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Do voters count? Institutions, voter turnout, and public goods provision in India

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ABSTRACT

Why do some governments prioritize policies that are welfare-improving for many citizens while others concentrate state resources on improving the lot of only a few individuals? Existing research focuses on institutional factors such as regime type and the structure of party systems, but is largely silent on the role of political participation in shaping governments' spending priorities. This paper leverages variation in turnout across Indian state assembly elections from 1967 to 2004 to identify the conditions under which participation matters for government spending. We find that turnout matters in fragmented party systems but has little impact in states characterized by two-party competition. This result has important implications for theories of democratic politics and public good provision.
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1. Introduction

Perhaps the single most important trend in contemporary Indian electoral politics has been the dramatic increase in voter participation in elections. While it has long been true that the poor in India vote at high rates (Ahuja and Chhibber, 2012), this tendency has increased still further when parties representing the lower castes mobilized and incorporated these groups into politics. What has resulted is what Yogendra Yadav, India's leading psephologist, has termed "India's second democratic upsurge" (Yadav, 2004) — a dramatic increase in voter turnout driven primarily by altogether new entrants into the political sphere. Yet, while many have extolled the virtues of India's high and increasing turnout levels (e.g., Yadav, 2000, 2008), a crucial issue has gone largely unanswered, namely, the efficacy of the vote. In short: citizens may vote, and in increasing numbers, but with what effect? Does voter turnout matter for the kinds of policies the government deploys?

We investigate this issue with a particular emphasis on whether and how voter turnout levels affect the mix of public-regarding and private goods politicians in India supply.[2] Our motivation in exploring this question is that while the importance of voter turnout is a core principle of democratic politics, and thus we expect turnout levels to matter a good deal, as a practical matter, our collective intuition outstrips our empirical knowledge. In the case of India, the effect of political participation on the composition of budgets has taken a backseat to institutional approaches to the issue—particularly those rooted in the nature of the Indian party system. While such approaches

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[2] We recognize that some of the spending items to which we refer throughout this article are not pure public goods in the sense of being perfectly nonexcludable and nonrivalrous. We use the terms public goods in a way similar to Shugart's (1999) use of the phrase "national collective goods" to refer to services to which a large share of the population has access.

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certainly are useful, that voter turnout is largely absent in the models and the literature more generally is troubling as it is paramount to assuming that, given a particular institutional configuration, it matters little for policy choices whether 10% of the eligible population routinely turns out to vote or whether 90% does. This is a provocative proposition. If true, it suggests politicians pay little attention to voter turnout rates—and, implicitly, to who votes—when making their policy decisions and that our notions of how democracies function need considerable revising. If false, the absence of turnout may prove an important weakness for existing models. Which is it? Does voter turnout matter or do institutional configurations, e.g., the structure of the party system, trump?

We suggest turnout does matter for the composition of budgets. Specifically, we conceive of voter participation as affecting the size of the constituency to whom a leader must appeal to retain power and therefore the price of private goods. From this vantage point, we argue that high turnout reduces the welfare gains of private goods to the citizens receiving them, since state resources must be divided among more people, and therefore encourages politicians to spend more on public goods and less on private goods. Conversely, low turnout incentivizes the supply of private goods.

Notably, this approach to turnout introduces an important conundrum. Existing models of budgetary priorities in India argue that institutional factors, particularly, variation in the fragmentation of the party system, *also* determine the size of the winning coalition. In particular, Chhibber and Nooruddin (2004) have argued that Indian states with two party systems have larger constituencies to whom an incumbent must appeal to retain power and so politicians in those states spend more on public goods than do their counterparts in states with more fragmented party systems. Thus, a tension exists regarding what constitutes the equilibrium spending strategy when the incentives induced by voter turnout and the party system pull in opposite directions. How do politicians behave, for example, when the party system produces small coalitions (i.e., when fragmentation is high), but where turnout is high? How do budgets respond to a party system that necessitates that politicians cultivate large coalitions but where turnout is quite low?

Our approach to voter turnout offers the following synthesis. In India, the degree of party fragmentation determines the upper and lower bounds of the winning coalition while voter turnout determines where within those bounds the *effective winning coalition*—the actual share of the population to whom the leader must appeal—lies. By locating the effective winning coalition within the bounds set by institutional factors, turnout can either reinforce or attenuate the effects of institutions. When party fragmentation is high and the winning coalition small, low turnout increases further the incentives for politicians to supply private goods and eschew public ones. In the same institutional environment, however, high turnout disequilibrates the private goods strategy by expanding the number of people to whom the leaders must appeal to retain power.

On the other hand, where institutions create large winning coalitions (i.e., when fragmentation of the party system is low), voter turnout will have little effect on spending. Because the institutional environment requires politicians to cultivate broad appeal, public goods will always be held at a premium, even if turnout is relatively low. In this instance, there is no alternative to public goods that better enables the incumbent to retain office. Therefore, we expect higher voter turnout to increase (decrease) spending on public (private) goods *in institutional environments that generate small winning coalitions*. When institutions generate large winning coalitions, the effect of turnout will be negligible.

We test our theory using data on state-level spending in India and find support for the argument. Consistent with prior research, party fragmentation in India does reduce spending on public services and increases it on private services. However, unanticipated by earlier studies but predicted by our framework, the magnitude of this effect depends on voter turnout. The effect of party fragmentation is strongest in low turnout contexts and dissipates entirely in highly participatory settings. These results are consistent with our claim that voter turnout counteracts the effect of winning coalition-shrinking institutional configurations. Per our second hypothesis, we also find that voter turnout generally increases (decreases) spending on public (private) goods, but more so in institutional environments that create small winning coalitions.

Below, we develop this argument and present the results summarized above. While our focus here in on the Indian case in particular, the theory regarding the combined effects on budgetary priorities of turnout and the institutional environment is a general one that can be applied cross-nationally. Indeed, in the cross-national literature on budgetary priorities, we find the same tendency as that in the Indian scholarship to highlight the role of institutional factors, but give little attention to voter turnout levels and fail to assess equilibrium spending allocations when turnout and institutions supply contradictory incentives. We believe our theory to be a general enough to offer an important contribution to this cross-national literature as well as scholarship on India. With that in mind, when developing the theory below, we do so first abstracting from the Indian case to show the generality of the theory. From there we discuss the theory's implications for spending in India. Subsequent to that, we present our main empirical results as well as those from various robustness checks. The final section concludes the paper by discussing the implications of our research for future research on government spending, party systems, and voter turnout.

2. Theory

Why do some governments prioritize policies that are welfare-improving for many citizens while others concentrate state resources on improving the lot of only a few individuals? The most parsimonious answer is that leaders pick the strategies that best enable them to retain power. This statement leaves unanswered all the interesting questions however, and scholars have endeavored to explain the specific factors that determine equilibrium budgetary allocations. Institutional factors have taken an

increasingly prominent role in this literature and we have learned how they structure incentives and constrain options and, thus, affect spending patterns. Scholars have illuminated the incentives induced by regime type (Brown and Hunter, 1999, 2004; Lake and Baum, 2001) and, within democracies, constitutional and electoral rules, and the structure of party systems.[3]

While it is clear that institutional factors matter, the core premise of democratic politics is the primacy of citizen participation in the selection of leadership. Yet, for all the normative importance we ascribe to political participation in democracies, voter turnout is conspicuous in its relative absence in models of budget composition.[4] Its absence is troubling in that it implies that politicians pay little attention to voter participation when making policy decisions; that the same institutionally-induced spending strategy is in equilibrium in the context of consistently low voter participation and consistently high turnout rates; that spikes in turnout or even singular trends in turnout over time in no way alter the strategies and behavior of incumbents. This strikes us as implausible and we suspect that V. O. Key was right when he argued that "politicians and officials are under no compulsion to pay much heed to classes and groups of citizens that do not vote" (1949, p. 527), as was Arend Lijphart when he suggested that "who votes and who doesn't has important consequences for who gets elected and for the content of public policies" (1997, p. 4). We will argue that incumbent politicians will devise strategies that maximize the chance of winning reelection based on the incentives induced by the institutional environment and the incentives and constraints put in place by the rate at which voters participate in elections. We begin our theory with the role of institutions and move from there to the modifying effect of voter turnout.

2.1. Institutions, participation, and budget composition

Selectorate theory (Bueno de Mesquita et al., 2004) constitutes a useful starting point to understand budgetary priorities. Bueno de Mesquita and coauthors assume that office-seeking politicians use constrained budgets to spend on a mix of public- and private-regarding goods and services with the goal of buying the support of citizens and retaining office. The key hypotheses center on the concept of the winning coalition—that share of the selectorate whose support is essential for the leader to retain power. The size of the winning coalition is institutionally determined and when it is small, leaders can generate larger benefits to members of the winning coalition through the use of private goods than they can with public goods. As the winning coalition expands, however, state resources must be divided among more people and private goods, if distributed, generate smaller welfare gains to those receiving them than public goods do. Consequently, instead of dividing revenues into private goods, governments will look to provide public goods.[5,6]

Note that voter turnout plays no role in determining to whom politicians cater in selectorate theory, however. Rather, it is assumed that the institutionally determined incentives are in equilibrium regardless of whether citizens actively participate in politics. We suspect, on the other hand, that the effect of the institutions will differ dramatically in low participation environments compared to high participation ones.

How might turnout matter? One approach might emphasize turnout's effects on the class composition of the electorate. Because the poor and citizens of low socioeconomic status participate less than those of the upper classes do (Verba et al., 1978; Rosenstone and Hansen, 2002), low turnout is socioeconomically-biased turnout and this creates an upper-class bias in the kinds of policies advocated in campaigns and initiated by incumbents. High turnout driven primarily by increased participation of the lower classes changes the nature of the policies initiated by the government. For example, in the canonical Meltzer-Richard model, if high turnout is caused by increased participation of poor citizens, the median voter becomes poorer relative to the average income and therefore demands more income redistribution (Meltzer and Richard, 1981). This leads to larger government budgets than what would exist in low turnout contexts. Franzese (2002) finds some support for this logic and concludes that "governments tend to respond to more-skewed income by raising transfers at any [voter participation] rate … but *more so at higher participation* …" (p. 103, emphasis added). Models of turnout based on Meltzer-Richard are useful in understanding the size of budgets, but they cannot distinguish between redistribution in the form of private goods such as transfers to citizens with below-average income and redistribution in the form of broadly-accessible public goods such as education spending or public investment. As the mix of public and private goods is our interest here, we need another approach.

We propose that turnout, like institutions, determines the price of private goods relative to public ones by determining the size of the coalition an incumbent needs to

[3] See Shugart (1999) on the effects of the relationship between executives and legislatures, Hicken and Simmons (2008) on electoral rules determining the relative importance of political parties or individual candidates, Lizzeri and Persico (2001), Persson and Tabellini (2004) and Melesi-Ferretti, Perotti, and Rostagno (2002) on plurality versus proportional representation, Chhibber and Nooruddin (2004) on party system fragmentation, Saez and Sinha (2010) on election timing, Bawn and Rosenbluth (2006) on coalition governments, and Boulding and Brown (2012) on political competitiveness.

[4] An apparent exception is the emerging literature on the effects of participatory budgeting institutions on public spending priorities (Boulding and Wampler, 2010).

[5] The theory is most often used to explain differences across regimes but it applies just as well to variation within democracies. For example, democracies with SMSP districts can be expected to spend less on public goods and more on private ones compared to PR systems. Assuming two parties, obtaining a legislative majority requires 50% of the total electorate in PR but only 25% under SMSP (50% of the votes in 50% of the districts). Formal models and the data agree with this conclusion.

[6] Likewise, Hicken and Simmons (2008) find that closed-list electoral rules broaden constituency size compared to open list systems and increase the provision of public services accordingly. Chhibber and Nooruddin (2004) find that party fragmentation in India's SMSP districts reduces the size of the winning coalition and therefore decreases the provision of public goods. All of these findings are consistent with the predictions of selectorate theory.

build to win election. In democracies, office-seeking politicians cater primarily to those segments of the population that attend elections. To the extent that government spending buys political support, the incumbent's task is to allocate resources such that a sufficiently large share of the likely electorate receives suitably large welfare increases so they will opt to reward the incumbent with reelection. In this environment, the likely turnout rate determines how governments will spend. High turnout undermines the efficacy of private goods as a reelection strategy by requiring incumbents to cultivate broad appeal. Because private goods typically do not benefit from economies of scale, as turnout increases and more people require government spending, private goods, if supplied, would have to be divvied among more people. Ultimately, such a resource allocation would offer only trivially small welfare gains to recipients. Public goods, however, offer a more promising reelection strategy. The economies of scale with which they are associated mean more people have access to suitably valuable government services. Moreover, in the context of high turnout, where the welfare gains to private goods are trivial, the direct and indirect consequences of public services like education and health expenditures and public investment and infrastructure are likely to add up to welfare gains that exceed those that would accrue to private goods. Thus, by forcing incumbents to appeal more broadly, higher voter participation induces a shift away from private goods and toward public ones.

Low turnout has the opposite effect. In low participation environments, state resources can be targeted to a narrow section of the population and can therefore increase markedly the welfare of citizens receiving those goods. The benefits to public goods are comparatively small when turnout is low. Moreover, when turnout is low, public goods are inefficient because they necessarily extend to citizens that do not participate in politics and hence are unimportant for the incumbent's reelection prospects. The incumbent improves the chances of reelection by refusing to spend on those whose support is inessential and focus revenues on building a winning coalition among those citizens that typically participate in elections.

Naturally, politicians do not know *ex ante* what the turnout rate will be at the next election. They can, however, observe past turnout rates and past trends in turnout to formulate an estimate of future turnout. Accordingly, the rational incumbent that uses all information available will observe past turnout levels to estimate turnout levels in the next election and will set the composition of the budget in the years intervening elections accordingly. In this way, past turnout acts as a signal to the incumbent of the relative efficacy of private versus public goods in the goal of winning reelection. High turnout in the past signals that reelection is more likely if public goods are prioritized over public ones. Low turnout in the past signals the opposite.

This conceptualization of voter turnout as a factor determining winning coalition size and a signal of the price of private goods raises interesting questions for how we understand spending in democracies. If both institutions and turnout determine the coalition size needed to retain office, how are we to understand equilibrium spending strategies when the two factors pull in opposite directions? We suggest that as it pertains to government spending, the role of institutions in democracy is limited to setting the upper and lower bounds to the size of the winning coalition while voter participation rates determine where within those bounds the *effective winning coalition size*—the actual size of the coalition needed to retain office—lies. It is the combination of institutions and turnout, therefore, that affects spending decisions. More precisely, we suggest that turnout can either reinforce incentives produced by institutions or act as a countervailing force against them.

Consider a democracy where institutions shrink the size of the winning coalition, say for example, a democracy with SMSP districts. Per Bueno de Mesquita et al., we would expect private goods to be in greater supply than in a PR system.[7] Our theory implies that the extent to which this is true depends on voter turnout. Low turnout in the plurality system increases further the political efficacy of private goods goods by shrinking still further the size of the coalition needed to retain office. High voter turnout in the plurality systems, however, disequilibrates the private goods strategy by forcing the government to prioritize more the economies of scale to public goods. The spending differences between plurality and PR democracies should dissipate accordingly. In this instance, turnout acts as a strong countervailing force to institutions that generate small winning coalitions.

We also expect that the effect of turnout on spending depends on the institutional environment in which that participation occurs. The effect of increased turnout in our theory is to increase the premium placed on the economies of scale associated with public goods. This effect should be most pronounced when institutions generate small winning coalitions. In this case, the institutional incentive is to produce private goods, but turnout countervails and obliges an increased premium on public goods. When institutions generate large wining coalitions, however, the prevailing incentive is to spending on public goods and high turnout does not alter these incentives. Here, institutions and voter turnout are essentially substitutes and the effect of increased turnout on spending is negligible.

From this logic, we produce the following two generic propositions.

- Proposition 1: Among democracies, institutional environments that generate small winning coalitions generally increase spending on private goods and reduce it on public goods. *This effect will be strongest when voter turnout is low and will weaken as turnout increases*.
- Proposition 2: Among democracies, voter participation generally increases spending on public goods and decreases it on private ones. This effect will be weakest when the institutional environment generates large winning coalitions and strongest when institutions generate small winning coalitions.

[7] Footnote 5 articulates the intuition behind this claim.

Below, we port these generic hypotheses to the particular case of budgetary priorities in India.

3. Determinants of state-level spending in India

Contemporary Indian politics has witnessed a dramatic increase in voter turnout. Notably, the new voters in this "second democratic upsurge" are only weakly identified with existing parties. Evidence of weak party affiliation is available through India's 2004 National Election Study. Yadav points out that it was increased participation from the Scheduled Tribes (ST) or Scheduled Castes (SC) that are driving the upsurge in voter turnout. According to the Indian National Election Study, of the 7444 SC and ST respondents that voted in 2004, only 15% said that they belong to a political party. Similarly low party affiliation (13%) exists for those citizens aged 22 or younger and for whom 2004 was the first election in which they could vote, and for respondents who did not vote in the 1999 election, but did vote in 2004 (13%). While it is not essential for our theory that party affiliation be low, that new voters in India are so weakly identified with existing parties is useful in testing the theory because it allows constituency service and government spending to have especially prominent roles in shaping how citizens vote (Chandra, 2009).

It is significant, however, that Indian politics has also witnessed a second important trend, namely increasing fragmentation of the party system. We document this trend in Fig. 1. The economic and political decentralization that began with Indira Gandhi's assassination in 1984 and continued with the reforms of the 1990s weakened incentives for politicians to coordinate across districts under a common party label. As a consequence, India has fractured into a set of parties with limited geographic appeal (Chhibber and Kollman, 1998, 2004; Chhibber and Nooruddin, 1999; Yadav 1996).

To get a sense of the extent of regionalism in India's party system, consider Cox's (1997) measure of regional fragmentation, $F = ENP_{nat} - ENP_{avg}/ENP_{nat}$, where ENP_{avg} is the subsequent effective number of parties receiving votes in the average electoral district in national elections and ENP_{nat} is the effective number of parties in the national legislature.[8] Larger F scores reveal that there are more parties in the national legislature than in the average district, implying that politicians do not coordinate well under common party labels, but instead start their own regionally-focused parties and manage to win seats in the national legislature by competing well in only a few districts. Smaller F scores indicate better cross-district coordination and more nationalized parties.

In the late 1970s and early 1980s, India's F score averaged 0.38; even then India was a rather highly regionalized party system by comparative standards. However, the late-1980s witnessed an explosion of new parties (Chhibber and Nooruddin, 1999; Nikolenyi, 2008). After the 1989 election,

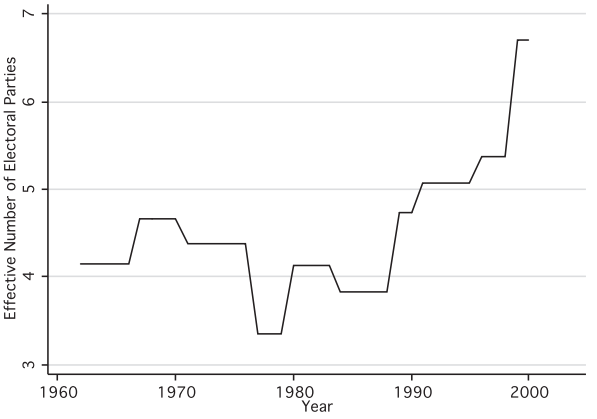

Fig. 1. Effective number of electoral parties in India.

India's F score rose to 0.47, putting it in the 95th percentile of all democracies. By 2004, about fifteen years after the economic and political decentralization Chhibber and Kollman (1998, 2004) report further reduced incentives for cross-district coordination, India's score was 0.63, the fourth highest observation in a sample of over fifty democracies that records election returns between 1960–2004.[9]

India's federal system makes the states the locus of fiscal authority. This is noteworthy because while overall, fragmentation and turnout have been increasing, the states exhibit substantial variation on both dimensions (Chhibber et al., 2003; Chhibber and Nooruddin, 1999, 2004; Saez and Sinha, 2010). Panel A in Fig. 2 documents the variation in the effective number of parties receiving votes in state parliamentary elections for fifteen states representing 90 percent of India's population between 1967 and 2004.[10] Substantial cross-sectional and temporal variation is evident. Some states traditionally have had many more parties than others. Kerala, for example, averaged 6.5 parties (with a standard deviation of 0.8) in the period, while Madhya Pradesh averaged only 3 (standard deviation 0.2). Additionally, the rate of increase over time varies. Bihar, Haryana, and Maharashtra exhibited tremendous increases in the number of parties over time, while others, Madhya Pradesh and Punjab for instance, saw little increase in fragmentation over time and even periods of party consolidation.

There exists similar variation in turnout levels, demonstrated in Panel B in Fig. 2. Andhra Pradesh, for example, consistently saw turnout rates around 70% while turnout in Madhya Pradesh hovered around the 50% for much of the period. As for temporal variation, some states, Karnataka for example, saw little temporal variation while others like Orissa, saw turnout rates rise dramatically.

What are the effects of these two trends on spending priorities in the Indian states? Start with the effect of the institutional environment. *Ceteris paribus*, states with more party fragmentation have smaller winning coalitions due to

[8] Cox (1997), Chhibber and Kollman (2004), and Hicken (2009) all show that F yields a good measure of the extent to which politicians in different districts coordinate under a common party label rather than create altogether separate parties.

[9] These data come from Hicken et al. (2008).

[10] States included are listed in Table A1 in the appendix.

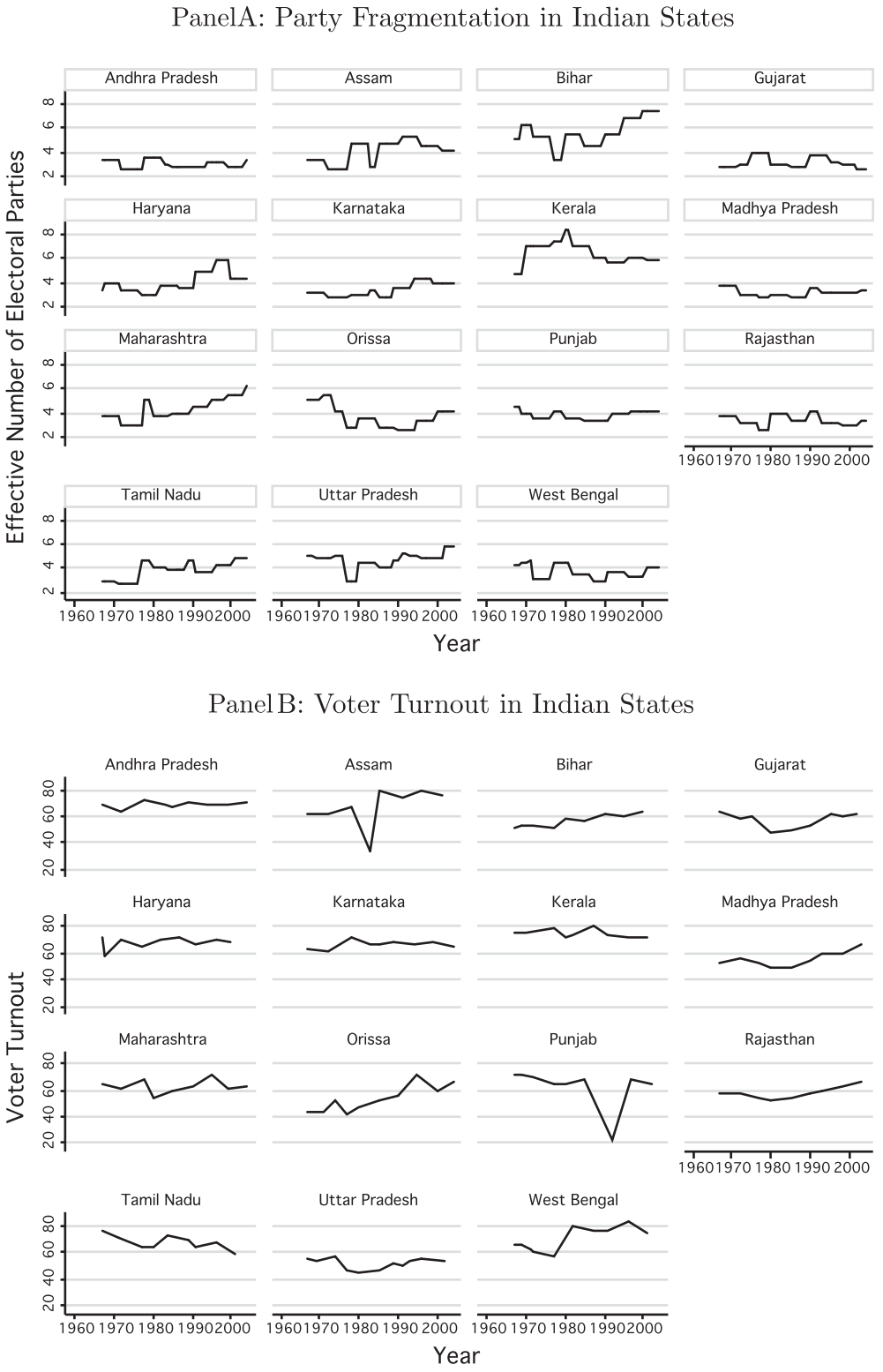

Fig. 2. Party fragmentation and voter turnout in the Indian states.

two mechanisms. First, fragmentation in India means parties are increasingly limited in the number of districts where they can field candidates successfully. Because of poor coordination, district-to-district heterogeneity looms large in electoral campaigns and parties that compete well in one district often find it hard to gain traction in others with different economic and political attributes. Because more parties have only limited geographic appeal, the threshold of seats a given party needs to win to have a chance at becoming a member of a governing coalition is lowered. Fig. 3 illustrates. The graph plots the relationship between the effective number of parties receiving votes in state legislative elections and the seat share of the largest government party in the state legislature following that election. The trend is clear: increasing fragmentation enables parties to control the state government (and hence, considerable budgetary resources) with the support of fewer districts.

Second, pronounced fragmentation lowers the threshold of votes needed for a party to win a given district. India's districts are SMSP, which in the context of a highly fragmented and regionalized party system, reduces the plurality needed to win the seat (Chhibber and Nooruddin, 2004). It is not uncommon to observe in India's more fragmented states that the major players in government have secured the support of only a very small percentage of the electorate (and even smaller share of the state's total population).

Thus, we expect that an increase in party fragmentation reduces the size of the winning coalition while two party competition corresponds with a large winning coalition. Per our argument, and echoing Chhibber and Nooruddin (2004), we therefore expect that states with high fragmentation will generally spend less on public goods and more on private ones compared to those with less fragmented systems. When fragmentation allows most parties to draw most of their support from a select few electoral districts and when the plurality needed to win a given district is low, parties will focus their electoral strategies on mobilizing core supporters in crucial districts. They have no incentive to appeal broadly or to cultivate support in districts where they do not successfully compete. By contrast, in two party competition the threshold needed to win a given seat increases, as does the number of seats that a party must win to control government. This expands the number of people to whom the government must appeal and therefore reduces the welfare gains to private goods and increases the premium politicians assign to public goods.

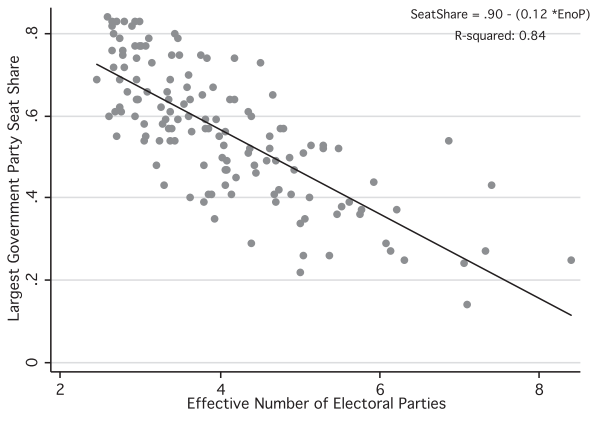

Fig. 3. Party fragmentation and incumbent seat share.

That said, our theory expects that low turnout will *magnify* the effect of party fragmentation whereas high turnout will *depress* it. Adapting our generic hypotheses to the Indian context, our first testable hypothesis is as follows.

- Hypothesis 1a: Among Indian states, fragmented party systems will generally spend more on private goods and less on public-regarding ones. *This effect will be strongest when voter turnout is low and will weaken as turnout increases.*

The theory also predicts a contingent effect of voter turnout. Specifically, voter turnout will increase spending in fragmented systems, but will have little effect under two party competition.

- Hypothesis 2a: Among India states, voter participation generally increases spending on public goods and decreases it on private ones. This effect will be weakest when fragmentation is low and will become more pronounced as party system fragmentation increases.

A first glance at the data bears out our predictions. Fig. 4 presents a set of four graphs. Each uses data between 1967 and 2004. Panel A plots the relationship between the effective number of parties and *development expenditures* as a percent of total state government expenditures. Development expenditures is used as a measure of public goods and services. It includes appropriations to programs related to economic growth, poverty reduction, and social welfare programs, each of which constitutes a broad, difficult-to-exclude service with significant economies of scale in their supply.[11] Panel A also divides the sample according to whether, during the most recent election, the observation had a turnout level above (the gray diamonds and the dashed gray trend line) or below (the circles and solid black trend line) the sample median ($\approx$62% of the eligible electorate). The results are compelling. They show that among low turnout observations, higher party fragmentation reduces development expenditures from an average of about 70% of total state spending when

[11] Specifically, the Reserve Bank of India, from which the data are obtained, includes the following spending categories under development expenditures: education, sports and culture, medical and public health, family welfare, water supply and sanitation, housing, urban development, labour welfare, social security, nutrition, expenditures on natural calamities, agricultural services, rural development, irrigation and flood control, energy, industry and minerals, transport and communications, science, technology and the environment, and economic services. While not all of the categories are pure public goods in the sense of being perfectly nonexcludable and nonrival, these are items that certainly have broad positive effects—particularly on the lower and middle classes—and are more public-regarding than private-regarding on the continuum.

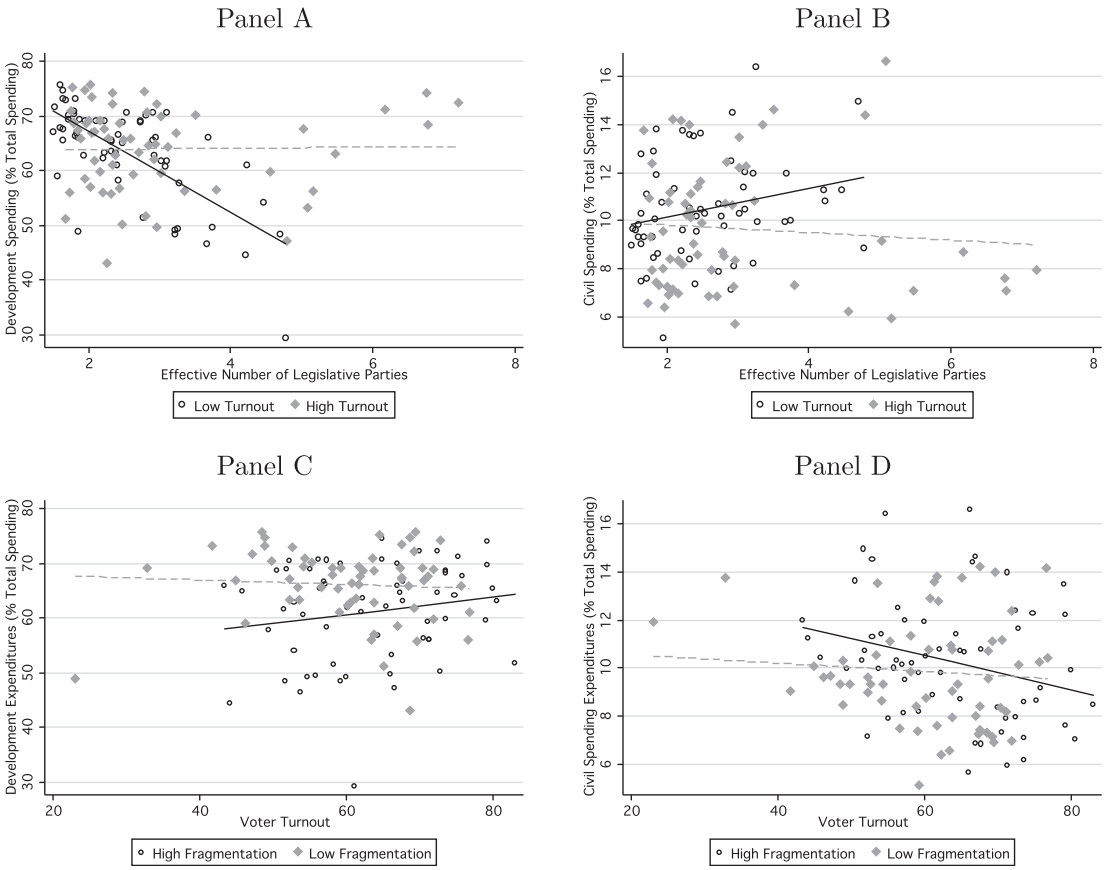

Fig. 4. Fragmentation, turnout, and spending in Indian states.

fragmentation is low, to under 50% when fragmentation is very high. Notice, however, that among *high turnout observations* fragmentation has no effect on development spending at all. In high turnout environments, two party and very fragmented systems are indistinguishable in terms of the priority placed on public goods and services. The trend line is flat. This is consistent with our claim that turnout disequilibrates the private good induced by institutions that produce small winning coalitions.

Panel B shows that fragmented systems with low turnout also increase spending on private goods. This graph plots the relationship between spending on *civil administration wages and salaries* (as a percent of total state expenditures) and party fragmentation, again dividing the sample by turnout rates. We use spending on civil administration wages and salaries as an indicator of private goods since expanding the bureaucracy has long been a way for politicians around the world and in India to direct benefits to supporters. Doing so is easily targetable and excludable. While data are not available for the number of employees in the state, spending on wages and salaries is closely related and is indicative of the state's use of the bureaucracy as a private benefit. The trends in this graph are consistent with the theory. In low turnout environments, more fragmentation increases spending on civil wages and salaries. Fragmentation does not increase spending in high turnout levels, however—if anything there is a slight *decrease* in spending as fragmentation increases in this sample.

Panels C and D investigate Hypothesis 2a that poses a contingent relationship between voter turnout and spending priorities. Panel C plots the relationship between development spending and voter turnout, but this time the sample is divided according to whether the observation had fragmentation levels above (the black circles and solid black line) or below (the gray triangles and dashed gray line) the sample median ($\approx$2.4). Panel D substitutes civil spending for development expenditures. In Panel C voter turnout appears to *increase* spending on public goods when fragmentation is high, but has no effect on development spending in systems without much fragmentation. In Panel D, we observe that turnout seems to *reduce* the premium governments in fragmented systems place on private goods, but turnout has no effect on civil administration spending in systems without much fragmentation.

Taking the four figures together, an interesting set of trends emerges. The combination of high fragmentation and low voter turnout increases spending on private goods (i.e., civil administration wages) and decreases it on public goods (i.e. development spending). Politicians in this environment channel resources away from broad services toward narrow ones; away from policies that are widely welfare increasing and toward those that benefit the few. That said, the magnitude of fragmentation's effect are

contingent on values of voter turnout and vice versa. The effects of increases in fragmentation of the party system are most pronounced in low turnout environments; fragmentation has virtually no effect in highly participatory settings. Likewise, the effect of voter turnout is most pronounced in highly fragmented systems and increases in turnout matter little in two party systems. These results are consistent with our expectations. They indicate that institutions and participation jointly determine spending outcomes and that turnout acts as a strong counterbalance to institutional design features that reduce the size of the winning coalition.

3.1. Research design

These findings, while supportive, are only suggestive. Our more formal test of the theory proceeds as follows. We rely on a database covering 137 state-level elections between 1967 and 2004. Appendix A1 lists the included states and elections.[12] We use three spending categories as dependent variables. Each is coded as a percent of total government spending. The first is the *development spending* measure described above. This category is defined broadly, however, (see footnote 11), raising concerns that it conceals more than it reveals about government spending priorities. Therefore, we also estimate models replacing development spending with government *education expenditures*. Education spending is a component of development spending and is also indicative of the premium on public goods.[13] The third measure is spending on *civil administration wages and salaries* as described above.

Development and civil administration spending combine to account for 75% of total government expenditures in our sample, on average. We note this because we believe these two categories go a long way in identifying government spending priorities. We need not be concerned that we are ignoring the lion's share of government spending and therefore testing our theory on categories unrepresentative of the budgets in these states. On the contrary, these categories make up a large share of the budgets and are indicative of the real choices governments make over how to allocate scarce resources between public and private goods. Increases in one category necessarily come at the expense of the other.

On the right-hand side of the model, voter turnout is measured as the ratio of the number of votes cast to the total size of the eligible electorate. Party fragmentation is calculated using Laasko and Taagepera's (1979) formula for the effective number of legislative parties, $ENP = \frac{1}{\sum_{i=1}^{n} p_i^2}$, where p_i is party i's seat share in the state legislature.[14] Finally, testing the argument requires an interaction term between party fragmentation and turnout. To see why this is so, recall our two hypotheses. Hypothesis 1a is that turnout levels moderate the effect of public spending priorities. Low turnout reinforces party fragmentation's heightened premium on private goods while high turnout takes out of equilibrium the tendency for fragmented party systems to supply private goods. Thus, the effect of fragmentation on budgetary priorities is *context-conditional*. Hypothesis 2a is also context-conditional. We have argued that increased turnout obliges politicians to place a higher premium on public goods, but that the magnitude of turnout's effect depends on whether features of the party system already predispose politicians to favor those kinds of goods. High turnout has its biggest effect on spending patterns when the party system would otherwise encourage policymakers to favor private goods (i.e., when the party system is fragmented) and its effect weakens when the party systems already compels politicians to favor public goods (i.e., in two party competition). Such context-conditional expectations require a multiplicative interaction term.[15]

We also include a set of economic and political control variables. Wealth correlates with the capacity of the state to supply social spending and so both *per capita gross state product* (GSP; logged) and the *GSP growth rate* enter the model. We also control for the presence of *coalition governments* since coalitions and party fragmentation are correlated and coalition government is often hypothesized to affect government spending (Laver and Schofield, 1990; Bawn and Rosenbluth, 2006). An indicator for *post-1991* is included to control for the reform era that increased the state governments' fiscal authority. We also want to account for the potential relationship between *party ideology* and the size of government and so we include a dummy variable that equals "1" if the largest government party in state i at time t is right-of-center and "0" otherwise.[16] Finally, we include a set of state specific fixed effects to model any unit heterogeneity that might exist. Note that that state dummies also account for the effects of any other time invariant or slowly moving independent variables. For instance, we might expect ethnic diversity to be correlated both with party fragmentation and with spending patterns. Because ethnic composition changes slowly over time within the Indian states its effects are modeled by the state-specific indicator variables.

Our data are available in annual increments with the exception of turnout, which, naturally, is available only in election years. To deal with this fact, we pool the observations across each state's legislative elections between 1967

[12] The database was first published in Chhibber and Nooruddin (2004) and extended in Nooruddin and Chhibber (2008). We thank Pradeep Chhibber for sharing these data.

[13] See Brown and Hunter 2004, Lake and Baum 2001, and Nooruddin and Simmons 2006, 2009 for other works that uses education expenditures as an indicator of public service provision. Hicken and Simmons (2008), however, show that even education spending can be allocated in narrow and targetable ways.

[14] Most states in the database have unicameral legislatures. For those that do not, Uttar Pradesh, Maharashtra, Bihar, Karnataka, and Andhra Pradesh, we focus exclusively on the lower house since the upper houses are not directly elected by the population.

[15] We thank an anonymous reviewer for encouraging us to elaborate on this point.

[16] We thank an anonymous reviewer this suggestion. Notes: The specific parties that are coded as right-of-center are: Asom Gano Parishad, Bharatiya Janata Party, Shiv Sena, and Shiromani Akali Dal. In an additional check of the effect of ideology, we included a dummy variable for the BJP in particular. As its inclusion did not effect the substantive results presented below, we do not report that model here.

and 2004. To avoid losing information on the annually-available variables, we compute their means for the years intervening elections. For example, Andhra Pradesh held elections in 1967 and again in 1972. For its 1972 observation in our database, the turnout data come from the 1972 election while the remaining independent variables are averaged between 1968 and 1972.[17]

To mitigate against potential endogeneity between turnout and spending, turnout enters lagged one period. All other variables enter contemporaneously. Accordingly, the equations model the situation in which politicians adjust the composition of spending based on the electoral turnout of the most recently-held elections *conditional* on contemporaneous levels of fragmentation and controlling for other contemporaneous economic and political conditions. Returning to the Andhra Pradesh 1972 example, the models imply that voter turnout in 1967 affects the composition of government spending in subsequent years (i.e., 1968–1972) depending on the level of party fragmentation during those years and controlling for other economic and political conditions during those years.

We need to be wary of a potential second source of endogeneity as well—that between party fragmentation and voter turnout. Cross-nationally, it has been shown that fragmented party systems typically associated with PR electoral rules tend to increase turnout because fragmentation improves the variety of voters' options and because it makes elections more competitive, which in turn, intensifies the parties' mobilization efforts (Blais and Carty, 1990; Jackman and Miller, 1995; Tavits, 2004). We have checked for this source of endogeneity in our database and found no evidence of it. When we estimate a fixed effects regression with panel-corrected standard errors where turnout is regressed on its lag and the level of party fragmentation, the fragmentation variable is negatively signed and very far from statistical significance ($p \approx 0.85$). Thus, an endogenous relationship between fragmentation and turnout does not appear to bias our results.

Given the panel structure of the data we calculate panel-corrected standard errors per the advice in Beck and Katz (1995). Finally, while pooled time-series cross section analyses typically include a lag of the dependent variable to mitigate against serial correlation, the structure of the database does not lend itself to such an approach here. Indian elections are endogenously determined and do not necessarily occur in the same year for each state, nor in regular intervals within the same state. As such, a one-period lag of the dependent variable does not have a consistent meaning across units. Additionally, including a lagged dependent variable along with unit fixed effects introduces Nickell bias and additional statistical complications (Nickell, 1981). We therefore omit the lagged dependent variable (LDV) in our first set of results. However, we present robustness checks that utilize annual observations and include the LDV and these results corroborate the main findings.

[17] See Nooruddin and Chhibber 2008 for a similar strategy.

3.2. Results

Table 1 reports the coefficient estimates from the three models. In Model 1, development expenditures is the dependent variable. In this model, party fragmentation takes a negative sign, indicating that when turnout is low (more precisely when turnout is zero percent), greater party fragmentation reduces development spending. However, the positive and significant interaction term indicates that this negative effect tends toward zero as citizens vote at higher rates. The top left graph in Fig. 5 displays these effects more intuitively by graphing the marginal effect of a one unit increase in the effective number of parties as voter turnout changes. The dashed lines indicate 90% confidence intervals around the effect. Notice first that when turnout is low, fragmentation has a statistically significant negative effect on development spending, evidenced by the fact that both dashed lines fall below the zero horizontal. Notice, too, that these effects can be appreciable. At turnout rates of 45% for example (the sample's 5th percentile), party fragmentation reduces development spending by about 8%. Per the coefficient on the interaction term, however, the slope of the marginal effect line is positive; fragmentation's downward pressure on development spending weakens as turnout increases. For example, when voters turn out at a rate of 55% (approximately the sample's 25th percentile), fragmentation reduces development's share of the budget by 5.5%. At 65% turnout, the effect is smaller still—only about 2.9%. And at very high turnout levels, say, 70% (approximately the sample's 80th percentile), fragmentation's effect is only a 1.6% spending reduction. More importantly, at turnout rates at or above 70%, fragmentation's effect on development spending is statistically insignificant. This last point is particularly important. Despite an institutional structure that would generate small winning coalitions, high turnout forces politicians to deploy goods to which a broad swath of the population has access such that two party and very fragmented systems are statistically indistinguishable. High turnout trumps the effect of fragmentation on development spending.

Table 1
Fragmentation, voter turnout, and government spending.

DV:	(1) Development	(2) Education	(3) Civil admin
Fragmentation	−19.8*** (5.82)	−3.82* (1.96)	2.72*** (0.81)
Turnout	−0.57** (0.23)	−0.018 (0.079)	0.077** (0.037)
Fragmentation* Turnout	0.26*** (0.087)	0.062* (0.032)	−0.036*** (0.013)
Per capita GSP	−0.73 (4.82)	−6.92*** (1.30)	−2.21*** (0.78)
GSP growth	0.41** (0.19)	0.064 (0.062)	−0.049 (0.034)
Right-of-center party	4.25** (1.90)	1.17** (0.57)	−0.42 (0.40)
Coalition gov't	2.03 (3.36)	−1.15 (0.84)	−0.58 (0.51)
Post-1991	−7.25** (3.40)	1.70* (0.88)	−0.77 (0.56)
Observations	123	123	123
Adjusted R^2	0.99	0.99	0.98

Standard errors in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

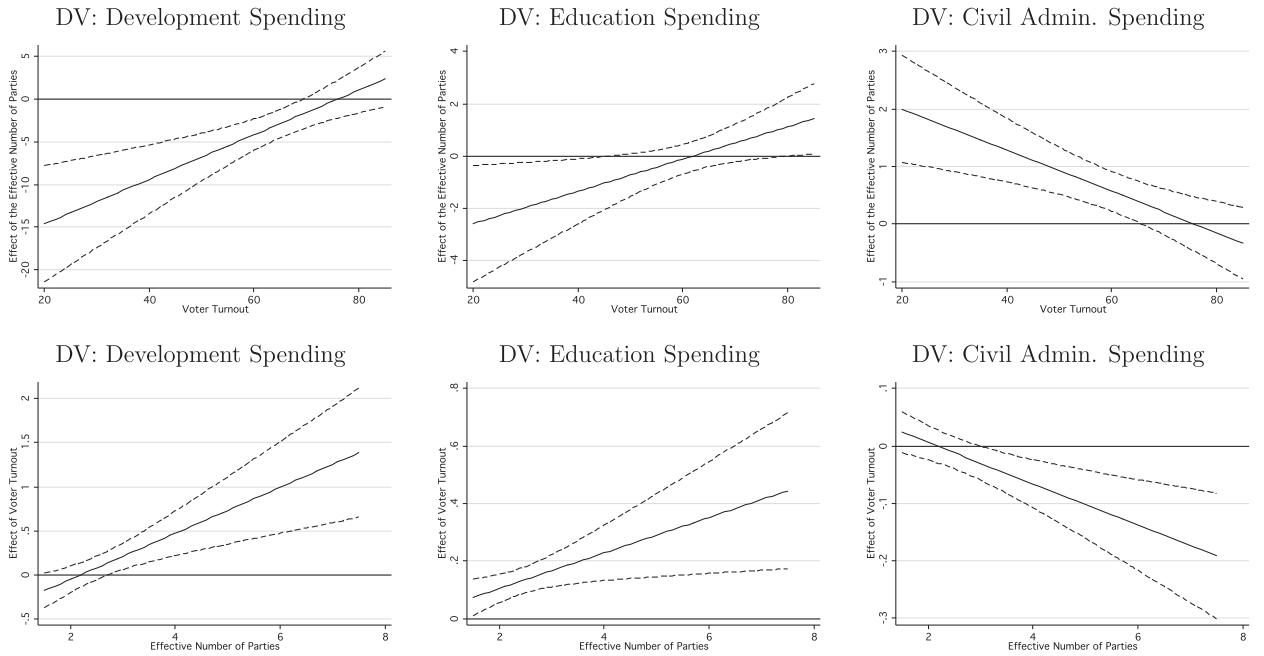

Fig. 5. Effects of fragmentation (top row) and turnout (bottom row) on spending.

Model 2 substitutes education spending for development spending and echoes these results. The coefficients are smaller than in Model 1—not surprising given that education spending receives a smaller share of total government spending than development expenditures—but the substance of the results is consistent with expectations. Under low turnout, party fragmentation generates disincentives to prioritize education, evidenced by the negative and significant coefficient on party fragmentation. However, higher voter turnout alters incentives such that the difference in spending between systems with high and low fragmentation diminishes. This modifying effect is clear from the positive coefficient on the interaction term. The top center graph in Fig. 5 displays the marginal effect of fragmentation on education spending. Model 3, where the dependent variable is civil administration spending completes the story. Now, the coefficient on fragmentation is *positive*; at low turnout levels fragmentation *increases* spending on civil administration wages and salaries. This effect, too, fades with increasing levels of voter turnout, evidenced by the negative sign on the interaction term. The top right graph in Fig. 5 plots the results.

Together these results are striking. Fragmentation biases spending toward private goods and away from public-regarding ones. However, the magnitude of this effect varies with voter participation rates. It is strongest when voter participation is low and vanishes altogether at high rates of voter turnout, consistent with our claim that low turnout rates increase the efficacy of providing private goods as an electoral strategy while high turnout reduces it. Thus, fragmentation's shrinking effect on the size of the winning coalition can be counterbalanced by participation's expansionary effect. Turnout, it seems, can trump institutional environments that generate small winning coalitions.

But, it seems that turnout does not *always* matter. The bottom left graph in Fig. 5 plots the marginal effect of voter turnout as fragmentation levels change using the coefficients in Model 1. Here, we observe that a one percent increase in voter turnout has no effect on development expenditures in systems with little fragmentation. In single-party dominant and two-party systems the effect of turnout is almost precisely zero and is statistically insignificant at the 90% confidence level. Yet, when fragmentation is higher, we see a positive effect of turnout on public services, suggesting that high turnout compels politicians in fragmented systems to alter their spending strategies to prioritize public good more. This finding lends support to our claim that turnout throws the private goods strategy out of equilibrium in fragmented systems, but because politicians in two party systems typically have incentives to cultivate broad appeal, increased voter turnout has little effect on spending patterns. The estimates in Models 2 and 3 and the remaining graphs in the bottom row of Fig. 5 echo this result.[18]

[18] The reader will note that in Models 1–3 in Table 1, the coefficients on the turnout variable appear to run counter to our expectations. Whereas we have argued that turnout will increase the premium politicians assign to public goods (conditional on the fragmentation of the party system), the coefficients on turnout are *negative* for development and education spending and *positive* for civil administration spending. Recall, however from Kam and Franzese (2007) that given the inclusion of the interaction term, the coefficient on turnout alone is its effect on spending *when there are zero parties competing in the election*. This never happens in India and so the coefficient on turnout by itself is substantively uninteresting. Better to follow Kam and Franzese's advice to assess the effect of turnout for a more realistic range of party fragmentation values, as we have done in the bottom row of graphs in Fig. 5. We thank an anonymous reviewer for encouraging us to elaborate on this point.

Table 2
Robustness checks.

DV:	Additional control variables			Dynamic models		
	(4) Development	(5) Education	(6) Civil admin.	(7) Development	(8) Education	(9) Civil admin.
Lagged DV	–	–	–	0.39*** (0.052)	0.57*** (0.040)	0.52*** (0.050)
Fragmentation	−20.08*** (5.25)	−4.28** (2.04)	2.90** (0.92)	−6.82** (2.96)	0.34 (0.80)	0.80* (0.48)
Turnout	−0.87*** (0.23)	−0.072 (0.083)	0.11** (0.037)	−0.21* (0.12)	0.051 (0.032)	0.023 (0.023)
Fragmentation*Turnout	0.27** (0.08)	0.069** (0.032)	−0.039** (0.014)	0.094** (0.044)	−0.0013 (0.012)	−0.011 (0.0072)
Per capita GSP	5.83 (3.59)	−7.81*** (1.32)	−1.84** (0.79)	−2.85 (2.27)	−2.63*** (0.73)	−0.98*** (0.37)
GSP growth	−0.13 (0.13)	0.09* (0.055)	−0.026 (0.035)	0.038 (0.040)	0.039*** (0.012)	0.0037 (0.0062)
Right-of-center party	0.96 (1.58)	1.27** (0.71)	−0.12 (0.39)	0.93 (1.37)	−0.21 (0.31)	0.18 (0.25)
Coalition gov't	1.88 (2.42)	−1.49* (0.86)	−0.032 (0.54)	0.58 (0.58)	−0.52 (−0.52)	−0.16 (−0.16)
Post-1991	−9.99*** (2.41)	2.27** (0.89)	−0.73 (0.58)	−2.64 (1.63)	0.19 (0.50)	−0.29 (0.25)
Winning differential	−0.068 (0.057)	−0.022 (0.022)	0.048*** (0.011)	–	–	–
Income tax share	−0.25** (0.097)	0.061** (0.031)	−0.017 (0.021)	–	–	–
Grants from the center	−0.13 (0.14)	−0.013 (0.051)	0.049 (0.035)	–	–	–
Loans from the center	−0.26*** (0.056)	−0.0087 (0.019)	0.0026 (0.014)	–	–	–
Observations	114	114	114	487	477	475
Adjusted R^2	0.99	0.99	0.99	0.99	0.99	0.98

Standard errors in parentheses.
*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$.

3.3. Robustness checks

While Models 1–3 offer strong confirmation of the theory, we conduct two further analyses to examine the robustness of the substantive conclusions. First, since our argument extends the theory developed by Chhibber and Nooruddin (2004), in Models 4–6 Table 2 we include the full set of control variables they use to ensure comparability of our results to theirs.[19] Specifically, we control for the closeness of the most recent election to model the possibility that incumbents winning in close elections will have a different spending calculus compared to incumbents that faced relatively lax competition. We also include measures of the share of revenues derived respectively from state income taxes, grants from the center, and loans from the center allow us to model the possibility that in federal systems local spending priorities are shaped by the extent to which state revenues come from local taxes or transfers from the center.[20] Turning to the results, we see first that, as in Chhibber and Nooruddin (2004) none of the additional control variables have a robust relationship to the spending categories. More importantly for our purposes though is the fact that the results of Model 4–6 continue to support our theory. The coefficients of the main independent variables of interest are similar in magnitude and statistical significance to those in the baseline models in Table 1.

Moving on, our baseline models in Table 1 can be criticized for failing to include the lag of the dependent variable to account for serial correlation. To assess whether our results hold in a dynamic model we proceed as follows. First, we pool observations across all years (instead of just election years as in the baseline model) so that an included lag of the dependent variable can have a consistent meaning across cases. Second, we interpolate reasonable estimates of voter participation rates in nonelection years by fixing those values according to the most recently held election.[21] All independent variables enter as one year lags given that budgets are set at least one year in advance. As before the models include state fixed effects and calculate panel-corrected standard errors.

Models 7–9 in Table 1 show the coefficient estimates. They are smaller than Models 1–3 but, in the main, continue to support the theory. The only exception to this trend is Model 5. The top row of graphs presents the marginal effect of fragmentation for each model.[22] The bottom row presents the marginal effect of voter turnout as fragmentation changes. Except for the education model, the results support the theory.[23]

4. Conclusion

We have investigated two questions that get to the very core of democratic politics in India. The first asks, What explains the cross-state variation in the mix of public and private goods politicians supply? The second: Has India's second democratic upsurge had any practical effect? Recent research into the first question has typically focused on the role of the institutional environment—particularly the party system—which is argued to determine the size of the

[19] We thank an anonymous reviewer for this suggestion.
[20] See for example Rodden (2002).
[21] Franzese (2002, Ch. 2) adopts a similar strategy.
[22] These graphs report the short-run marginal effects only. In a dynamic model like this, the effects of the independent variables endure according to the coefficient on the lagged dependent variable. Graphs of the long-run effects echo the trends in Fig. 6, but we do not present them to preserve space.
[23] To reiterate a point made earlier (see footnote 17), the fact that the coefficient on turnout is negative in Models 4, 5, and 7 and positive in Models 6 and 9 is not evidence against our theory because these coefficients represent the effect of turnout on spending when party fragmentation equals zero, a value that never occurs in our sample and is therefore substantively uninteresting. When we assess the effect of turnout over realistic ranges of party fragmentation values, we obtain results consistent with our theory.

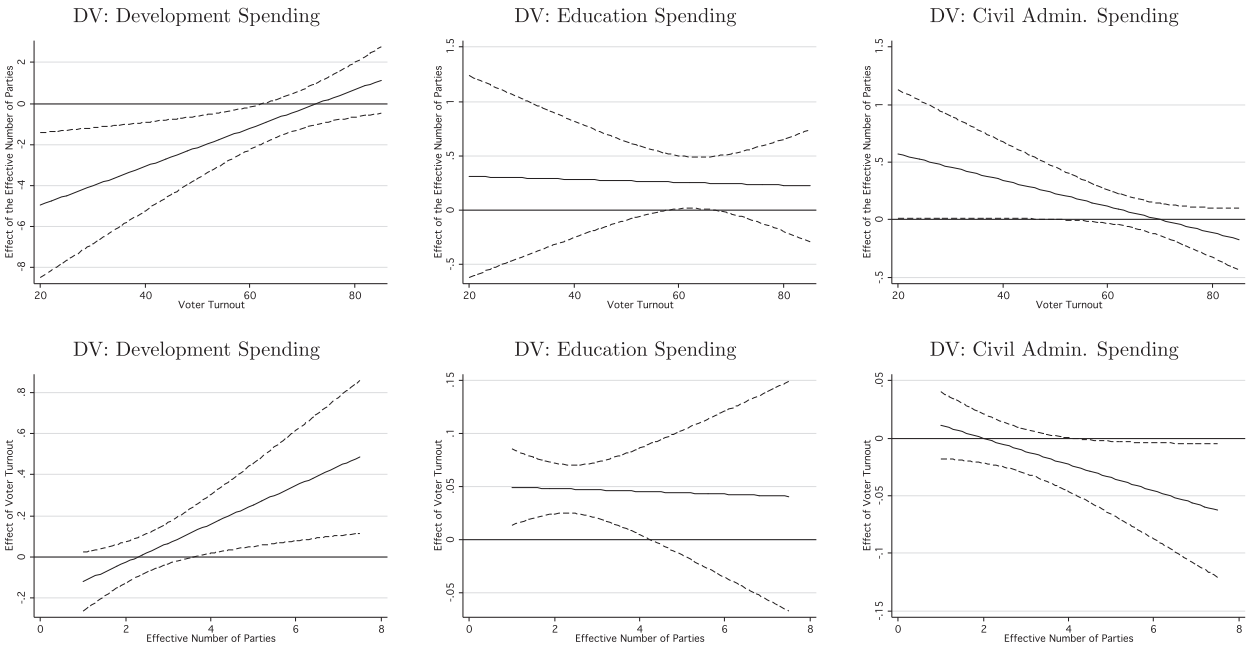

Fig. 6. Short-run effects of fragmentation (top row) and turnout (bottom row) on spending.

coalition to whom leaders must appeal if they are to retain power. Voter turnout has received relatively little attention. Regarding the second question, while many have extolled the virtues of high turnout, we know little about whether it matters in practice. Here, we have offered a theory of budgetary priorities that takes voter turnout levels seriously. Our main argument is that, like the degree of party fragmentation, turnout levels can affect the size of the winning coalition and therefore the price of private goods vis-à-vis public ones. As such, the party system and participation *jointly* affect equilibrium spending patterns among the Indian states. When fragmentation reduces the size of the winning coalition, high turnout counteracts the incentive to supply more private goods and fewer public goods while low turnout magnifies those incentives.

Thus, we find clear evidence that turnout does indeed matter. Yet, we have also argued, and found supporting evidence, the more normatively pessimistic point that the effect of voter turnout depends on the context in which that turnout occurs. In large winning coalition systems (i.e., in two party contexts) it seems to matter little what share of the population turns out to vote. The effects of turnout appear limited to environments where institutions shrink the size of the winning coalition. While such political participation certainly is valuable in its own right, say, because it enhances the legitimacy of the system for instance, it seems the efficacy of turnout for public services appears in doubt where institutions generate large winning coalitions.

While our focus in this article has been on India, the normative implications of our findings are important enough that future work might investigate whether they generalize to other settings. We think the theory that institutions and voter participation interact to affecting spending priorities is sufficient general that it should port well in other contexts and in cross-national studies. Indeed, consider that in the United States, two-party competition is the norm but turnout is comparatively low while in Europe, multi-party competition and high turnout co-exist. Yet, the two appear to yield similar policy outcomes when it comes to public good provision. Our argument provides a tentative explanation for this observation. Future research could investigate whether the theory developed here can explain this observation and whether the theory here could be extended beyond party fragmentation to other institutions that affect the size of the winning coalition.[24]

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[24] Additionally, as an astute anonymous reviewer has pointed out, there is an interesting juxtaposition between our work and existing research on clientelism. While that latter literature tends to argue that the supply of private goods can increase turnout, we have argued that, at least under some conditions, voter turnout reduces the supply of private goods and increases the supply of public goods. While it goes beyond the scope to do so here, given the theoretical and methodological challenges involved, we think this tension is worthy of exploration and that it constitutes an important avenue for future research.

Appendix

Table A1
List of elections

State	Election years
Andhra Pradesh	1967, 1972, 1978, 1983, 1985, 1989, 1994, 1999, 2004
Assam	1967, 1972, 1978, 1983, 1985, 1991, 1996, 2001
Bihar	1967, 1969, 1972, 1977, 1980, 1985, 1990, 1995, 2000
Gujarat	1967, 1972, 1975, 1980, 1985, 1990, 1995, 1998, 2002
Haryana	1967, 1968, 1972, 1977, 1982, 1987, 1991, 1996, 2000
Karnataka	1967, 1972, 1978, 1983, 1985, 1989, 1994, 1999, 2004
Kerala	1967, 1970, 1977, 1980, 1982, 1987, 1991, 1996, 2001
Madhya Pradesh	1967, 1972, 1977, 1980, 1985, 1990, 1993, 1998, 2003
Maharashtra	1967, 1972, 1978, 1980, 1985, 1990, 1995, 1999, 2004
Orissa	1967, 1971, 1974, 1977, 1980, 1985, 1990, 1995, 2000, 2004
Punjab	1967, 1969, 1972, 1977, 1980, 1985, 1992, 1997, 2002
Rajasthan	1967, 1972, 1977, 1980, 1985, 1990, 1993, 1998, 2003
Tamil Nadu	1967, 1971, 1977, 1980, 1984, 1989, 1991, 1996, 2001
Uttar Pradesh	1967, 1969, 1974, 1977, 1980, 1985, 1989, 1991, 1993, 1996, 2002
West Bengal	1967, 1969, 1971, 1972, 1977, 1982, 1987, 1991, 1996, 2001

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