.21	0.30	6.76	10.88

Notes: Variables without years are averaged over 1971–2001.

between candidates from the ruling coalition and the opposition that were won by the candidate from the ruling coalition. Given that the outcome of each of these close elections is determined by something close to an independent, random draw, the average across these close elections can also be considered random. A similar but not identical research design has previously been used to instrument for the proportion of female MLAs in India's administrative districts (Rehavi, 2007; Clots-Figueras, 2012).

Our first-stage regression instruments for the proportion of time that a constituency was represented by a member of the ruling coalition (P_i) by estimating the following equation:

$$P_i = \varphi + \pi L_{i,1971} + \zeta I_i + \eta \mathbf{x}_{i,1971} + \vartheta_i \quad (2)$$

where I_i, the instrument, is the proportion of close elections between ruling coalition and opposition candidates won by members of the ruling coalition. Since I_i is a component of P_i, it is mechanically correlated with P_i. The exclusion restriction for I_i is satisfied by the fact that it probably only affects literacy through P_i.

Although the outcomes of the close elections in each constituency are *as if* random, whether a constituency has one or more close elections is not random. The vector of controls, **X**, therefore includes controls for the proportion of close elections in constituencies over the study period, along with other observable confounders. Following Clots-Figueras (2012), we define an election as close if it had a margin of victory of less than 3.5%.[7] We also include first-, second-, and third-order polynomial controls for the mean winning vote margin during the study period in the close elections in each constituency.

To implement this empirical strategy, we draw on state election data from Bhavnani (2014). We supplement this with data on government formation developed by Bhavnani (2018) and extended by Jensenius (2017). These data allow us to construct our key explanatory variable of interest—the proportion of time that a constituency's representative was in the ruling coalition—and also to code the proportion of time that a constituency's representative was a minister, as well as the effective number of parties and turnout across constituencies. All of these variables are calculated as averages for 1977–2001, since state constituency boundaries were fixed during this period.[8] These, and other key variables, are summarised in Table 1. As we can see in the table, some constituencies had an MLA from the ruling coalition throughout the period under study, while others never had an MLA from the ruling coalition. On average, a constituency had an MLA from the ruling coalition 65% of the time.[9]

To study long-term development trends across Indian constituencies, we focus on the change in literacy rates between 1971 and 2001.[10] We look both at overall literacy rates and literacy rates of Scheduled Castes (SCs). SCs—also known as *dalits* or former "untouchables"—are a particularly disadvantaged minority in India. They form approximately 16% of the country's population and are generally poorer and less literate than others. Ruling coalitions in India have been particularly committed to improving the literacy rates of SCs (Banerjee and Somanathan, 2007; Jaffrelot, 2003; Jaffrelot and Kumar, 2009), and SCs have seen greater improvements in literacy than the rest of the population (in the constituencies that we study, the overall literacy rate increased by about 25 percentage points between 1971 and 2001, while the SC literacy rate increased by 31 percentage points). Since political parties

[7] As reported below, our results are robust to redefining close elections as those with margins of victory of less than 1% and 5%.

[8] In some states they were actually fixed after 1974, but only came into effect in a few states before 1977. Starting in 1977 also allows us to side-step India's turbulent time under "Emergency" rule, an authoritarian interlude during which elections were suspended.

[9] Similarly, some constituencies had an MLA in the state cabinet, as a minister, throughout the period, but the average constituency had an MLA in the state cabinet 11% of the time.

[10] We do not use 1981 census data here, as the definitions of several variables in the 1981 census were different from those employed in other years (Banerjee and Somanathan, 2007).

have made special efforts to raise the living standards for SCs, and the increase in their literacy and other socio-economic indicators has been more rapid than among the rest of the population, we may be more likely to observe a pattern of asymmetric distribution of resources by looking at the SC community in particular.[11]

The main challenge with looking at the relationship between who is in power in a political constituency and changes in literacy, is that the authorities do not collect literacy data for these geographic units. The census instead releases literacy data for the country's blocks (also called tehsils, taluks, mandals, firkas, police stations or development blocks), which can be mapped onto the political constituencies. We conducted this exercise manually for the 1971 data and with the help of GIS maps for 2001. This yields estimates of the literacy rates and the demographics of approximately 3,000 state assembly constituencies in 1971 and 2001. For robustness tests and an examination of mechanisms, we also conducted this exercise for 1991 (see Section A in the Online Appendix).

The resulting constituency-level estimates of census variables are summarised in Table 1. As suggested earlier, the data show that the country experienced a massive increase in literacy between 1971 and 2001, from 29% to 54%. Literacy rates for SCs started off at 16% in 1971 and increased to 47% in 2001. Thus, although SCs still lagged behind the rest of the population in 2001, the gap had narrowed substantially during this period.[12] Fig. 1 shows state-wise box plots of the constituency-level change in literacy between 1971 and 2001. Here we see that although the average growth in literacy was high across all states, there was considerable variation both across states and within states, with some constituencies experiencing almost no increase and others a very large increase.[13] In the following sections we examine the degree to which this variation may be explained by whether local politicians are in power.

4. Findings

Fig. 2 plots the bivariate relationship between the proportion of time between 1977 and 2001 that constituencies were represented by members of the ruling coalition and change in overall and SC literacy rates across India's constituencies between 1971 and 2001. The figures suggest that voting for the winning coalition is associated with improvements in literacy rates, for both the overall population and for SCs. These patterns provide some weak support for an asymmetric resource distribution, but we cannot draw strong conclusions from such bivariate plots, as we have not controlled for possible confounders, or for the possibility of reverse causality.

Table 2 presents multivariate regressions for the determinants of 2001 literacy rates, for the entire population and separately for SCs. The regressions control for the outcome variables in 1971, thereby controlling for initial conditions. In regressions 1 and 4, which implement equation (1), we control for the main explanatory variable of interest—the proportion of time the constituency's representatives were in the ruling coalition. As in the bivariate plots, the proportion of time the MLAs were in the ruling coalition emerges as positively associated with the literacy rate in 2001 and the SC literacy rate in 2001. Regressions 2 and 5 additionally control for several possible confounders: constituency demographics in 1971 (the percentage of SCs and STs,[14] the log male/female ratio, and the log number of households in each constituency) and the reservation status of the constituency (a dummy for whether the constituency was reserved or set aside for SCs or STs during this period).[15] These regressions also include district fixed effects, thereby controlling for district-invariant confounders. Standard errors are clustered at the district level.[16] After these adjustments, it no longer appears that electing a representative to the ruling coalition boosts the literacy rate in a constituency. For both the overall and SC literacy rate, the coefficients for the proportion of time in ruling coalitions are attenuated and are no longer statistically significant.

The multivariate OLS models that include controls for several possible confounders do not provide conclusive evidence that constituencies do not benefit from having a representative from the ruling coalition. These results may be an artefact of endogeneity, as the performance of incumbents in office can affect vote choice. To control for this possibility, we employ the close-election instrumental variable analysis described in the previous section. In regressions 3 and 6, we instrument for the proportion of time in the ruling coalition with the proportion of close elections won by a member of the ruling coalition. Following Clots-Figueras (2012), close elections are defined as those with a vote margin less than or equal to 3.5% (as discussed below, the results are robust to alternative definitions of close elections), where an MLA who would be inducted into the ruling coalition won against someone who would not have been included in the ruling coalition. The first-stage results, reported in Table 2, indicate that the instrument is positively and statistically significantly associated with the endogenous variable. The first stage *F*-statistic is 1,030, well above 10, which is the conventional threshold for a strong instrument. The *F*-statistic is so high because the instrument is highly correlated with the endogenous regressor ($\rho > .9$). To control for the fact that the proportion of close elections in a constituency might be endogenous, regressions 3 and 6 also control for this variable. In line with standard practice and following Clots-Figueras (2012), controls are also included for the proportion of coalition-versus-opposition races, and the margin of victory (defined as the mean difference between the vote share of the winner and runner-up), its square and its cube.

The second-stage results again suggest that electing representatives from the winning coalition does not boost overall or SC literacy rates. The coefficients for both overall literacy and SC literacy are, in fact, negative, but also statistically insignificant. The coefficients for the margin of victory are also statistically insignificant in the second stage of these models, suggesting that constituencies that are more competitive do not experience higher growth in literacy than other constituencies. We therefore find no evidence of constituencies benefiting from electing

[11] SCs have reserved seats in politics, and a common assumption is that having SC politicians in power would either result in less development overall or more development for SCs in particular. However, there is no evidence of a development effect of having more SCs in power at the state level (Pande, 2003) or reservations for SCs at the constituency level (Jensenius, 2015).

[12] In 1971, the number of literates in the Indian census were counted out of people who were five years of age or older. The official literacy rate published from the census therefore used the population that was five years and older as the denominator. In 2001, this was changed to seven years and older, and the official literacy rate used the population recorded as seven years and older as the denominator. Lacking data for the proportion of the population that was five years and above in our 1971 dataset, we use the total population as the denominator for both 1971 and 2001. This is intended to make the analysis more consistent, but also means that the literacy rates we report are somewhat lower than the official ones published in 2001 census reports.

[13] While state fixed effects can explain approximately 50% of the variation in literacy across constituencies, district fixed effects can explain another 26% of variation across constituencies, leaving 24% of constituency-level variation in literacy to be explained. These figures are the R-squared statistics for regressions with state and district fixed effects.

[14] Scheduled Tribes, another minority that forms approximately 8% of the population.

[15] This is an important control since reserved constituencies tend to be less competitive, with fewer candidates running for election and lower turnout (see Jensenius, 2017). In regressions 7 and 8 of Tables 1 and 2 in the Online Appendix we show that the alignment effects do not look different in reserved and non-reserved constituencies.

[16] Districts are an administrative unit below the state and above the assembly constituency levels. In our data there is an average of 9.7 assembly constituencies in a district.

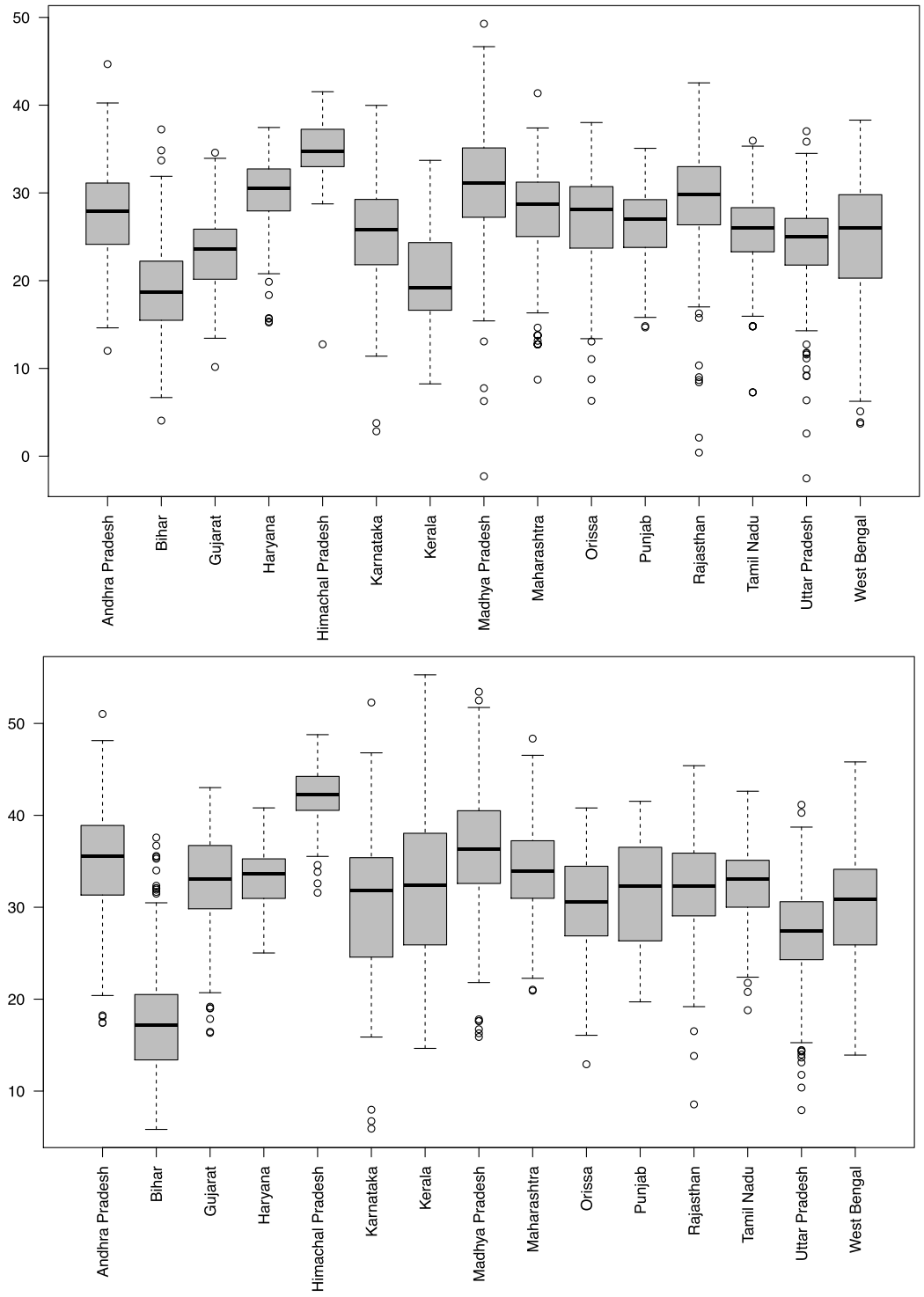

Fig. 1. State-wise box plots of changes in overall (upper plot) and SC (lower plot) literacy rates at the constituency level between 1971 and 2001.

members of the ruling coalition, nor from being more competitive. It is important to note that our sample size of over 3,000 observations ensures that our null-finding is not driven by underpowered tests. Moreover, the 95% confidence interval for the effect of a standard deviation increase in the proportion of time a constituency is represented by the ruling coalition (0.23) on the change in overall literacy is narrow −0.5 to 0.3, and the 95% confidence interval for the increase in SC literacy due to alignment is a similarly narrow −0.6 to 0.3. The upper bounds of these confidence intervals are particularly small given that the overall and SC literacy rates respectively increased by an average of 26 and 31 percentage points over this period.

4.1. Robustness checks

In this section, we show that our results are robust to examining the effects of alignment on other outcome variables, as well as to several alternative model specifications. To start with, it is possible that the estimated null effect of alignment 1971–2001 was driven by our choice of literacy as the main outcome variable. To see whether this is the case, we examine the effects of alignment between 1991 and 2001 on three

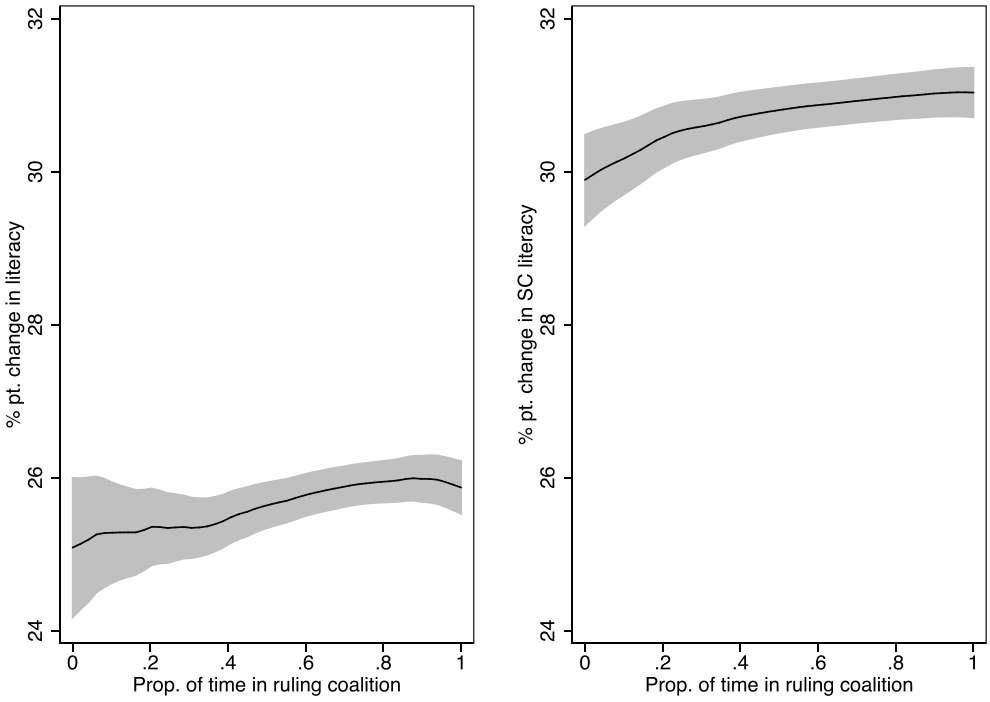

Fig. 2. The bivariate relationship between politics and the percentage point change in overall and SC literacy between 1971 and 2001 (local polynomial smooths with 95% confidence intervals).

other development outcomes: the proportion of rural residents with access to medical facilities, communication facilities, and roads (we use 1991 rather than 1971 data due to data limitations). The results—presented in Table 3—confirm (using OLS, OLS with controls, and 2SLS with controls) that alignment fails to have statistically significant effects on these alternative development outcomes.[17]

We next examine whether the estimated null-effect of alignment on overall and SC literacy are robust to the use of alternative specifications. Table 4 presents these results with overall literacy as the outcome variable; Table 5 presents the results with SC literacy as the outcome variable. In both tables, regression 1 examines whether our results are robust to the use of the *change* in the literacy rates between 1971 and 2001 as the dependent variable, in case the use of the lagged dependent variable as a control in the main regressions leads to Nickell bias. Regression 2 in each of the tables includes a squared term for the proportion of time in the ruling coalition (to account for a possible non-linearity in the relationship between literacy and being included in the ruling coalition), and regression 3 calculates the time in the ruling coalition between 1977 and 1996, thereby excluding the last five years of the period, to allow for an (arbitrary) time-lag for the effects of being in power on literacy.[18] Our core results remain unaffected by these changes.

Regression 4 includes controls for additional pre-treatment socio-economic variables: the percentage of non-workers and agricultural labourers in each constituency in 1971. The former is positively associated with literacy, but the main results remain unchanged. In regression 5, we control for political variables: the proportion of the period the constituency was represented by a minister, the effective number of parties in the constituency, and the percentage turnout in the constituency. Our main results are robust to these additions to the model. Interestingly, turnout emerges as strongly positively associated with growth in literacy. Although this is consistent with the possibility that an active electorate leads to better provisioning of public goods, it would be incorrect to interpret this correlation in a causal manner. Endogeneity remains a concern here.

In regression 6, we substitute district fixed effects for state fixed effects (and also cluster the standard errors at the state level), in case the district fixed effects "over-control" for confounders. Again, our results remain robust to this change.

In regression 7, we employ an alternative instrument for the proportion of time in the ruling coalition: using an indicator for whether the *first* election in our political dataset was a close election between a member of the ruling coalition and opposition (rather than using all elections between 1977 and 2001). This alternative instrumentation strategy takes into account the possibility that a close election influences subsequent close elections (however, recall that the results of each close election are quasi-randomly determined), by using only the results of the first election. Although substantially worse than before, the *F*-statistic for the new first-stage regression remains above 10, and these results remain consistent with those presented previously. Lastly, in regressions 8 and 9, we re-define close elections as those that were won with margins of 1% and 5%, instead of the 3.5% cutoff used in the main analysis. These results are also consistent with the main findings.

Altogether, the empirical analysis fails to provide any evidence for constituencies benefiting from voting in representatives who are members of the ruling coalition at the state level. Although the bivariate plots suggested a weakly positive relationship between the election of an MLA from the ruling coalition and the growth in literacy and SC literacy,

[17] In the Online Appendix, we provide a number of other robustness checks, including looking for evidence of effects being underestimated due to migration, effects of alignment with the central government, effects of alignment with the most influential party in the state, probing for differences across core and swing areas, and controlling for the winning margins for each election separately.

[18] Our main specifications do not account for such a lag since efforts to improve education can arguably boost literacy for near-literates quickly.

Table 2
Determinants of overall and SC literacy rates in 2001.

	% Literates				% SC literates			
	1 OLS	2 OLS	3 2SLS		4 OLS	5 OLS	6 2SLS	
			1st stage	2nd stage			1st stage	2nd stage
Prop. of time in ruling coalition	1.226**	0.121		−0.526	1.764***	0.0416		−0.568
	[0.487]	[0.402]		[0.924]	[0.599]	[0.408]		[1.001]
Initial value of DV	0.862***	0.689***	0.0004	0.689***	1.089***	0.733***	-3E-04	0.734***
	[0.00871]	[0.0291]	[0.000550]	[0.0275]	[0.0125]	[0.0541]	[0.000640]	[0.0509]
Prop. of seats won by coalition members in close elections against opposition			0.930***				0.932***	
			[0.0290]				[0.0289]	
Prop. of coalition v. opposition elections			0.398***	−0.514			0.397***	−0.207
			[0.0211]	[0.635]			[0.0210]	[0.660]
Prop. of close coalition v. opposition elections			−0.569***	−0.365			−0.570***	−0.426
			[0.0227]	[0.490]			[0.0226]	[0.513]
Vote margin in close coalition v. opposition elections			0.0254***	0.0344			0.0254***	0.0417
			[0.00119]	[0.0266]			[0.00119]	[0.0287]
Vote margin squared			−0.000278***	−0.001			−0.000277***	−0.00251***
			[0.000105]	[0.00120]			[0.000105]	[0.000899]
Vote margin cubed			-4E-06	3E-06			-4E-06	1E-05
			[0.00000338]	[0.0000244]			[0.00000339]	[0.0000197]
Controls?	No	Yes	Yes	Yes	No	Yes	Yes	Yes
District fixed effects?	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Observations	3,137	3,137	3,137	3,137	3,135	3,135	3,135	3,135
Adjusted *R*-squared	0.76	0.92	0.75	0.92	0.71	0.93	0.75	0.93
1st stage *F*-stat. for time in ruling coalition				1,030				1,042

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

Table 3
Determinants of alternative dependent variables in 2001.

Dependent variables: % of rural population with access to Estimator:	medical facilities			communication facilities			paved roads		
	OLS 1	OLS 2	2SLS 3	OLS 4	OLS 5	2SLS 6	OLS 7	OLS 8	2SLS 9
Prop. of time in ruling coalition	9.469***	0.564	1.469	4.773***	−0.209	−0.174	1.053	−1.207	1.422
	[1.337]	[0.790]	[1.753]	[0.867]	[0.656]	[1.446]	[0.740]	[0.799]	[1.517]
Initial value of DV	0.368***	0.310***	0.310***	0.703***	0.412***	0.412***	0.694***	0.364***	0.364***
	[0.0151]	[0.0286]	[0.0269]	[0.0112]	[0.0383]	[0.0360]	[0.00905]	[0.0279]	[0.0263]
Prop. of coalition v. opposition elections			0.158			0.86			−0.722
			[1.203]			[0.923]			[0.992]
Prop. of close coalition v. opposition elections			0.0793			−0.841			−1.059
			[0.960]			[0.842]			[0.762]
Vote margin in close coalition v. opposition elections			0.0213			0.0117			−0.110**
			[0.0650]			[0.0491]			[0.0553]
Vote margin squared			−0.00056			−0.00095			0.00191**
			[0.00172]			[0.00102]			[0.000887]
Vote margin cubed			−0.00003			−8.6E-06			−1.8E-06
			[0.0000395]			[0.0000209]			[0.0000249]
Controls?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
District fixed effects?	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Observations	2834	2834	2834	2834	2834	2834	2830	2830	2830
Adjusted *R*-squared	0.18	0.83	0.83	0.59	0.86	0.86	0.68	0.84	0.84
1st stage *F*-stat. for time in ruling coalition			1126			1124			1122

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

these patterns disappear once we control for important confounding variables, as well as for endogeneity.

4.2. Explaining the null-effect

The evidence that we have presented thus far suggests that electing members of ruling coalitions fails to affect literacy rates in the long run. We consider several possible reasons that this could be the case.

First, ruling coalitions might improve literacy under particular circumstances—when certain pro-poor parties are in power, in party strongholds, in some states or when mechanisms of accountability (such as the media) are strong. These possibilities could be consistent with the estimated overall null-effect. To assess whether this is the case, we explore heterogeneous treatment effects in Table 6.

We start by examining whether voting for ruling coalitions led by the Indian National Congress or the Communist Party of India (Marxist)—parties associated with the poor—have boosted literacy rates.[19] To assess this possibility, we control for the proportion of time a

[19] While constituencies were on average in ruling coalitions for 65% of the time studied, they were in INC ruling coalitions for 32% of the time, and in CPI (M) ruling coalition 7% of the time.

Table 4
Robustness tests for the determinants of overall literacy rates in 2001.

Dependent variable:	Δ % Literacy, '71-'01	% Literacy, '01							
Close election definition:	≤ 3.5% 1	≤ 3.5% 2	≤ 3.5% 3	≤ 3.5% 4	≤ 3.5% 5	≤ 3.5% 6	≤ 3.5% 1st elec. 7	≤ 1% 8	≤ 5% 9
Prop. of time in ruling coalition	−1.201	−25.12		−0.578	−0.398	−1.721	1.708	−0.563	−1.559
	[1.105]	[30.65]		[0.929]	[0.942]	[1.175]	[1.794]	[0.851]	[5.564]
Prop. of time in ruling coalition squared		19.71							
		[24.51]							
Prop. of time in ruling coalition, until 1996			−0.466						
			[0.829]						
% non-workers				0.0753**					
				[0.0354]					
% agricultural laborers				0.0656					
				[0.0478]					
Prop. of time minister					−0.0353				
					[0.524]				
Effective no. of parties					−0.196				
					[0.216]				
% turnout					0.0857***				
					[0.0232]				
Initial value of DV		0.697***	0.690***	0.685***	0.704***	0.829***	0.687***	0.689***	0.690***
		[0.0287]	[0.0275]	[0.0310]	[0.0264]	[0.0537]	[0.0274]	[0.0275]	[0.0281]
Prop. of coalition	−0.194	0.811	−0.358	−0.545	−0.653	−1.655*	−1.394	−0.448	−0.107
v. opposition elections	[0.685]	[1.762]	[0.609]	[0.628]	[0.644]	[0.961]	[0.867]	[0.612]	[2.164]
Prop. of close coalition	−0.531	−0.415	0.022	−0.314	−0.384	−1.335**	−0.935	−0.436	−0.415
v. opposition elections	[0.544]	[0.530]	[0.454]	[0.493]	[0.496]	[0.570]	[0.820]	[0.451]	[0.521]
Vote margin in close coalition	0.0353	0.132	0.0187	0.0356	0.0371	0.0516	−0.024	0.0351	0.0613
v. opposition elections	[0.0325]	[0.132]	[0.0231]	[0.0268]	[0.0268]	[0.0400]	[0.0478]	[0.0260]	[0.144]
Vote margin squared	−0.00125	−0.0079	−0.000965	−0.00128	−0.00136	−0.00265**	−0.000708	−0.00139	−0.0016
	[0.00145]	[0.00893]	[0.000853]	[0.00118]	[0.00121]	[0.00110]	[0.00125]	[0.00119]	[0.00191]
Vote margin cubed	5.92E-07	8E-05	7.67E-06	3.19E-06	7E-06	3.7E-05	1.46E-05	4.8E-06	-2E-06
	[0.0000295]	[0.000112]	[0.0000110]	[0.0000240]	[0.0000251]	[0.0000270]	[0.0000257]	[0.0000245]	[0.0000363]
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State/district fixed effects?	District	District	District	District	District	State	District	District	District
Observations	3,137	3,137	3,137	3,137	3,137	3,137	3,137	3,137	3,137
Adjusted *R*-squared	0.64	0.92	0.92	0.92	0.92	0.85	0.92	0.92	0.92
1st stage *F*-stat. for time in ruling coalition	1,046	559	1,161	1,022	982	2,566	240	1,671	15

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

constituency was represented by INC and CPI(M) ruling-coalition members (regressions 1 and 6 of Table 6), and instrument for these terms in a manner analogous to our main identification strategy. Neither of the estimated effects are statistically significant.

We next explore if ruling coalitions are particularly likely to invest in constituencies that are party strongholds. We coded "strongholds" as constituencies that elected the same party more than 50% of the years under study. By this definition, 29% and 7% of the constituencies were strongholds for the INC and the Communist Party of India (Marxist) respectively (in contrast, only 1% of constituencies were strongholds for the Bharatiya Janata Party). We then examined whether quasi-randomly electing ruling coalition members from these strongholds boosted literacy rates (regressions 2 and 6). It was not found to do so.

Next, we ask whether ruling coalitions in particular states boosted literacy rates (regressions 3 and 7). Here too, none of the coefficients are statistically significant.[20] No state seems to have had ruling coalitions that were systematically prone to privileging their own supporters.

Finally, in regressions 4 and 8 we interact a state-level newspaper coverage variable (from Besley and Burgess, 2002) with the proportion of time in ruling coalition.[21] As studies of accountability indicate that informed voters are more able to hold ruling coalitions to account (Besley and Burgess, 2002; Sen, 1999), we might expect this interaction term to be positive. But the point estimates are, in fact, negative. However, these results should be interpreted with caution, as the newspaper circulation variable is at the state and not at the constituency level. Overall, our exploration of heterogeneous treatment effects fails to uncover political motivations behind the change in literacy between 1971 and 2001.

A second explanation for the null finding could be that ruling coalitions may attempt to improve literacy by building schools, but that these efforts do not increase literacy because of teacher absenteeism or other local-level factors. To evaluate this possibility, we investigated whether ruling coalitions built more primary schools in areas where they won elections. Table 7 presents the results. The specifications are the same as in our main analysis, with the outcome variable specified as the number of primary schools per capita in each constituency in 2001, as calculated from the Census of India's village directory. Since this source is published for rural areas, observations are restricted to rural areas. Also due to data constraints, the initial value of the dependent variable is

[20] These results should be interpreted with caution, since the disaggregation of the ruling coalition variable into 13 components degrades the first-stage F-statistics substantially.

[21] The uninteracted measure of newspapers is absorbed by the district fixed effects.

Table 5
Robustness tests for the determinants of SC literacy rates in 2001.

Dependent variable:	Δ % SC literacy, '71-'01	% SC literacy, '01							
Close election definition:	≤ 3.5% 1	≤ 3.5% 2	≤ 3.5% 3	≤ 3.5% 4	≤ 3.5% 5	≤ 3.5% 6	≤ 3.5% 1st elec. 7	≤ 1% 8	≤ 5% 9
Prop. of time in ruling coalition	−1.065	−33.19		−0.8	−0.588	−2.562**	1.076	−0.268	−4.726
	[1.082]	[35.80]		[1.004]	[1.016]	[1.203]	[1.869]	[0.844]	[6.530]
Prop. of time in ruling coalition squared		26.16							
		[28.55]							
Prop. of time in ruling coalition, until 1996			−0.789						
			[0.923]						
% non-workers				0.184***					
				[0.0501]					
% agricultural laborers				−0.00708					
				[0.0514]					
Prop. of time minister					0.763				
					[0.526]				
Effective no. of parties					0.284				
					[0.200]				
% turnout					0.0403				
					[0.0264]				
Initial value of DV		0.741***	0.734***	0.694***	0.738***	0.888***	0.733***	0.734***	0.734***
		[0.0541]	[0.0510]	[0.0529]	[0.0512]	[0.0997]	[0.0510]	[0.0509]	[0.0507]
Prop. of coalition	0.203	1.555	−0.074	−0.15	−0.218	−0.832	−0.838	−0.287	1.433
v. opposition elections	[0.701]	[2.021]	[0.624]	[0.655]	[0.669]	[0.908]	[0.875]	[0.639]	[2.558]
Prop. of close coalition	−0.678	−0.493	−0.188	−0.35	−0.527	−1.327**	−1.517*	−0.421	−0.628
v. opposition elections	[0.553]	[0.551]	[0.453]	[0.507]	[0.517]	[0.616]	[0.835]	[0.484]	[0.589]
Vote margin in close coalition	0.0527*	0.172	0.0339	0.0438	0.0419	0.0858**	−0.00172	0.0338	0.15
v. opposition elections	[0.0306]	[0.151]	[0.0248]	[0.0289]	[0.0287]	[0.0434]	[0.0498]	[0.0254]	[0.170]
Vote margin squared	−0.00257***	−0.0113	−0.00209***	−0.00243***	−0.00223**	−0.00521***	−0.00211**	−0.00250***	−0.00362*
	[0.000938]	[0.00984]	[0.000678]	[0.000871]	[0.000894]	[0.00158]	[0.000938]	[0.000873]	[0.00203]
Vote margin cubed	3.98E-06	0.00011	0.0000166*	0.000014	8.4E-06	0.00005	2.09E-05	1.5E-05	-9E-06
	[0.0000206]	[0.000118]	[0.00000914]	[0.0000190]	[0.0000195]	[0.0000309]	[0.0000219]	[0.0000197]	[0.0000401]
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
State/district fixed effects?	District	District	District	District	District	State	District	District	District
Observations	3,135	3,135	3,135	3,135	3,135	3,135	3,135	3,135	3,135
Adjusted *R*-squared	0.75	0.92	0.93	0.93	0.93	0.84	0.93	0.93	0.93
1st stage *F*-stat. for time in ruling coalition	1,049	568	1,176	1,025	987	2,652	243	1,680	15

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

from 1991.[22] The results fail to suggest that ruling coalitions boost the number of primary schools per capita. It therefore does not seem to be the case that state governments make efforts to boost literacy in constituencies they won by building more schools there.

Third, it might be that growth in literacy is insulated from political influences by the bureaucracy responsible for implementing educational policies. The Indian bureaucracy is an influential elite institution inherited from British rule in India. The upper civil service—the Indian Administrative Service—is often referred to as the "steel frame" of India (Potter, 1986). Our interviews with civil servants, one of which was cited previously, suggested that some civil servants feel pressured to follow instructions from the political leadership out of fear of being transferred to a less favourable posting. One might think that the bureaucracies in states with better governance structures should be less susceptible to such pressures. To explore this hypothesis, we interact our independent variable of interest with a state-level governance measure due to Mundle et al. (2012). Regressions 5 and 10 of Table 6 presents the results of this exercise, and do not suggest that variation in governance standards mediates the impact of politics on literacy.[23]

In this section, we have found three broad explanations for our findings wanting. One possibility that we are left with is that ruling coalitions do not try seek to improve overall development patterns in constituencies where they won the election in a consistent way. Our findings are subject to a number of caveats, which we discuss in the concluding section.

5. Conclusions

Evidence from across the world has shown that the distribution of state resources is frequently politicised. Resources tend to be spent in areas that support ruling coalitions, particularly on easily targetable goods that result in quick electoral payoffs. In this paper, we have investigated whether political alignments affect a key development indicator, literacy, in the long run.

Over a 30-year period, we find no evidence that constituencies that

[22] The school data is part of the village directory, which we had access to from 1991 to 2001, but not from 1971. In this case the proportion of time in ruling coalition is calculated for the years 1991–2001. See Section A in the Online Appendix.

[23] The uninteracted governance measure is absorbed by the district fixed effects.

Table 6
Heterogeneous treatment effects.

	% Literates					% SC literates				
	1	2	3	4	5	6	7	8	9	10
Prop. of time in INC ruling coalition	3.528					2.154				
	[4.107]					[3.475]				
Prop. of time in Communist ruling coalition	−17.69					−10.15				
	[19.34]					[16.23]				
Prop. of time in ruling coalition		−4.375		−0.755	−7.295		−1.389		−0.946	3.587
		[10.51]		[0.928]	[8.054]		[3.634]		[1.080]	[8.813]
Prop. of time in ruling coalition X INC stronghold		−1.066					5.462			
		[19.14]					[7.659]			
Prop. of time in ruling coalition X Communist stronghold		76.77					−10.29			
		[275.4]					[84.31]			
INC stronghold		1.006					−3.479			
		[13.30]					[5.172]			
Communist stronghold		−52.88					7.909			
		[188.2]					[58.13]			
Prop. of time in ruling coalition, Andhra Pradesh			−39.12					−60.58		
			[72.63]					[110.6]		
Prop. of time in ruling coalition, Bihar			−2.035					4.505		
			[6.501]					[8.255]		
Prop. of time in ruling coalition, Gujrat			1.416					−4.472		
			[8.923]					[8.828]		
Prop. of time in ruling coalition, Karnataka			−1.029					−2.51		
			[3.550]					[6.093]		
Prop. of time in ruling coalition, Kerala			1.504					−0.88		
			[3.980]					[6.937]		
Prop. of time in ruling coalition, Madhya Pradesh			8.485					9.596		
			[9.862]					[13.25]		
Prop. of time in ruling coalition, Maharashtra			2.647					−2.363		
			[8.967]					[12.69]		
Prop. of time in ruling coalition, Orissa			−0.821					51.95		
			[111.0]					[167.3]		
Prop. of time in ruling coalition, Punjab			8.016					10.95		
			[6.628]					[8.842]		
Prop. of time in ruling coalition, Rajasthan			4.696					1.728		
			[8.957]					[10.81]		
Prop. of time in ruling coalition, Tamil Nadu			2.11					3.533		
			[4.783]					[6.783]		
Prop. of time in ruling coalition, Uttar Pradesh			−3.645					−5.259		
			[6.033]					[8.777]		
Prop. of time in ruling coalition, West Bengal			12.82					8.119		
			[33.58]					[39.26]		
Newspaper coverage X Prop. of time in ruling coalition				−2.591					−3.860**	
				[1.992]					[1.828]	
Governance measure X Prop. of time in ruling coalition					0.739					−0.462
					[0.858]					[0.941]
Controls?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District fixed effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3137	3137	3137	3069	3069	3135	3135	3135	3067	3067
Adjusted *R*-squared	0.91	0.81	0.87	0.92	0.92	0.93	0.93	0.83	0.93	0.93

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

voted for members of state ruling coalitions in India differentially improved their literacy rates. This bodes well for the state of India's democracy. Although politicians may try to divert some state resources for political gain, this does not result in voters being systematically punished for voting for the opposition.

Further, we found that the change in literacy rates between 1971 and 2001 is strongly positively correlated with the electoral turnout in a constituency. This pattern is not statistically identified and could be the result of reverse causality, but it also may point to an important relationship between political mobilisation and development patterns, and as such could be an important topic for future research.

Our results are subject to several important caveats. First, they are largely specific to the outcome (literacy) and context (India) that we have considered. That said, we have some reason to believe that our results might generalise across development outcomes as literacy is positively correlated with other forms of public goods provisioning in India (Banerjee and Somanathan, 2007). Our findings were also corroborated using three other development outcomes for a shorter time period.

Second, having focused our attention at the constituency level, we cannot rule out the possibility that governments geographically target areas within constituencies. Examining development patterns at a disaggregated level of analysis merits future study.

Third, although the empirical strategy employed here has the benefit of allowing us to estimate the causal effect of being represented by governing coalitions, the estimates so recovered are local average treatment effects. More specifically, the estimates calculated here might particularly obtain in close elections. If governments target constituencies that they win by large margins for improved public goods provisioning, our focus on close elections will have made us to underestimate the effect of being represented by ruling coalitions. However, this concern is mitigated by the fact that the estimated effect of alignment using OLS—which does not just focus on close elections—yields similar results.

Table 7
Determinants of the number of primary schools per capita in 2001.

	1 OLS	2 OLS	3 2SLS	
			1st stage	2nd stage
Prop. of seats won by coalition members	−0.0111	−1.652		0.145
	[2.740]	[2.152]		[5.053]
Initial value of DV	1.096***	1.092***	-3E-05	1.092***
	[0.0111]	[0.0243]	[0.0000599]	[0.0229]
Prop. of seats won by coalition members in close elections against opposition			0.914***	
			[0.0265]	
Prop. of coalition v. opposition elections			0.367***	−4.922
			[0.0235]	[3.670]
Prop. of close coalition v. opposition elections			−0.540***	2.639
			[0.0232]	[2.834]
Vote margin in close coalition v. opposition elections			0.0273***	−0.174
			[0.00116]	[0.177]
Vote margin squared			−0.000130**	0.00614
			[0.0000509]	[0.00429]
Vote margin cubed			−0.00000752***	3.4E-05
			[0.00000206]	[0.0000944]
Controls?	No	Yes	Yes	Yes
District fixed effects?	No	Yes	Yes	Yes
Observations	3,074	3,074	3,074	3,074
Adjusted *R*-squared	0.76	0.90		0.90
1st stage *F*-stat. for time in ruling coalition				1,187

Notes: Controls include the proportion of the population that was scheduled caste (SC) in 1971, the proportion of the population that was scheduled tribe (ST) in 1971, dummies for whether the constituency was reserved for SCs or STs, the log male-female ratio, and the log number of houses and households in each constituency. Standard errors in brackets. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. See text for details.

Our findings advance the literature on the politicised distribution of state resources. The evidence presented here suggests that the extensive politicisation of the provision of resources in India does not differentially affect overall development trajectories at the constituency level in the long run. Any assessment of the consequences of the politicisation of resource distribution in India ought to take this into account. The common observation that governments systematically reward their supporters and punish others is limited.

Disclosure statement

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Supplemental materials.

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References

Ansolabehere, S., Snyder, J.M., 2006. Party control of state government and the distribution of public expenditures. Scand. J. Econ. 108 (4), 547–569.
Asher, S., Novosad, P., 2017. Politics and local economic growth: evidence from India. Am. Econ. J. Appl. Econ. 9 (1), 229–273.
Banerjee, A., Somanathan, R., 2007. The political economy of public goods: some evidence from India. J. Dev. Econ. 82 (2), 287–314.
Banerjee, A.V., Banerji, R., Duflo, E., Glennerster, R., Khemani, S., 2010. Pitfalls of participatory programs: evidence from a randomized evaluation in education in India. Am. Econ. J. Econ. Policy 1–30.
Banks, W.V., 2011. The micro-politics of vote banks in Karnataka. Econ. Pol. Wkly. 46 (14), 71.
Besley, T., Burgess, R., 2002. The political economy of government responsiveness: theory and evidence from India. Q. J. Econ. 117 (4), 1415–1451.
Besley, T., Coate, S., 1997. An economic model of representative democracy. Q. J. Econ. 112 (1), 85–114.
Bhavnani, R.R., 2014. India National and State Election Dataset. Harvard Dataverse Network. https://doi.org/10.7910/DVN/26526.
Bhavnani, R.R., 2018. The effects of malapportionment on cabinet inclusion: subnational evidence from India. Br. J. Polit. Sci. 48 (1), 69–89.
Bhavnani, R.R., Lacina, B., 2017. Fiscal federalism at work? Central responses to internal migration in India. World Dev. 93, 236–248.
Boex, J., Martinez-Vazquez, J., 2005. The Determinants of the Incidence of Intergovernmental Grants: A Survey of the International Experience. Andrew Young School of Policy Studies Research Paper Series, (06-52).
Bohlken, A.T., 2018. Targeting ordinary voters or political elites?: why pork is distributed along partisan lines in India. Am. J. Pol. Sci. 62 (4), 796–812.
Brollo, F., Nannicini, T., 2012. Tying your enemy's hands in close races: the politics of federal transfers in Brazil. Am. Pol. Sci. Rev. 106 (04), 742–761.
Burgess, R., Jedwab, R., Miguel, E., Morjaria, A., et al., 2013. The Value of Democracy: Evidence from Road Building in Kenya. Technical Report. National Bureau of Economic Research.
Bussell, J., 2012. Corruption and Reform in india: Public Services in the Digital Age. Cambridge University Press, Cambridge.
Caughey, D., Sekhon, J.S., 2011. Elections and the regression discontinuity design: lessons from close US house races, 1942–2008. Political Anal. 19 (4), 385–408.
Chandra, K., 2004. Why Ethnic Parties Succeed: Patronage and Ethnic Headcounts in India. Cambridge University Press.
Clots-Figueras, I., 2012. Are female leaders good for education? Am. Econ. J. Appl. Econ. 4 (1), 212–244.
Dahlberg, M., Johansson, E., 2002. On the vote-purchasing behavior of incumbent governments. Am. Pol. Sci. Rev. 96 (1), 27–40.
Dixit, A., Londregan, J., 1996. The determinants of success of special interests in redistributive politics. J. Politics 58, 1132–1155.
Dreze, J., Sen, A., 1995. India: Economic Development and Social Opportunity. Oxford University Press, Delhi.
Dunning, T., Nilekani, J., 2013. Caste, political parties, and distribution in Indian village councils. Am. Pol. Sci. Rev. 107 (1), 35–56.
Eggers, A.C., Fowler, A., Hainmueller, J., Hall, A.B., Snyder Jr., J.M., 2015. On the validity of the regression discontinuity design for estimating electoral effects: new evidence from over 40,000 close races. Am. J. Pol. Sci. 59 (1), 259–274.
Grimmer, J., Hersh, E., Feinstein, B., Carpenter, D., 2011. Are Close Elections Random? Unpublished Manuscript.

Jaffrelot, C., 2003. India's Silent Revolution: the Rise of the Low Castes in North Indian Politics. Permanent Black, Delhi.
Jaffrelot, C., Kumar, S., 2009. Rise of the Plebeians? the Changing Face of Indian Legislative Assemblies. Routledge, London.
Jensenius, F.R., 2015. Development from representation? A study of quotas for Scheduled Castes in India. Am. Econ. J. Appl. Econ. 2 (3), 196–220.
Jensenius, F.R., 2017. Social Justice through Inclusion: the Consequences of Electoral Quotas in India. Oxford University Press, Oxford.
Jensenius, F.R., Chhibber, P., 2018. Privileging One's Own? Voting Patterns and Politicized Spending in India. Paper presented at NICEP 2018.
Jha, R., Bhattacharyya, S., Gaiha, R., Shankar, S., 2009. "Capture" of anti-poverty programs: an analysis of the national rural employment guarantee program in India. J. Asian Econ. 20 (4), 456–464.
Khemani, S., 2003. Partisan Politics and Intergovernmental Transfers in India, vol. 3016. World Bank Publications.
Khemani, S., 2010. Political Capture of Decentralization: Vote-Buying through Grants-Financed Local Jurisdictions. World Bank Policy Research Working Paper Series.
Khemani, S., 2010. Political Economy of Infrastructure Spending in India. Policy Research Working Paper 5423.
Kramon, E., Posner, D.N., 2013. Who benefits from distributive politics? How the outcome one studies affects the answer one gets. Perspect. Politics 11 (02), 461–474.
Kremer, M., Chaudhury, N., Rogers, F.H., Muralidharan, K., Hammer, J., 2005. Teacher absence in India: a snapshot. J. Eur. Econ. Assoc. 3 (2–3), 658–667.
Lee, D.S., 2008. Randomized experiments from non-random selection in US house elections. J. Econom. 142 (2), 675–697.
Lindbeck, A., Weibull, J.W., 1987. Balanced-budget redistribution as the outcome of political competition. Public Choice 52 (3), 273–297.
Mundle, S., Chakraborty, P., Chowdhury, S., Sikdar, S., 2012. The Quality of Governance: how Have Indian States Performed?.
Osborne, M.J., Slivinski, A., 1996. A model of political competition with citizen-candidates. Q. J. Econ. 111 (1), 65–96.
Pande, R., 2003. Can mandated political representation increase policy influence for disadvantaged minorities? Theory and evidence from India. Am. Econ. Rev. 93 (4), 1132–1151.
Potter, D.C., 1986. India's Political Administrators, 1919-1983. Clarendon Press, Oxford.
Rehavi, M.M., 2007. Sex and Politics: Do Female Legislators Affect State Spending. Unpublished manuscript, available at: http://sitemaker.umich.edu/marit/files/rehavi.pdf.
Rodden, J., Wilkinson, S., 2004. The shifting political economy of redistribution in the Indian federation. Working paper. Available at: http://hdl.handle.net/1721.1/18135.
Schady, N.R., 2000. The political economy of expenditures by the peruvian social fund (foncodes), 1991-95. Am. Pol. Sci. Rev. 94 (2), 289–304.
Sen, A., 1999. Development as Freedom. Alfred A. Knopf, New York.
Tavits, M., 2009. Geographically targeted spending: exploring the electoral strategies of incumbent governments. Eur. Polit. Sci. Rev. 1 (1), 103–123.
Uppal, Y., 2009. The disadvantaged incumbents: estimating incumbency effects in Indian state legislatures. Public Choice 138 (1–2), 9–27.
Wilkinson, S.I., 2006. The Politics of Infrastructural Spending in India. Department of Political Science, University of Chicago, mimeo, p. 31.
Witsoe, J., 2012. Everyday corruption and the political mediation of the Indian state. Econ. Pol. Wkly. 47 (6), 47.