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Political budget cycles in federal systems: The case of India

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Abstract

This paper examines Political Budget Cycles in federal systems, focusing on how a central incumbent allocates discretionary transfers across states in response to electoral incentives. We develop a theoretical model predicting that average discretionary transfers increase during federal election periods. While swing states consistently receive higher discretionary transfers due to their electoral competitiveness, the election-period increase is larger for non-swing states. The intuition is that swing states are consistently targeted throughout the electoral cycle, while non-swing states become pivotal during federal elections to secure a national majority. To test these predictions, we compile a panel dataset of Indian states from 2006 to 2022. Using fixed effects specifications, we find evidence consistent with the theoretical model: discretionary transfers are significantly higher in federal election periods, swing states receive more discretionary transfers in non-election periods, and the election-period increase in discretionary transfers is more pronounced for non-swing states.

Keywords: Political budget cycles, Swing states, Federal systems, Elections, India
JEL: D83, E62, H70, H72

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1 Introduction

Democratic backsliding has emerged as a prominent concern in global political discourse, drawing increasing attention from scholars and policymakers. This phenomenon describes the gradual erosion of democratic norms, institutions, and practices, typically marked by constraints on civil liberties, the weakening of institutional checks and balances, and the concentration of executive power. Instances of democratic backsliding have been documented in several countries, raising concerns about the resilience of democratic governance in the contemporary era. India stands out as a significant case within these discussions.[1]

Within this context, the role of budgetary allocations assumes particular significance. The strategic deployment of fiscal resources by the federal incumbent reflects a shift away from technocratic governance toward a more politicized and centralized approach. Rather than prioritizing social welfare or economic efficiency, discretionary transfers and other fiscal instruments are increasingly employed to secure electoral advantage. The federal incumbent aims to perform strongly in all upcoming contests, both at the federal level and across various local elections, with the allocation and timing of budgetary resources offering a potential means to shape electoral dynamics throughout Indian states.

Against this background, we investigate how federal incumbents in India utilize discretionary transfers to advance political objectives. Specifically, we examine whether federal incumbents allocate budgetary resources in a way that strategically influences electoral outcomes at both the federal and local levels. We explore how this allocation varies depending on the level of election and the competitiveness of states, focusing on whether the increase in discretionary transfers during federal election periods differs between electorally swing and non-swing states.

To address these questions, we develop a theoretical model situated within the Political Budget Cycle[2] literature and provide empirical evidence using a panel dataset of Indian states covering the period 2006 to 2022. Our analysis confirms existing findings in the literature for India, showing that dis-

[1] In particular, the centralization of power in India under Prime Minister Narendra Modi since 2014 highlights significant shifts in governance dynamics that may have implications for economic policymaking. For example, Ruparelia (2015) and Sundar (2023) underscore how Modi's tenure has emphasized centralized decision-making and a restructured federal framework, while Bhat et al. (2022) links this centralization to broader trends of democratic backsliding and autocratic legalism. Prime Minister Manmohan Singh (2004–2014) emphasized technocratic governance and institutional continuity. However, his tenure faced criticism for weak leadership and corruption scandals (Arceneaux, 2017; Xu, 2014). In contrast, Prime Minister Narendra Modi's tenure since 2014 has been marked by significant centralization of power and concerns over democratic backsliding, including curtailed civil liberties and weakened institutional independence. These developments have raised concerns about the state of India's democratic framework, prompting debates over whether the world's largest democracy is experiencing a decline in its democratic standards.

[2] We use PBC as an abbreviation for Political Budget Cycle throughout the text.

cretionary transfers are, on average, higher during federal election periods than during federal non-election periods. Furthermore, we find that in federal non-election periods, swing states receive more discretionary transfers than non-swing states, consistent with prior evidence highlighting electoral competitiveness as an important determinant of fiscal allocations. Beyond these established patterns, we identify an additional result: the increase in discretionary transfers during federal election periods is significantly larger for non-swing states than for swing states. Our model explains this result through a mechanism in which political competition is ongoing across India. Swing states tend to receive consistent attention even in federal non-election periods, as local elections typically take place during these intervals and strengthening the federal incumbent's performance in them remains a priority. In contrast, during federal election periods, non-swing states are also targeted because mobilizing additional support in these areas becomes crucial for securing the public vote at the national level. This empirical finding, along with its corresponding theoretical explanation, represents the central contribution of our paper to the PBC literature.

This paper builds on a rich tradition of research exploring the political use of fiscal policy. The concept of the Political Business Cycle was first introduced by Nordhaus (1975), who argued that governments strategically induce inflation prior to elections to achieve a temporary reduction in unemployment, using the Phillips curve to improve their chances of reelection. The Political Business Cycle is a broad concept covering both monetary and fiscal policies and their impact on overall electoral cycles. Rogoff (1990) and Rogoff and Sibert (1988) expanded the theoretical landscape with the incorporation of rational expectation theory, giving rise to the Political Budget Cycle framework, which is a more specific form of political manipulation that deals mostly with fiscal policy and government spending.[3] [4]

Given the potentially significant economic costs of fiscal policy distortions for electoral purposes, it is crucial to understand the conditions under which such manipulation is likely to occur. Despite important advancements in the literature, as highlighted by Dubois (2016), several avenues for further exploration remain. In particular, our understanding of PBCs in federal systems is notably limited. Several studies have examined PBCs at the regional level within federal or decentralized political systems, with research focusing primarily on the municipal level in countries such as Brazil (Klein & Sakurai, 2015), Colombia (Drazen & Eslava, 2010), Italy (Bracco et al., 2015), Portugal

[3]For a game-theoretic approach, see Persson and Tabellini (1990). For empirical evidence, see Aidt et al. (2011), Brender and Drazen (2005), Efthyvoulou (2012), and Potrafke (2012, 2020).

[4]Research has expanded to examine a wider range of policy areas, including construction permits (Imami et al., 2018), public health expenditures (Potrafke, 2010), labor market policies (Mechtel & Potrafke, 2013), and the salaries of politicians (Kauder et al., 2018). Moreover, Wang et al. (2023) find that more selfish politicians engage in less excessive manipulation of the deficit budget.

(Bohn & Veiga, 2021; Veiga & Veiga, 2007), and Spain (Benito et al., 2013). However, there remains a scarcity of research investigating the center–state vertical relationship in federal contexts during federal election periods. Moreover, electoral competitiveness, and in particular swing status, has emerged as a key factor shaping fiscal allocation patterns. Arulampalam et al. (2009) examine how swing status relates to budget allocation and electoral timing in India, and our study connects to this line of work by further investigating these dynamics in the context of PBCs.

The theoretical model developed in this paper captures the federal incumbent's simultaneous concern with electoral performance at both the federal and local levels. In federal systems, electoral contests are staggered across time, with various lower-tier elections taking place even outside federal election periods. During federal non-election periods, incumbents seek to maximize victories in these local contests to strengthen their political presence across the country. Conversely, during federal election periods, their focus shifts toward securing a majority of the national vote. By examining how the allocation of discretionary transfers interacts with different types of elections, the model offers new insights into the dynamics of PBCs in federal states. This approach refines the understanding of federal incumbents' objectives by integrating the institutional design of elections and the continuous nature of political competition within a federal system.

Notably, the empirical analysis confirms key insights of our theoretical model. Specifically, the model predicts an increase in discretionary transfers during federal election periods, higher allocations to swing compared to non-swing states during federal non-election periods, and a relatively larger election-period increase in transfers for non-swing states. Beside these validations, we make two further empirical contributions. First, we draw on the most recent data on Indian states to capture these dynamics comprehensively. Second, we disaggregate the analysis by distinguishing between large and small states, allowing us to explore how electoral competition shapes the presence of PBCs. Our findings reveal that PBCs in discretionary transfers are concentrated in large states, where electoral competition tends to be more intense, while there is no significant evidence of such cycles in smaller states.

Our paper is closely connected to the literature on vertical transfers and redistribution, which examines how central governments use discretionary transfers to favor politically significant regions (Cox & McCubbins, 1986; Dixit & Londregan, 1996, 1998; Lindbeck & Weibull, 1987). According to this literature, states that are either aligned with the central government or considered electorally swing are more likely to receive such transfers. Theoretically, our approach relates to the framework developed by Shi and Svensson (2006), where the incumbent uses borrowing and public spending to signal competence before elections. In contrast, our paper emphasizes how the federal incumbent strategically allocates discretionary transfers, with electoral timing shaping allocation patterns. Our model also draws on the concept of strategic manipulation within a federal structure as in Garofalo et al. (2020), where the central government influences voting outcomes by allocating discretionary transfers across districts, focusing on how forward-looking citizens may vote in anticipation of future benefits. By comparison, our analysis highlights the swing character of states as a key determinant of allocation decisions.

Conceptually, our approach is most directly related to the work of Arulampalam et al. (2009), who analyze how a central government uses discretionary transfers to elicit citizens' gratitude and thereby increase public support. In their setting, the government allocates transfers across districts to maximize its expected vote share in an upcoming election. Our model differs in two important respects. First, rather than focusing on a single type of election, we incorporate the trade-off between allocating resources across different types of elections at different times. Second, we refine the government's objective for each type of election: in federal elections, the goal is to secure a majority of the national vote, whereas in state and local elections, it is to win as many individual contests as possible.

Since our analysis focuses on India, our paper is directly comparable to previous empirical research on PBCs in the Indian context, such as Ferris and Dash (2019) and Manjhi and Mehra (2018). However, our paper places particular emphasis on the discretionary powers of the federal government, focusing exclusively on discretionary transfers. In contrast, Ferris and Dash (2019) do not explicitly account for discretionary components in their analysis of PBCs, although they find that capital expenditures, which are more politically visible, exhibit evidence of a PBC in India. Manjhi and Mehra (2018) include discretionary components but do not consider swing status, and their analysis covers data only up to the 2010 financial period. They find no significant evidence of PBCs in grants, which include discretionary transfers. By comparison, our paper explicitly considers swing status, focuses on discretionary transfers rather than aggregate intergovernmental grants, and utilizes more recent data up to 2022. Our findings provide robust evidence of PBCs in discretionary transfers.

The remainder of this paper is structured as follows. Section 2 presents the theoretical model. Section 3 provides the institutional background. Section 4 describes the empirical strategy. Section 5 outlines the dataset and variables. Section 6 reports the empirical results. Section 7 discusses the findings, and Section 8 concludes.

2 Model

2.1 Framework

We study the optimal behavior of a political incumbent at the federal level. The nation consists of n equal-sized states $s \in S$. We consider a two-period model, $t \in \{1, 2\}$, where elections take place in each period. Each election involves two candidates. The first is the sitting federal incumbent, and the second is the primary challenger from the opposition. In the first period, $t = 1$, federal election is held. In the second period, $t = 2$, local elections occur.

While we refer to these local elections as state elections, we conceptually view them as including a broader set of contests. This encompasses elections at lower tiers of government within each state such as municipal or regional elections. For the analysis, we model this as a single representative election per state. This does not result in any loss of generality since the incumbent is concerned only with the expected number of such elections won.

The incumbent chooses, for each round t, how much discretionary transfers a state s receives, which are then spent on the provision of a public good to all citizens in that state. We write the vector of all discretionary transfers ϕ_1^s in period t as ϕ_t. Thus, the vector (ϕ_1, ϕ_2) describes the provision of discretionary transfers across all states in both periods.

2.1.1 Objective and budget constraint

The incumbent's objective is to perform well in all upcoming elections, both federal and state ones. We write the incumbent's probability of winning the federal election as π^f, and the probability of winning the state election in state s as π^s. Formally, the incumbent's objective then is as follows:

$$V\left(\pi^f, \sum_s \pi^s, \beta\right). \tag{1}$$

We assume that V strictly increases in π^f and $\sum_s \pi^s$: A greater probability of winning the federal election as well as a greater number of expected state elections won both increase the incumbent's utility. The parameter $\beta \geq 0$ captures the importance assigned to the federal election. The greater β, the more the incumbent values holding power at the federal level and, hence, winning the federal election. Formally, we capture this by $\partial^2 V/\partial\pi^f\partial\beta > 0$ and $\lim_{\beta\to\infty} \partial V/\partial\pi^f = \infty$. An increase in β increases the marginal utility with respect to the probability of winning the federal election, and as the weight β tends to infinity the marginal utility of a higher probability of winning the federal election also tends to infinity. Since β captures the importance of the federal election, we also specify that $\partial^2 V/\partial \sum \pi^s \partial\beta = 0$: An increase in β does not alter the marginal utility of expected state elections won.[5]

The federal government has limited resources to spend on discretionary transfers with the following budget constraint:

$$\bar{B} = \sum_s (\phi_1^s + \phi_2^s), \tag{2}$$

where $\bar{B}$ is available budget for discretionary transfers in both periods. Note $\bar{B}$ can be thought of as the total tax income carved out for discretionary transfers. Also, we assume the government can shift this budget across both periods cost-free for the sake of simplicity and illustration.

[5]Note that the above specifications are in line with objective functions of the form (1) $\beta\pi^f + \sum_s \pi^s$ and (2) $\pi^f(\beta + \sum_s \pi^s)$. In the former, the incumbent maximizes a weighted sum of all expected election outcomes. In contrast, in the latter, the payoff from winning state elections materializes only if the preceding federal election is won.

2.1.2 Goodwill

At each round $t \in \{1, 2\}$, individuals receive some utility from the public good they consume due to discretionary transfers:

$$u_t^s = u(\phi_t^s), \tag{3}$$

where $u(0) = 0$, $u(x)$ is continuous for all $x \geq 0$, and $u(x)$ is differentiable for all $x > 0$ with $u'(x) > 0$ and $u''(x) < 0$. Moreover, for analytical convenience, we assume that $\lim_{x \to 0} u'(x) = \infty$.[6] Individuals have some expectation $\hat{u}_t^s$ about how much utility from public good consumption they will obtain. Following Arulampalam et al. (2009), we assume that individuals accredit some goodwill to the incumbent. In particular, the individuals of state s accredit the incumbent goodwill of

$$u_t^s - \hat{u}_t^s. \tag{4}$$

Thus, voters attribute goodwill to the politician when actual utility from public good provision exceeds expectations. The idea is that individuals correctly anticipate the incumbent's actions in equilibrium, and only positive deviations generate genuine gratitude.

2.1.3 Elections

In each round t, all citizens vote in an election in which the incumbent participates as a candidate. At the election in round t, a citizen in state s votes for the incumbent if

$$u_t^s - \hat{u}_t^s + z + \psi > 0, \tag{5}$$

where z is drawn from a symmetric distribution with mean $\bar{z}^s$. This $\bar{z}^s$ captures the mean relative preference over different candidates and derives, among others, from different policy preferences and so on.[7] In particular, we assume that in state s the z is distributed according to $\bar{z}^s + \epsilon$, where ϵ follows a symmetric and zero-mean distribution with CDF $F(\cdot)$. Moreover, we assume $F(\cdot)$ has at most one maximum, which must occur at the mean, and is continuous and differentiable on the analysis-relevant interval. The corresponding PDF is $f(\cdot)$. Thus, we assume that preferences in all states are distributed similarly, but across varying means $\bar{z}^s$. Moreover, we assume that in each state s there are some individuals who are nearly indifferent between the incumbent and his opponent, which is formally captured by $f(-\bar{z}^s) = f(\bar{z}^s) > 0$ for all s.[8]

[6] We employ this assumption as it ensures that an interior equilibrium, where all states receive positive discretionary transfers, exists.

[7] The voting decision of an individual could also reflect considerations about how much of the public good they expect to receive in future periods under different election outcomes. In our two-period model, this expectation is relevant only in the first period during the federal election. It can be shown that accounting for this does not change the theoretical results as long as two conditions hold. First, expectations must be correct in equilibrium. Second, the federal government in the second period, regardless of whether it is the original incumbent or not, must be left with the budget that was not spent by the original incumbent in the first period.

[8] Since $z = \bar{z}^s + \epsilon$, the share of individuals with preferences near z is given by $f(\epsilon) = f(z - \bar{z}^s)$. For $z = 0$, this is $f(-\bar{z}^s) = f(\bar{z}^s)$.

Note that $\bar{z}^s$ is also the relative preference over candidates of the median voter in state s. A median voter preference $\bar{z}^s$ close to zero corresponds to a state where elections are generally more competitive, as candidates face a more balanced electorate. Hence, we assume that $\bar{z}^s$ values close to zero can be interpreted as characterizing swing states.[9]

The term ψ is a popularity shock. It is distributed according to CDF $G(\cdot)$ with PDF $g(\cdot)$. Similar to preferences, we assume the distribution of the popularity shock is zero-mean, symmetric, with at most one maximum, continuous, and differentiable on the relevant interval. The share of votes for the incumbent in state s at the election of time t is given by

$$\begin{aligned}\Pr(0 < u_t^s - \hat{u}_t^s + \psi + z) &= \Pr(-u_t^s + \hat{u}_t^s - \psi < z) \\ &= 1 - \Pr(z \leq -u_t^s + \hat{u}_t^s - \psi) \\ &= 1 - \Pr(\epsilon \leq -u_t^s + \hat{u}_t^s - \bar{z}^s - \psi) \\ &= 1 - F(-u_t^s + \hat{u}_t^s - \bar{z}^s - \psi) \\ &= F(u_t^s - \hat{u}_t^s + \bar{z}^s + \psi).\end{aligned} \tag{6}$$

Federal election occurs at time $t = 1$. The incumbent wins the federal election if the average percentage of votes in all states exceeds 50%. Since all individuals, in all states, vote over the candidates, the popularity shock simultaneously applies to all individuals of all states. The probability of winning the federal election is

$$\pi^f := Pr\left(\frac{\sum_s F(u_1^s - \hat{u}_1^s + \bar{z}^s + \psi)}{n} \geq 0,5\right). \tag{7}$$

Let ψ^c be the critical popularity shock that is just sufficiently high for the incumbent to win the election. Formally, ψ^c solves

$$\frac{\sum_s F(u_1^s - \hat{u}_1^s + \bar{z}^s + \psi^c)}{n} = 0,5. \tag{8}$$

It follows that the incumbent wins the election if the popularity shock is at least ψ^c, which yields the winning probability of

$$\begin{aligned}\pi^f &= \Pr(\psi^c < \psi) \\ &= 1 - \Pr(\psi < \psi^c) \\ &= 1 - G(\psi^c).\end{aligned} \tag{9}$$

At $t = 2$, state elections occur at each state s. The incumbent wins the state election in state s if he gains more than 50% of the votes in that state.

[9] This specification is consistent with Arulampalam et al. (2009), where swing states are defined as those in which a larger share of individuals has a relative preference z near zero. This corresponds to a large $f(\bar{z}^s)$, which occurs when $\bar{z}^s$ is close to zero.

Consequently, the probability of winning the state election in state s is

$$\begin{aligned}\pi^s &:= \Pr(0.5 \leq F(u_2^s - \hat{u}_2^s + \bar{z}^s + \psi)) \\ &= \Pr(0 \leq u_2^s - \hat{u}_2^s + \bar{z}^s + \psi) \\ &= 1 - \Pr(\psi \leq -u_2^s + \hat{u}_2^s - \bar{z}^s) \\ &= 1 - G(-u_2^s + \hat{u}_2^s - \bar{z}^s) \\ &= G(u_2^s - \hat{u}_2^s + \bar{z}^s).\end{aligned} \tag{10}$$

Throughout, we assume that state elections and their campaigns occur in isolation and are, thus, independent of each other. Consequently, the popularity shock in one state is not related to the popularity shock in another state.[10]

2.2 Analysis

This section examines the equilibrium discretionary transfers (ϕ_1, ϕ_2). In equilibrium, the incumbent divides his total budget $\bar{B}$ into a budget B^s allocated during the state election period and a budget B^f allocated during the federal election period. We first analyze how these budgets are distributed across states in each period t, and subsequently draw inferences on how the aggregate allocations B^s and B^f differ.

2.2.1 Federal election

We start by studying the optimal allocation of discretionary transfers for the incumbent during the federal election period given he assigns a total budget of B^f for doing so. The incumbent maximizes his chances of winning the federal election $\pi^f = 1 - G(\psi^c)$, which is equivalent to minimizing the critical popularity shock ψ^c:

$$\min_{\phi_1 \geq 0} \psi^c \text{ s.t. } \sum_s \phi_1^s = B^f. \tag{11}$$

We start by analyzing how an increase in the discretionary transfers ϕ_1^s affect the critical shock ψ^c. For this purpose, recall that the critical shock ψ^c is implicitly defined by

$$\frac{\sum_s F(u(\phi_1^s) - \hat{u}_1^s + \bar{z}^s + \psi^c)}{n} = 0,5. \tag{12}$$

When taking the derivative with respect to ϕ_1^s on both sides of the equality, and solving for $\partial\psi^c/\partial\phi_1^s$, we obtain the following:

$$\frac{\partial\psi^c}{\partial\phi_1^s} = -u'(\phi_1^s)\frac{f(u(\phi_1^s) - \hat{u}_1^s + \bar{z}^s + \psi^c)}{\sum_{\bar{s}} f(u(\phi_1^{\bar{s}}) - \hat{u}_1^{\bar{s}} + \bar{z}^{\bar{s}} + \psi^c)}. \tag{13}$$

[10] We ground this assumption on two observations. First, most state and local elections are not held simultaneously but are spread out over a longer time frame. This stands in contrast to the federal election, which takes place at a single point in time nationwide. Second, although the federal incumbent may participate in state and local campaigns, it is typically by supporting a representative or political ally who runs in these lower-tier elections. These representatives or allies vary across elections, so the popularity shock that affects one candidate is specific to that election and does not systematically spill over to others.

The term $\partial\psi^c/\partial\phi_1^s$ represents the marginal change in the critical shock ψ^c from an increase in discretionary transfers ϕ_1^s. It is straightforward that this decrease is always negative. Consequently, when everything else is kept constant, an increase in ϕ_1^s always decreases the critical shock ψ^c and increases the chances of winning the federal election.

Let us consider the marginal decrease in the critical shock in some more detail. First, the larger the marginal utility $u'(\phi_1^s)$, the greater the increase in goodwill generated by increased discretionary transfers, and, therefore, the more effective these discretionary transfers are at raising the incumbent's election chances. Second, a higher value of $f(u(\phi_1^s) - \hat{u}_1^s + \bar{z}^s + \psi^c)$ corresponds to a larger share of individuals in state s who are approximately indifferent between voting for the incumbent and the other candidate when the critical shock ψ^c occurs. If this share is large, a small increase in ϕ_1^s is particularly effective, as it sways more voters in state s and, as a result, lowers the critical shock ψ^c by a greater amount. Lastly, the denominator reflects the total mass of pivotal voters across all groups at the critical shock ψ^c, so dividing by this sum scales the effect of changing ϕ_1^s by the relative importance of group s among all marginal voters.

Consider the equilibrium allocation of discretionary transfers ϕ_1^* that leads to the equilibrium critical shock ψ^{c*}. Moreover, consider any two states $s^{(0)}$ and $s^{(1)}$. The corresponding marginal changes in the critical shock must equal, $\partial\psi^c/\partial\phi_1^{s^{(0)}} = \partial\psi^c/\partial\phi_1^{s^{(1)}}$, which is equivalent to

$$\begin{aligned} &f\left(u(\phi_1^{s^{(0)}}) - \hat{u}_1^{s^{(0)}} + \bar{z}^{s^{(0)}} + \psi^c\right) u'\left(\phi_1^{s^{(0)}*}\right) \\ &= f\left(u(\phi_1^{s^{(1)}}) - \hat{u}_1^{s^{(1)}} + \bar{z}^{s^{(1)}} + \psi^{c*}\right) u'\left(\phi_1^{s^{(1)}*}\right). \end{aligned} \tag{14}$$

If this was not the case, the incumbent could shift discretionary transfers to the state with a smaller, more negative, marginal change in the critical shock ψ^c, resulting in an aggregate decrease in the marginal shock ψ^c and increase in the chances of winning the federal election.

In equilibrium, individuals' beliefs regarding the utility of discretionary transfers they get due to strategic allocation of the incumbent are correct, $\hat{u}_1^s = u_1^s \, \forall s \in S$. Thus, individuals anticipate the amount of discretionary transfers they get due to strategic allocation of the incumbent, leading to no attributed goodwill. Note that as a consequence of beliefs being correct in equilibrium, the equilibrium critical shock ψ^{c*} is always the one that solves $\sum_s F(\bar{z}^s + \psi^{c*}) = 0,5 \cdot n$. The following proposition captures the above insights.

Proposition 1. ***Equilibrium discretionary transfers: Federal election***
Let $B^f > 0$. Suppose that: (1) discretionary transfers ϕ_1^* maximize π^f subject to $\sum_s \phi_1^{s*} = B^f$, given beliefs $\{\hat{u}_1^s\}_{s\in S}$, and (2) beliefs are correct, i.e., $\hat{u}_1^s = u(\phi_1^{s*})$ for all $s \in S$.

Then, for any pair of states $s^{(0)}, s^{(1)} \in S$, it holds that:

$$f(\bar{z}^{s^{(0)}} + \psi^{c*})\, u'(\phi_1^{s^{(0)}*}) = f(\bar{z}^{s^{(1)}} + \psi^{c*})\, u'(\phi_1^{s^{(1)}*}).$$

Proof: *See Appendix A.1.*

In the following we discuss some implications of the proposition. For this purpose, we suppose that the equilibrium critical shock satisfies $\psi^{c*} < 0$, but is rather moderate. Hence, even in case of small shocks that harm the incumbent's popularity, he still wins the federal election.[11]

We continue to investigate how a state's characteristics, captured by the median voter's preference $\bar{z}^s$, affect the discretionary transfers they receive during federal election.

Proposition 2. ***State characteristics and federal election***
Consider any $\psi^{c*} < 0$, equilibrium discretionary transfers ϕ_1^* as described in Proposition 1, and states $s^{(0)}, s^{(1)} \in S$. Then:

2.1 $\left(\bar{z}^{s^{(1)}} < 0 \wedge |\bar{z}^{s^{(1)}}| > |\bar{z}^{s^{(0)}}|\right) \Rightarrow \phi_1^{s^{(0)}*} > \phi_1^{s^{(1)}*}$,

2.2 $\left(\bar{z}^{s^{(1)}} > |\bar{z}^{s^{(0)}}| \wedge \psi^{c*} > -\frac{\bar{z}^{s^{(1)}}+\bar{z}^{s^{(0)}}}{2}\right) \Rightarrow \phi_1^{s^{(0)}*} > \phi_1^{s^{(1)}*}$, *and*

2.3 $\bar{z}^{s^{(0)}} = -\bar{z}^{s^{(1)}} > 0 \Rightarrow \phi_1^{s^{(0)}*} > \phi_1^{s^{(1)}*}$.

Proof: *See Appendix A.2.*

Conditions 2.1 and 2.2 indicate that swing states generally receive higher discretionary transfers than non-swing states, while Condition 2.3 shows that states where the median voter has a favorable view of the incumbent, $\bar{z}^{s^{(0)}} > 0$, tend to receive higher discretionary transfers than those where the incumbent is viewed unfavorably.

Conditions 2.1 and 2.2 analyze differences in equilibrium discretionary transfers of two states $s^{(0)}$ and $s^{(1)}$ that differ regarding the magnitudes of

[11] We base this assumption on (1) the observation that the incumbent has won the previous federal election which indicates there seems to be a general preference towards his, (2) the fact that existing analyses show incumbents generally have an advantage in elections (Erikson, 1971; Lee, 2001; Mayhew, 2008), and (3) the fact that in India, in the time period relevant to our empirical analysis, the incumbent more often than not won the election given that they ran.

the median voters' preferences, $|\bar{z}^{s^{(0)}}| < |\bar{z}^{s^{(1)}}|$. Hence, $s^{(0)}$ as compared to $s^{(1)}$ refers to more of a swing state with a median closer to zero.

Condition 2.1 states that if the median voter in the non-swing state $s^{(1)}$ holds preferences that are unfavorable to the incumbent, $\bar{z}^{s^{(1)}} < 0$, the swing state receives more discretionary transfers. Condition 2.2 extends this result. Even when the non-swing state's median voter is favorable to the incumbent, $\bar{z}^{s^{(1)}} > 0$, the swing state still receives more discretionary transfers as long as the critical popularity shock is small, specifically if $\psi^{c*} \geq -(\bar{z}^{s^{(1)}} + \bar{z}^{s^{(0)}})/2$. Note that this threshold is easier to meet when the non-swing state's median moves further from zero, and thus is indeed likely a non-swing state rather than just another swing state with a median slightly more distant from zero.

Condition 2.3 supposes the two states have the same absolute preference of the median voter, $|\bar{z}^{s^{(0)}}| = |\bar{z}^{s^{(1)}}|$, but with opposing signs, $\bar{z}^{s^{(0)}} = -\bar{z}^{s^{(1)}} > 0$. In other words, the two states are identical except that the incumbent is relatively popular in one, $\bar{z}^{s^{(0)}} > 0$, and relatively unpopular in the other, $\bar{z}^{s^{(1)}} < 0$. Condition 2.3 expresses that the state $s^{(0)}$, where the incumbent is relatively popular, $\bar{z}^{s^{(0)}} > 0$, receives higher discretionary transfers than the other state $s^{(1)}$.

2.2.2 State Elections

We continue by studying the optimal allocation of discretionary transfers during the state election period. Therefore, we assume that the incumbent assigns a total budget of B^s to do so. Given budget B^s, the incumbent faces the following maximization problem:

$$\max_{\phi_2 \geq 0} \sum_s \pi^s = \sum_s G(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s) \text{ s.t. } \sum_s \phi_2^s = B^s. \tag{15}$$

The incumbent chooses the vector of discretionary transfers ϕ_2 that maximizes the expected sum of state elections won. Consider the derivative of the objective with respect to the discretionary transfers to state s:

$$\frac{\partial \sum_s \pi^s}{\partial \phi_2^s} = \frac{\partial \pi^s}{\partial \phi_2^s} = g(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s)u'(\phi_2^s). \tag{16}$$

Equation 16 captures the incumbent's marginal benefit from increasing discretionary transfers ϕ_2^s. Specifically, it reflects the marginal gain in the probability of winning the election in state s resulting from a higher transfer.

The expression consists of two components: the marginal utility of the public good $u'(\phi_2^s)$ and the density of the popularity shock ψ at the threshold that determines the election outcome $g\left(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s\right)$. The marginal benefit in Equation 16 is always positive, provided u is strictly increasing. Higher discretionary transfers raise voter utility, thereby lowering the required popularity shock needed for the incumbent to win the election. This, in turn, increases the probability of victory, especially when (1) the marginal utility of the public good $u'(\phi_2^s)$ is large and (2) the popularity shock ψ is likely to be close to the critical value that determines the election, that is, when $g\left(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s\right)$ is large.

Consider the equilibrium allocation of discretionary transfers ϕ_2^* and two states $s^{(0)}$ and $s^{(1)}$. The corresponding marginal benefits must equal:

$$\begin{aligned} &g\left(u(\phi_2^{s^{(0)}*}) - \hat{u}_2^{s^{(0)}} + \bar{z}^{s^{(0)}}\right)\, u'\left(\phi_2^{s^{(0)}*}\right) \\ &= g\left(u(\phi_2^{s^{(1)}*}) - \hat{u}_2^{s^{(1)}} + \bar{z}^{s^{(1)}}\right)\, u'\left(\phi_2^{s^{(1)}*}\right). \end{aligned} \tag{17}$$

Otherwise, the incumbent would prefer to shift discretionary transfers to that state that yields a larger marginal benefit, as it would increase the expected number of state elections won.

Finally, in equilibrium, individuals anticipate the amount of discretionary transfers they get due to strategic allocation of the incumbent, $\hat{u}_2^s = u_2^s\, \forall s \in S$, leading to no attributed goodwill. Combining the above yields the following proposition, which describes the equilibrium allocation of discretionary transfers ϕ_2^*.

Proposition 3. ***Equilibrium discretionary transfers: State elections***
Consider any $B^s > 0$. Suppose that: (1) discretionary transfers ϕ_2^* maximize $\sum_s \pi^s$ subject to $\sum_s \phi_2^{s*} = B^s$, given beliefs $\{\hat{u}_2^s\}_{s\in S}$, and (2) beliefs are correct, i.e., $\hat{u}_2^s = u(\phi_2^{s*})$ for all $s \in S$.

Then, for any pair of states $s^{(0)}, s^{(1)} \in S$, it holds that:

$$g(\bar{z}^{s^{(0)}})\, u'\left(\phi_2^{s^{(0)}*}\right) = g(\bar{z}^{s^{(1)}})\, u'\left(\phi_2^{s^{(1)}*}\right).$$

Proof: *See Appendix A.3.*

Proposition 3 allows us to make further inferences regarding how different state characteristics affect the discretionary transfers. The following proposition captures these insights.

Proposition 4. ***State characteristics and state elections***
Consider equilibrium discretionary transfers ϕ_2^* as described in Proposition 3, and two states $s^{(0)}, s^{(1)} \in S$. Then:

4.1 $|\bar{z}^{s^{(0)}}| < |\bar{z}^{s^{(1)}}| \Rightarrow \phi_2^{s^{(0)}*} > \phi_2^{s^{(1)}*}$*, and*

4.2 $|\bar{z}^{s^{(0)}}| = |\bar{z}^{s^{(1)}}| \Rightarrow \phi_2^{s^{(0)}*} = \phi_2^{s^{(1)}*}$.

Proof: *See Appendix A.4.*

Condition 4.1 indicates that when the median voter in a state is nearly indifferent, i.e., $\bar{z}^s$ is close to zero, the state generally receives more discretionary transfers. Intuitively, this is because elections in such states are more competitive, so additional discretionary transfers are especially valuable in improving the incumbent's chances of winning.

Condition, 4.2, states that it is only the absolute value of $\bar{z}^s$ that determines how many discretionary transfers a state receives, not whether the median voter is generally for or against the incumbent.

2.2.3 Intertemporal results

So far, we have examined how the incumbent allocates resources across states within each period $t \in \{1, 2\}$. In this section, we focus on intertemporal resource allocation, by studying the equilibrium discretionary transfers ϕ_1^{*s} and ϕ_2^{*s} that maximize the objective V in Equation 1 under the budget constraint of Equation 2. Let $B^{f*} = \sum_s \phi_1^{*s}$ and $B^{s*} = \sum_s \phi_2^{*s}$ denote the total budgets allocated in periods 1 and 2 across all states, respectively. The incumbent's maximization problem can thus be understood as choosing equilibrium budgets B^{f*} and B^{s*}, which are then allocated across states according to Proposition 1 and Proposition 3.

Proposition 5. ***Political budget cycle***
Suppose that: (1) discretionary transfers (ϕ_1^*, ϕ_2^*) *maximize* V *in Equation 1, subject to* $\sum_s(\phi_1^{s*} + \phi_2^{s*}) = \bar{B}$*, given beliefs* $\{(\hat{u}_1^s, \hat{u}_2^s)\}_{s\in S}$*, and (2) beliefs are correct, i.e.,* $(\hat{u}_1^s, \hat{u}_2^s) = (u(\phi_1^{s*}), u(\phi_2^{s*}))$ *for all* $s \in S$*.*
Let $B^{f*} = \sum_s \phi_1^{s*}$ *and* $B^{s*} = \sum_s \phi_2^{s*}$*. Then:*

5.1 $\frac{\partial B^{s*}}{\partial \beta} < 0$*,*

5.2 $\frac{\partial B^{f*}}{\partial \beta} > 0$*,*

5.3 $\lim_{\beta\to\infty} B^{s*} = 0$*, and*

5.4 $\lim_{\beta\to\infty} B^{f*} = \bar{B}$*.*

Proof*: See Appendix A.5.*

Proposition 5 captures the intuitive result that if the federal election is of primary importance, β is large, the incumbent allocates more resources to boosting appeal in the federal election period, $B^{f*} > B^{s*}$. Conditions 5.1 and 5.2 state that as the weight assigned to the federal election β increases, the discretionary transfers in the federal election period increase while those in the state election period decrease. Conditions and state that in the limit, where importance is only assigned to the federal election, the incumbent spends all his budget on discretionary transfers in the federal election period. The proposition captures the classical PBC result, where an increase in spending during federal election periods as compared to other periods occurs.

Proposition 5 demonstrates the potential existence of a PBC. The results from Section 2.2.1 and Section 2.2.2 show that discretionary transfers vary across states in state election and federal election periods, suggesting that the size of the PBC may also differ between states. In this section, we further analyze whether the incumbent spreads discretionary transfers more evenly in federal versus state election periods. These insights in combination with our previous results allow us to make empirical predictions about state-level variation in the PBC, which we discuss in Section 2.3.

The below suggests that whether the incumbent spreads discretionary transfers more evenly during state or federal election periods depends on the widths of the densities of the popularity shock and political preferences.

Proposition 6. ***Intertemporal transfer differences***
Consider any $g(\cdot)$. Suppose that, for a sequence of densities $\{f_n\}$, associated equilibrium popularity shocks ψ_n^{c*}, and equilibrium discretionary transfers $\phi_{1,n}^{s*}$ and $\phi_{2,n}^{s*}$ as characterized in Proposition 5, we have for all $s^{(0)}, s^{(1)} \in S$:

6.1 For any $\epsilon > 0$, there exists N such that for all $n \geq N$,

$$\left| f_n(\bar{z}^{s^{(0)}} + \psi_n^{c*}) - f_n(\bar{z}^{s^{(1)}} + \psi_n^{c*}) \right| < \epsilon,$$

6.2 $\min_{s \in S} f_n(\bar{z}^s + \psi_n^{c*}) > \gamma > 0$ for all n.

Then, for all $s^{(0)}, s^{(1)} \in S$ with $|\bar{z}^{s^{(0)}}| \neq |\bar{z}^{s^{(1)}}|$, there exists N' such that for all $n \geq N'$,

$$\left| \phi_{1,n}^{s^{(0)}*} - \phi_{1,n}^{s^{(1)}*} \right| < \left| \phi_{2,n}^{s^{(0)}*} - \phi_{2,n}^{s^{(1)}*} \right|.$$

***Proof**: See Appendix A.6.*

Proposition 6 states that when the density of preferences $f(\cdot)$ is sufficiently wide for any given density of the popularity shock $g(\cdot)$, the difference in discretionary transfers to states $s^{(0)}$ and $s^{(1)}$ is more pronounced in the state election period than in the federal election period.[12] Proposition 8 in Appendix A.8 provides a complementary result showing that, when imposing some additional structure on the framework, i.e., $u(x) = x^\alpha$ for some $\alpha \in (0, 1)$, the relative difference in discretionary transfers is smaller during the federal than the state election period if the density $f(\cdot)$ varies even just minimally less than $g(\cdot)$ at the relevant points.

The underlying intuition behind the above results is that during state elections, resources are directed to those states where extra discretionary transfers could swing the vote just over the 50% threshold in that particular state, since winning depends on surpassing this mark. Consequently, discretionary transfers are highly targeted toward pivotal states. In contrast, during federal elec-

[12]Here, we interpret the width of $f(\cdot)$ and $g(\cdot)$ not in terms of absolute spread or variance, but rather as reflecting the extent to which their values differ at the relevant points.

tion, the goal is to achieve 50% of the vote on average nationwide, so an extra percentage point in any state is equally valuable, regardless of whether that state is already strongly supportive or not. A broad preference density implies that the marginal expected vote gain from additional public good provision, as given by $f(\cdot)$, is nearly constant across states. As a result, discretionary transfers are allocated mainly to maximize overall utility from public good provision. Due to decreasing marginal utility $u(\cdot)$, this leads to little variation in discretionary transfers ϕ_2^* across states. In the limit case where the density is uniform, $f(x) = f$ for all x, discretionary transfers become identical across all states.

The assumption of a wide density of political preferences $f(\cdot)$, especially as compared to $g(\cdot)$, appears highly plausible in the context of Indian state politics. A wide and flat density $f(\cdot)$ indicates that preferences are broadly distributed and heterogeneous across individuals, in contrast to a narrow density, which reflects the clustering of preferences near the median voter and thus greater homogeneity. Most Indian states exhibit pronounced diversity across social backgrounds, cultural groups, and local contexts, which generates considerable heterogeneity in voter preferences (Chandra, 2007). The variation in preferences is also evident in the persistent competition among parties across different regions and communities (Acharya et al., 2015). Lastly, theoretically, a relatively wide preference distribution $f(\cdot)$ as compared to $g(\cdot)$ implies that voting behavior and thus electoral outcomes are driven mainly by political preferences z rather than by the popularity shock ψ. This prediction seems to align with empirical evidence demonstrating the increasing importance of long-term ideological and structural factors in Indian elections, as compared to short-term leadership or popularity effects (Chhibber and Verma, 2019).

To conclude this section, we note that shifting discretionary transfers across states and periods leads to socially inefficient outcomes. Although the incumbent acts strategically, this behavior is fully anticipated by the individuals and therefore yields him no advantage, while it distorts public good provision over time. The following proposition states that there exists an alternative allocation of discretionary transfers that constitutes a Pareto improvement, provided that beliefs adjust accordingly.

Proposition 7. ***Pareto improvement of discretionary transfers***
Consider any equilibrium discretionary transfers ϕ_1^* and ϕ_2^* such that $\phi_1^{s*} \neq \phi_2^{s*}$ for some $s \in S$. There exists (ϕ_1^p, ϕ_2^p) such that

$$((\phi_1^p, \phi_2^p),\ (\hat{u}_1^s, \hat{u}_2^s) = (u({\phi_1^s}^p), u({\phi_2^s}^p))\ \forall s \in S)$$

constitutes a Pareto improvement over

$$((\phi_1^*, \phi_2^*),\ (\hat{u}_1^s, \hat{u}_2^s) = (u(\phi_1^{s*}), u(\phi_2^{s*}))\ \forall s \in S)\,.$$

Proof: *See Appendix A.7.*

The intuition behind this result is that, instead of varying discretionary transfers across periods, the incumbent could provide a constant level of public good provision across periods for each state s. Due to decreasing marginal utility, such smoothing increases each individual's total utility. Moreover, since goodwill does not arise under the equilibrium discretionary transfers ϕ_1^{s*} and ϕ_2^{s*}, the incumbent's probability of winning is unaffected by this leveling, assuming beliefs also adjust.

2.3 Theory-based predictions

This section concludes the theoretical analysis by deriving empirical predictions. To connect the theoretical model to the empirical analysis in the next section, we refer to state election periods as federal non-election periods throughout the remainder of the paper.

First, we expect the incumbent to place high importance on holding federal office, that is, β is large, since all future plans for centralization depend on retaining power at the federal level. In conjunction with Proposition 5, this gives the following prediction.

Prediction 1. *Discretionary transfers are higher in federal election periods than in federal non-election periods.*

We next discuss the swing characteristic and how it affects discretionary transfers. For periods when there is no federal election, Proposition 4 implies:

Prediction 2. *In federal non-election periods, swing states receive more discretionary transfers than non-swing states.*

We expect a similar effect during federal election periods, as suggested by Proposition 2 and the preceding discussion. However, recall that the density of preferences is expected to be quite broad, which may make this effect difficult to detect empirically. Nevertheless, we state the following prediction.

Prediction 3. *In federal election periods, swing states receive more discretionary transfers than non-swing states.*

Next, we analyze how the PBC may differ between swing and non-swing states. Proposition 6 and the corresponding discussion in Section 2.2.3 indicate that state characteristics , such as swing status, are expected to play a smaller role during federal election periods than during non-election periods. Although swing states receive more discretionary transfers than non-swing states in both types of periods, this difference should be smaller during federal election periods. This suggests that the increase in discretionary transfers during federal election periods is more pronounced for non-swing states than for swing states.

Prediction 4. *The election-period increase in discretionary transfers is larger for non-swing states than for swing states.*

3 Institutional background

The Indian federal structure is composed of several tiers, among which the central government, state governments and local governments are the most significant. Each tier has roles and responsibilities defined by the constitution, with the central government exercising greater authority and influence than the others.

At the state level, each Indian state has its own legislative assembly, known as the Vidhan Sabha[13], which serves as the governing authority of the state and conducts elections on schedules that vary across states, typically every five years.[14] At the national level, the Lok Sabha[15], also called the Lower House of Parliament, is the most powerful legislative body under the Indian Constitution and holds elections nationwide every five years on a single date. In addition to the LS and VS, India has a third tier of governance consisting of local bodies such as municipalities and panchayats. Panchayats function as local governments in rural areas, while municipalities serve this role in urban areas. Elections to these local bodies are also held on separate schedules that vary across regions and in most cases take place in years other than federal election years.

Regional parties wield significant influence in VS and local elections, often dominating particular states, securing the majority of seats and forming state

[13] We use VS as an abbreviation for Vidhan Sabha throughout the text.

[14] India comprises 28 states and 8 union territories (Figure B6). Most union territories are significantly smaller in both area and population and do not have a legislative assembly. However, Delhi, as well as Jammu and Kashmir, are exceptions, possessing their own assemblies with more limited powers than those of the states. The remaining union territories are administered directly by a governor appointed by the President of India.

[15] We use LS as an abbreviation for Lok Sabha throughout the text.

governments. At the national level, LS elections are primarily contested by the Bharatiya Janata Party (BJP) and the Indian National Congress (INC), the two major national parties. The incumbent party at the center typically maintains alliances or informal relationships with parties active in VS and local elections, giving it a vested interest in their success.

Comprehensive and reliable data on elections below the federal level are difficult to obtain in a country as vast and diverse as India. We acknowledge this data limitation and therefore use state election outcomes as a proxy for all elections that do not take place at the federal level. This choice is consistent with the model, where state elections conceptually represent a broader set of contests across lower tiers of government within each state.

In the Indian federal system, the central government collects a larger share of revenue, while state governments are responsible for a greater portion of public expenditure. This imbalance creates the need for financial transfers from the center to the states. These transfers take the form of tax devolution, formula-based grants, and discretionary allocations.

Tax devolution and formula-based grants are allocated according to fixed formulas, leaving little scope for political influence. In contrast, discretionary transfers are not governed by any predetermined rules and are determined at the central government's discretion. Because they are not subject to fixed allocation criteria, they are more vulnerable to political considerations and serve as a key instrument for the central government in directing budgetary resources. In our analysis, discretionary transfers form the core empirical setting through which we examine the predictions of the theoretical model.

4 Empirical strategy

We now turn to empirically evaluating the central predictions of our theoretical model using two main regression specifications. We begin with Prediction 1, which proposes that average discretionary transfers increase in federal election periods compared to federal non-election periods. To test this, we estimate the following specification:

$$\begin{aligned} Y_{st} = \alpha &+ \gamma_0 \text{Election}_t + \gamma_{-1} \text{Election}_{t-1} + \gamma_{-2} \text{Election}_{t-2} \\ &+ \gamma_{-4} \text{Election}_{t-4} + X'_{st} \beta + \alpha_s + \epsilon_{st}. \end{aligned} \tag{18}$$

Y_{st} denotes *Per capita discretionary transfers*. The main variables of interest are $\textit{Election}_t$ and $\textit{Election}_{t\text{-}1}$, which capture contemporaneous and lead election-year dynamics. We consider both $\textit{Election}_t$ and $\textit{Election}_{t\text{-}1}$ as federal election periods. The control vector X'_{st} includes *Population*, *Per capita GDP*, *Years as CM*[16], *Ideology*, and the first lag of *Debt-to-GDP*. State fixed effects, represented by α_s, account for time-invariant characteristics specific to each state. Robust standard errors are clustered at the state level to ensure reliable inference.

[16]CM stands for Chief Minister.

Next, we specify a model for Predictions 2, 3, and 4, which examine how a state's swing status influences the allocation of discretionary transfers in both federal election and non-election periods. To identify the conditional impacts implied by these predictions, we implement the following empirical model:

$$\begin{aligned} Y_{st} = \alpha + \beta_1 Swing_{st} + \beta_2 Election\ period \\ + \beta_3 (Swing_{st} \times Election\ period) + X'_{st}\delta + \alpha_s + \epsilon_{st}. \end{aligned} \tag{19}$$

In this second specification, Y_{st} denotes *Per capita discretionary transfers* and the variable *Election period* combines both $Election_t$ and $Election_{t-1}$ into a single indicator. The main coefficients of interest are β_1 for Prediction 2, $\beta_1 + \beta_3$ for Prediction 3, and β_3 for Prediction 4. These expressions result from algebraic combinations of estimated coefficients. Specifically, $\beta_1 + \beta_3$ is derived from $(\beta_1 + \beta_2 + \beta_3) - \beta_2$, and β_3 is obtained from $(\beta_2 + \beta_3) - \beta_2$. The control vector X'_{st} includes *Population*, *Per capita GDP*, *Years as CM*, *Ideology*, and the first lag of *Debt-to-GDP*. State fixed effects, denoted by α_s, control for time-invariant characteristics specific to each state. Robust standard errors are clustered at the state level.

5 Data and variables

For our empirical analysis, we focus on state-level data from India covering the period 2006 to 2022.[17] [18] A description of the variables used in the analysis is provided in the following subsections.

5.1 Explanatory variables

We focus on two main explanatory variables: *Swing* and *Election*. The *Swing* variable is determined based on the results of the last VS election in each state. If the winning margin in the last VS election in state s was 5% or less, then *Swing* takes a value of 1 for all years until the next VS election.[19]

The variable *Election* captures the timing of LS elections. Since LS elections in India are typically held during the first half of the calendar year, most

[17]We collect data from multiple sources. All dependent variables are obtained from Reserve Bank of India (2006–2022). Election-related variables such as *Swing* and *Election* are constructed using data from India Votes (2006–2022). Political variables such as *Years as a CM*, and *Ideology* are generated through a review of political party websites. Population data is taken from Census of India (2001 & 2011). GDP data is gathered from GDP reports of different state statistical offices.

[18]We focus on state-level data and exclude union territories, as the latter do not enjoy the same degree of administrative autonomy as states and are largely governed directly by the central government through appointed administrators.

[19]We rely on VS elections rather than LS elections to define the swing characteristic because this approach aligns better with the model. In the model, the swing characteristic $|\bar{z}^s|$ maps directly to the expected vote share in state elections. In contrast, at the federal level, the same value $|\bar{z}^s|$ can imply different expected shares depending on the sign of $\bar{z}^s$. Thus, according to the model, using state elections allows us to capture an unbiased and consistent measure of the swing characteristic.

pre-election fiscal activities and transfer decisions are likely to occur in the preceding year. Therefore, we also define the year prior to an LS election as part of the election period in our analysis. Specifically, for any given state s, *Election* takes the value one if year t is either the year immediately preceding an LS election or the election year itself, and zero otherwise.

Table 1: Descriptive statistics

	Obs.	**Mean**	**Std. dev.**	**Min.**	**Max.**
Fiscal transfers					
Per capita discretionary transfers (INR thousand)	453.00	3.19	4.77	0.00	42.75
Per capita loans from the center (INR thousand)	451.00	0.49	1.03	−4.54	9.51
Expenditures					
Per capita development expenditure (INR thousand)	452.00	23.65	29.41	0.00	385.50
Per capita social expenditure (INR thousand)	452.00	17.21	11.48	3.82	74.19
Per capita expenditure on wages and salaries (INR thousand)	397.00	12.12	58.58	0.00	883.43
Political variables					
Election	453.00	0.18	0.38	0.00	1.00
Swing	452.00	0.25	0.43	0.00	1.00
Ideology (rightwing)	451.00	0.42	0.49	0.00	1.00
Years as CM	452.00	7.00	5.55	1.00	25.00
Economic and demographic controls					
Per capita GDP (INR thousand)	453.00	161.42	87.19	33.31	586.57
Debt-to-GDP ratio	425.00	0.36	0.15	0.11	0.85
Population (millions)	453.00	45.69	48.05	0.58	240.17

Note: Monetary variables are expressed in INR (Indian rupee) thousand per capita. Population is in millions of persons. Binary variables are coded as 0/1.

5.2 Dependent variables

The primary focus of this paper is on *Per capita discretionary transfers*. In addition, the analysis explores further dependent variables: *Per capita loans from the center*, *Per capita development expenditure*, *Per capita social expenditure*, and *Per capita expenditure on wages and salaries*. These variables are included to provide a broader perspective given their publicly visible nature. All are continuous, inflation-adjusted, and their log-transformed values are used in the empirical analysis.

5.3 Control variables

Several control variables are included: *Population*, *Per capita GDP*, *Years as CM*, *Ideology*, and the first lag of *Debt-to-GDP*. Both *Population* and *Per capita GDP* are log-transformed.[20] The variable *Years as CM* captures the number of years of experience held by the Chief Minister of a given state.[21] The variable *Ideology* takes a value of one if the state incumbent is right-wing and zero otherwise.

Descriptive statistics for the explanatory, dependent, and control variables are presented in Table 1.[22]

6 Empirical results

6.1 Main findings

The main empirical findings are summarized in Table 2 and Table 3, with Table 2 reporting results related to Prediction 1, and Table 3 presenting results corresponding to Predictions 2 through 4.

We begin with Prediction 1, which posits that average discretionary transfers increase in federal election periods compared to federal non-election periods. Table 2 reports the results of our regression analysis across four model specifications, testing this prediction.

[20] Missing values for *Population* and *Per capita GDP* are imputed using linear interpolation. *Per capita GDP* is also inflation-adjusted.

[21] The Chief Minister, who is the elected head of the state, assumes office through the VS election.

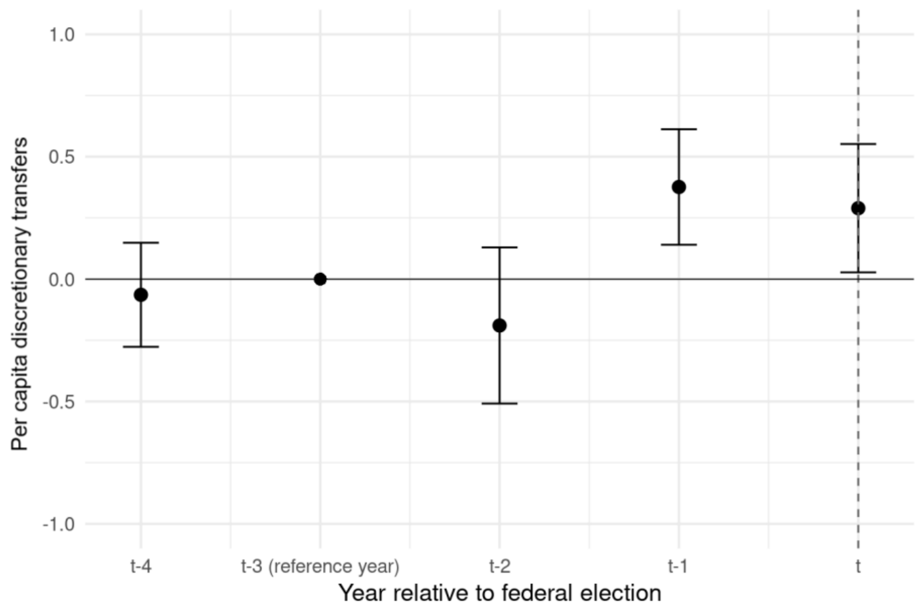
[22] As part of our robustness checks, we additionally include *Political alignment* between the state and central governments, as well as the occurrence of *State election* in a given year. *Political alignment* is coded through a review of political party websites. For a given year t, *Political alignment* takes a value of one if the incumbent party in state s is also the incumbent party at the center or forms a coalition or alliance with the central incumbent. Otherwise, it takes a value of zero. Regarding the construction of the *State election* variable, if a VS election in state s takes place in the first half of year t, we assign a value of one to year $t-1$. Conversely, if the election occurs in the second half of the year, we assign a value of one to year t itself.

Table 2: Electoral cycles of per capita discretionary transfers in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
$Election_t$	0.427**	0.332*	0.330*	0.293*
	(0.142)	(0.138)	(0.127)	(0.132)
$Election_{t-1}$	0.490***	0.383**	0.381**	0.384**
	(0.128)	(0.119)	(0.117)	(0.117)
$Election_{t-2}$	-0.058	-0.109	-0.114	-0.071
	(0.075)	(0.086)	(0.089)	(0.092)
$Election_{t-4}$	-0.118	-0.089	-0.093	-0.065
	(0.107)	(0.103)	(0.104)	(0.108)
State election			-0.021	0.020
			(0.099)	(0.110)
Political alignment			-0.028	0.159
			(0.180)	(0.155)
Swing			0.154	0.091
			(0.204)	(0.217)
Observations	341	339	339	339
Adjusted R^2	0.497	0.513	0.510	0.589
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Figure 1: Electoral cycles of per capita discretionary transfers in Indian states, 2006-2022



Note: The figure plots estimated coefficients and 95% confidence intervals for $Election_t$, $Election_{t-1}$, $Election_{t-2}$, $Election_{t-4}$, corresponding to Model 4 in Table 2. The dependent variable, *per capita discretionary transfers*, is log-transformed.

Column 1 includes only the election variables, namely $Election_t$, $Election_{t-1}$, $Election_{t-1}$, $Election_{t-2}$, and $Election_{t-4}$.[23] In Column 2, we include a set of control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and the first lag of *Debt-to-GDP*. Column 3 extends the model by including additional political variables, namely *Political alignment*, *Swing*, and a *State election* dummy.

Finally, Column 4 introduces state-specific linear trends for further robustness check. Specifically, state-specific linear trends are included to flexibly account for unobserved, time-varying heterogeneity in underlying state characteristics that evolve smoothly over time and may systematically affect discretionary transfer allocations. This specification choice mitigates potential bias from differential long-run trajectories across states, such as in administrative capacity, bureaucratic efficiency, quality of public financial management, or the strength of political networks, that are not captured by observed covariates. Therefore, we consider specification 4 the most appropriate model.

According to Table 2, the coefficient for first lead of $Election_t$, namely $Election_{t-1}$ ranges from 0.381 to 0.490, meaning that on average, per capita discretionary transfers are 38.1% to 49% higher in $Election_{t-1}$ years compared to the $Election_{t-3}$ baseline and is statistically significant at the 5% level. Moreover, a similar pattern is observed for the $Election_t$ variable itself, indicating

[23] $Election_{t-3}$ is the base.

that, on average, per capita discretionary transfers are between 29.3% and 42.7% higher in *Election*$_t$ years compared to the reference year. All estimated coefficients for *Election*$_t$ are statistically significant at the 5%-10% level. This estimated result clearly goes in line with the Prediction 1.

For the remainder of the analysis, we define the *Election period* as the combination of *Election*$_t$ and *Election*$_{t\text{-}1}$. We will use this instead of *Election*$_t$ or *Election*$_{t\text{-}1}$. This decision is motivated by the estimated result of Table 2, which suggests that average per capita discretionary transfers are significantly higher not only in *Election*$_t$ years but also in *Election*$_{t\text{-}1}$ years.[24]

We now turn to Predictions 2-4. Table 3 reports the empirical results corresponding to these predictions.

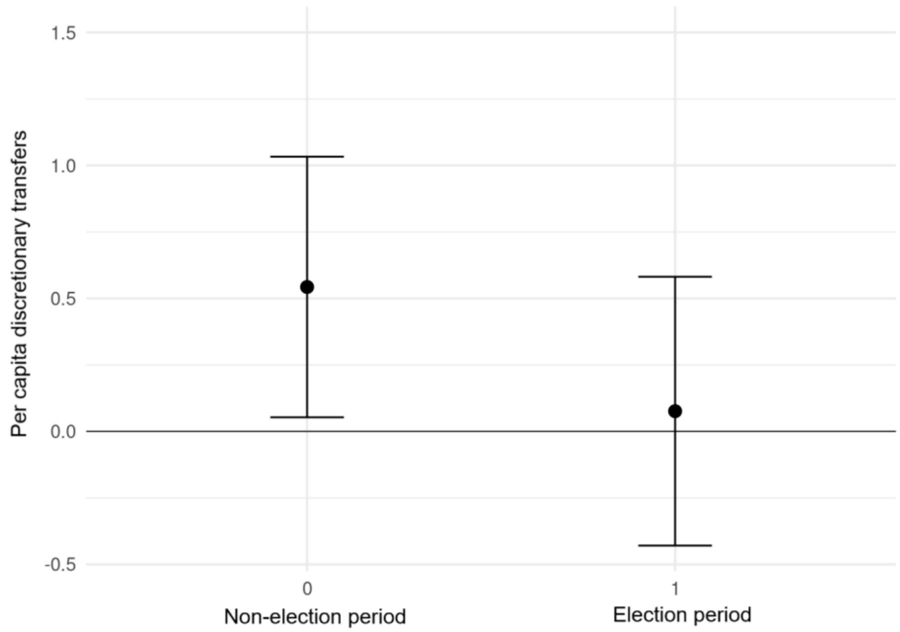
Table 3: Electoral cycles of per capita discretionary transfers by swing status in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Swing	0.200	0.204	0.204	0.543**
	(0.276)	(0.215)	(0.212)	(0.250)
Election period	0.233	0.388**	0.390**	0.441***
	(0.150)	(0.151)	(0.145)	(0.142)
Swing × Election period	-0.404*	-0.318	-0.318*	-0.467**
	(0.225)	(0.187)	(0.185)	(0.179)
Political alignment			-0.068	0.011
			(0.154)	(0.158)
State election			0.003	-0.003
			(0.078)	(0.093)
Observations	424	396	396	396
Adjusted R^2	0.435	0.546	0.544	0.601
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

[24] This seems reasonable since discretionary transfers likely require some time to take effect and influence electoral outcomes.

Figure 2: Electoral cycles of per capita discretionary transfers by swing status in Indian states, 2006-2022



Note: This figure visualizes the estimated coefficient and 95% confidence intervals of *Swing* on *Per capita discretionary transfers*, conditional on whether it is election period or not, based on Model 3 in Table 3. The dependent variable, *per capita discretionary transfers*, is log-transformed.

Table 3 presents four model specifications. Column 1 includes *Swing*, *Election period*, and their interaction. Column 2 includes *Swing*, *Election period*, their interaction, and control variables such as *Population*, *Per capita GDP*, *Years as CM*, *Ideology*, and the first lag of *Debt-to-GDP*. Column 3 additionally includes *Political alignment* and a *State election* dummy. Column 4 adds state-specific linear trends.

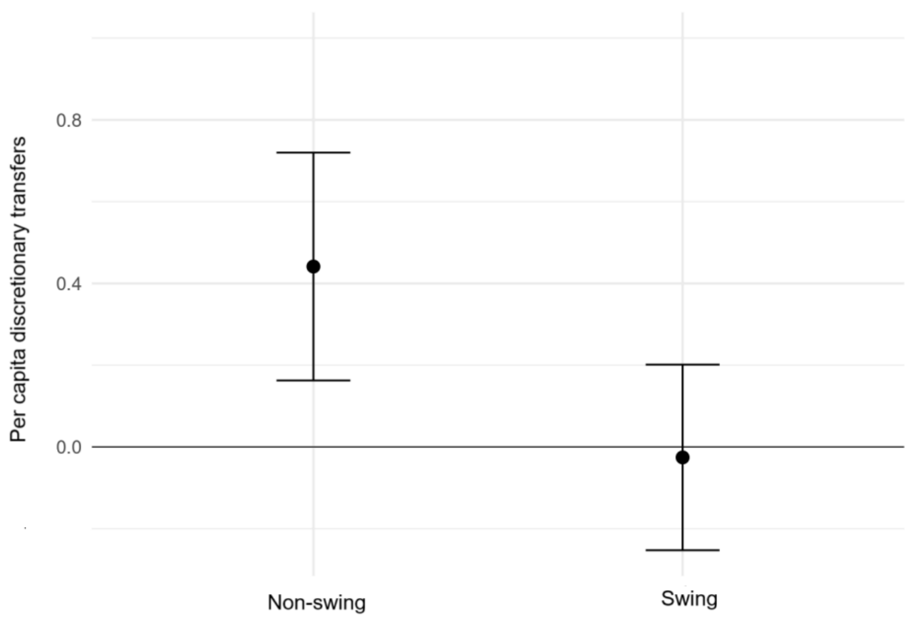
According to the estimated results presented in Table 3, we find in Column 4 evidence that, in federal non-election periods, swing states receive approximately 54.3% more average per capita discretionary transfers than non-swing states. The estimated coefficient is statistically significant at the 5% level. It is important to note that this result appears significant only in Column 4, where the model includes state-specific linear trends. Thus, the evidence supports Prediction 2 only when accounting for additional state-specific heterogeneities, as discussed earlier.

To test Prediction 3, we estimate the sum of coefficients β_1 and β_3. This combined estimate captures the difference in being a swing state during a federal election period relative to non-swing states. However, the associated F-tests for this linear combination are statistically insignificant across all model specifications. For instance, in our preferred model, the joint test of $\beta_1 + \beta_3 = 0$ yields an F-statistic of $F = 0.087$ with a p-value of $p = 0.768$, indicating no statistical evidence in support of Prediction 3.

For Prediction 4, we compare the federal election-period differences between the two groups. Specifically, the increase for swing states is captured by the sum $\beta_2 + \beta_3$, while for non-swing states, it is represented by β_2. Our coefficient of interest is therefore β_3. According to the estimated results, β_3 is statistically significant across most model specifications, at either the 5% or 10% level. The coefficient estimates indicate that the federal election-period increase in average per capita discretionary transfers to non-swing states is 31.8% to 46.7% higher than for swing states. This provides clear support for Prediction 4.

Importantly, when we restrict the analysis to the large-state sample, where electoral competition tends to be more intense, the patterns associated with Predictions 1, 2, and 4 become statistically significant and robust across all model specifications. We discuss this in greater detail in Subsection 6.2.1.

Figure 3: Election period increase by swing status in Indian states, 2006-2022



Note: The figure displays the estimated *Election period* increase in *Per capita discretionary transfers*, separately for swing and non-swing states. The point estimates are represented by black dots, and the vertical lines denote 95% confidence intervals, corresponding to Model 4 in Table 2. The dependent variable, *per capita discretionary transfers*, is log-transformed.

6.2 Extensions and robustness checks

6.2.1 Large versus small states

We rerun all analyses related to the testing of our four predictions, as presented in Table 2 and Table 3, by splitting the sample into large and small states. This extension focuses primarily on the large states of India, as these states are the primary battlegrounds for political competition. The term large states refers to those with a larger number of LS constituencies and thus higher political significance. These states collectively account for 450 out of 543 LS constituencies. For a graphical representation of the large states of India, see Figure B6. The estimated results are presented in Table B8 and Table B9. These results are qualitatively similar to those in Table 2 and Table 3, where the full sample is used. Some results even become stronger in the large-state sample. For example, in the full sample, we found only partial support for Prediction 2. Specifically, the *Swing* variable was significant only in the final specification. In contrast, when focusing on the large states, support for Prediction 2 is much stronger, as the *Swing* variable is statistically significant at 1% to 10% level across all specifications. A similar pattern is observed for Prediction 4.

However, when focusing on the sample of small states, we do not observe any statistically significant results for our variables of interest. This suggests that the results presented in Table 2 and Table 3 are primarily driven by the large states, where political competition tends to be more intense.

6.2.2 Alternative swing definitions

To assess the robustness of our findings to alternative definitions of swing status, Table B3 presents estimates using three different swing classifications. The first measure, *Swing (VS = 10%)*, is based on a 10% winning margin in the most recent VS election. The second and third definitions, namely *Swing (LS = 5%)* and *Swing (LS = 10%)* are derived from 5% and 10% winning margins, respectively, in the most recent LS election.

The results indicate that our main findings from Table 3 are robust when using *Swing (VS = 10%)*. In contrast, when alternative definitions based on LS election margins the interaction terms of interest become statistically insignificant. This is consistent with our theoretical argument that, within the context of our model, swing classifications based on federal election outcomes are less appropriate than those based on state election results.

6.2.3 Alternative outcomes

We also conduct regression analyses for other fiscal indicators, including *Per capita loans from the center* as well as state-level expenditures, such as , *Per capita development expenditure*, *Per capita social expenditure*, and *Per capita expenditure on wages and salaries*. Among these, only loans are issued by the central government. The remaining categories are determined and executed by state governments. Nonetheless, given their public visibility, these expenditures may also serve political purposes. This motivates us to examine them as part of the robustness analysis. The estimated results are presented from Table B4 to Table B7 and from Figure B2 to Figure B5. However, we do not find statistically or economically significant results of either $Election_t$ or $Election_{t-1}$ on any of these variables.

6.2.4 Alignment

Next, we explore the role of political alignment. As a preliminary step, Table B2 examines whether politically aligned states receive higher average per capita discretionary transfers during the *Election period* by including an interaction term between *Political alignment* and *Election period*. This specification yields no statistically significant result, suggesting that alignment alone does not drive increased average per capita discretionary transfers during federal election period.

To examine whether the electoral cycle varies systematically with both political alignment and swing status, we estimate a model that includes a three-way interaction term: *Political alignment* × *Swing* × *Election period*. Table B10 presents the regression results, and a marginal plot based on Model 4 is depicted in Figure B7. The estimates indicate that aligned swing states receive substantially higher average per capita discretionary transfers during federal election periods compared to non-election periods. Transfers are also significantly higher in non-aligned, non-swing states during election years relative to non-election years. Both estimates are statistically significant, although the precision of the estimate for aligned swing states is lower. By contrast, the estimates for aligned, non-swing states are positive, and those for non-aligned swing states are negative, but neither is statistically distinguishable from zero. These patterns may be sensitive to limited variation in the underlying data. Therefore, the results should be interpreted with caution.

However, the political incentive structure may offer a plausible ad-hoc explanation for these patterns. Aligned swing states combine electoral competitiveness with administrative congruence, making them especially attractive targets for election-year transfers. Non-aligned, non-swing states, though electorally safe for the opposition, might still receive additional resources as symbolic gestures of national inclusion or as part of a longer-term strategy to cultivate support. In contrast, non-aligned swing states, while strategically important, pose institutional risks because transfers could inadvertently strengthen opposition governments. Aligned non-swing states, by comparison, are electorally secure and thus a lower priority. Importantly, this interpretation lies outside the scope of our theoretical model and is offered only as a possible explanation for the observed empirical patterns. It nevertheless points to a promising direction for future research on the conditional logic of distributive politics.

7 Discussion

This paper examines how a central incumbent allocates discretionary transfers across states and time to improve electoral outcomes, combining a theoretical model with empirical tests using panel data from Indian states (2006–2022). The model predicts that discretionary transfers increase during federal election periods, provided the incumbent values staying in power at the federal level. This is the content of Prediction 1. In periods without federal elections, the model expects the incumbent to focus on swing states, where electoral outcomes are most uncertain and additional transfers have the highest payoff. This is captured by Prediction 2. According to Prediction 3, swing states should also receive more transfers during federal election periods, as they remain the most responsive to targeted spending.

Since the predicted gap in transfers between swing and non-swing states is smaller during federal election periods than during non-election periods, Prediction 4 states that the overall increase in transfers during federal election periods should be larger in non-swing states. This implies that the PBC is most visible in states where the incumbent does not face close competition, namely non-swing states

The empirical analysis provides strong support for most of the model's predictions. Consistent with Prediction 1, we find a statistically significant positive result of both $Election_t$ and $Election_{t-1}$ on per capita discretionary transfers, indicating that average per capita discretionary transfers increase in federal periods. Almost similar patterns are observed in the large state sample, where electoral competition tends to be more intense. In line with Prediction 2, the results also show that in federal non-election periods, swing states receive significantly higher average per capita discretionary transfers than non-swing states. While this result is only statistically significant in the final specification with full controls in the full sample, it becomes consistently stronger and significant across all model specifications when the analysis is restricted to large states. Finally, consistent with Prediction 4, we find that the *Election period* increase in average per capita discretionary transfers is significantly larger for non-swing states than for swing states. This pattern holds robustly in both the full sample and the large state sample. We conduct several robustness checks of these results, including controlling for *Political alignment* and *State election*, incorporating state-specific linear trends, and using alternative definitions of swing status. Across all these checks, our main results remain qualitatively unchanged.

However, the empirical results do not confirm Prediction 3, which claims that swing states should receive more average per capita discretionary transfers than non-swing states during federal election periods. Across all model specifications, we do not find any evidence that goes in line with Prediction 3. The model itself provides a possible explanation for this outcome. Proposition 2 shows that the swing effect becomes weaker when the distribution of voter preferences, given by $f(\cdot)$, is wide. In the limit case, where the density is flat, the swing effect disappears altogether. As discussed after Proposition 6, a wide density is likely in the empirical context we study. Voter preferences may be broadly distributed, which reduces the effect of targeted transfers during federal election periods. This could explain why the corresponding swing effect is not visible in the data, without contradicting the theoretical framework.

Our findings are generally in accordance with the existing literature on India, but provide some valuable additional insights regarding how the magnitude of the PBC may vary across states. First, our analysis strongly aligns with the literature that identifies a general existence of the PBC (Ferris & Dash, 2019; Manjhi & Mehra, 2018). At the same time, our theoretical predictions, and the empirical evidence supporting them, regarding swing states receiving more transfers than non-swing states also align with what other studies suggest (Arulampalam et al., 2009). However, one might mistakenly infer from these patterns that swing states should also experience the most pronounced PBC. Our analysis provides some evidence against this. Both our theoretical and empirical findings suggest that the PBC is especially strong in non-swing states. In fact, we see no empirically significant PBC in swing states and observe it solely in non-swing states, as shown in Figure 3. This result is novel. The underlying intuition, which is heavily grounded in our theoretical model, is that since political competition is ongoing, swing states are continuously targeted to enhance performance in state and local elections. Non-swing states, however, are primarily targeted during periods of federal election in order to mobilize votes that matter for the public vote.

Overall our results highlight significant challenges to India's federal system. According to the normative view of fiscal federalism discretionary powers are granted to the central incumbent to address regional disparities effectively (Oates, 1999). However when these discretionary powers are politically exploited they undermine the goal of reducing regional disparities. The political exploitation observed in the analysis diverts resources away from their intended purpose reinforcing disparities rather than mitigating them (Rao & Singh, 2005). This raises concerns about the existing provision of discretionary transfers in India and calls for a reevaluation of the current frameworks.

8 Conclusion

Our main findings indicate the presence of a PBC, as discretionary transfers are generally larger during federal election periods. This increase is especially notable in non-swing states, which is partly attributable to the tendency of swing states to receive more transfers during federal non-election periods. Thus, our analysis suggests that non-swing states are particularly affected by PBCs in federal systems. On a more general note, our results indicate that discretionary transfers are influenced by political strategy, shaped by both the timing of federal elections and the characteristics of states.

At the same time, the broader implications of this spending behavior remain unclear. It is not yet evident whether the increase in transfers contributes to allocative efficiency or primarily serves as a signaling device, nor is there systematic evidence on the political bargaining processes that may lead to preferential outcomes. These remain open questions for future research.

One particularly promising direction for further investigation is the role of alignment. Our data suggest that alignment may influence transfer patterns and could interact with swing status in shaping outcomes. However, this interaction is not yet fully understood and warrants deeper empirical analysis.

In addition, our paper is subject to empirical limitations. Specifically, our measure of swing status is based on past electoral outcomes and does not account for dynamic shifts in voter preferences that may change a state's swing status over time, independent of past results. Future research could benefit from incorporating more real-time indicators of political competitiveness, such as polling data or party campaign intensity, to better capture the swing status of a state.

We also recognize the limitations of causal inference using fixed effects models, as outlined by Imai and Kim (2019). In our context, if previous discretionary transfers affect the swing status of a state, our estimates may reflect associations rather than causal effects. Future work could explore alternative identification strategies to address this issue.

Lastly, while our theoretical model explains the distribution of discretionary transfers across time and states within India relatively well, further analyses are necessary to determine whether this pattern holds in other countries with comparable federal systems.

Declaration of generative AI and AI-assisted technologies in the writing process

During the preparation of this work, the authors used *Grammarly* and *ChatGPT* to improve language and readability. After using these tools, the authors reviewed and edited the content as needed and take full responsibility for the content of the published article.

9 References

Acharya, A., Roemer, J. E., & Somanathan, R. (2015). Caste, corruption and political competition in India. *Research in Economics*, *69*(3), 336–352. https://doi.org/10.1016/j.rie.2015.02.001

Aidt, T. S., Veiga, F. J., & Veiga, L. G. (2011). Election results and opportunistic policies: A new test of the rational political business cycle model. *Public Choice*, *148*, 21–44. https://doi.org/10.1007/s11127-010-9644-3

Arceneaux, N. (2017). 'Monsoon *Hungama* ' and the 2G Scam: Public interest and mobile spectrum policy in India, 1999–2012. *Global Media and Communication*, *13*(1), 3–19. https://doi.org/10.1177/1742766517694470

Arulampalam, W., Dasgupta, S., Dhillon, A., & Dutta, B. (2009). Electoral goals and center-state transfers: A theoretical model and empirical evidence from India. *Journal of Development Economics*, *88*(1), 103–119. https://doi.org/10.1016/j.jdeveco.2008.01.001

Benito, B., Bastida, F., & Vicente, C. (2013). Creating Room for Manoeuvre: A Strategy to Generate Political Budget Cycles under Fiscal Rules. *Kyklos*, *66*(4), 467–496. https://doi.org/10.1111/kykl.12032

Bhat, M. M. A., Suresh, M., & Das Acevedo, D. (2022). Authoritarianism in indian state, law, and society. *Verfassung und Recht in Übersee (VRÜ) / World Comparative Law (WCL)*, *55*, 459–477. https://doi.org/10.2139/ssrn.4407154

Bohn, F., & Veiga, F. J. (2021). Political forecast cycles. *European Journal of Political Economy*, *66*, 101934. https://doi.org/10.1016/j.ejpoleco.2020.101934

Bracco, E., Lockwood, B., Porcelli, F., & Redoano, M. (2015). Intergovernmental grants as signals and the alignment effect: Theory and evidence. *Journal of Public Economics*, *123*, 78–91. https://doi.org/10.1016/j.jpubeco.2014.11.007

Brender, A., & Drazen, A. (2005). Political budget cycles in new versus established democracies. *Journal of Monetary Economics*, *52*(7), 1271–1295. https://doi.org/10.1016/j.jmoneco.2005.04.004

Census of India. (2001 & 2011). Census data tables [Last accessed: July 11, 2025]. https://censusindia.gov.in/census.website/data/census-tables

Chandra, K. (2007). *Why ethnic parties succeed: Patronage and ethnic head counts in India*. Cambridge University Press.

Chhibber, P., & Verma, R. (2019). The Rise of the Second Dominant Party System in India: BJP's New Social Coalition in 2019. *Studies in Indian Politics*, *7*(2), 131–148. https://doi.org/10.1177/2321023019874628

Cox, G. W., & McCubbins, M. D. (1986). Electoral Politics as a Redistributive Game. *The Journal of Politics*, *48*(2), 370–389. https://doi.org/10.2307/2131098

Dixit, A., & Londregan, J. (1996). The determinants of success of special interests in redistributive politics. *Journal of Politics*, *58*(4), 1132–1155. https://doi.org/10.2307/2960152

Dixit, A., & Londregan, J. (1998). Fiscal federalism and redistributive politics. *Journal of Public Economics*, *68*(2), 153–180. https://doi.org/10.1016/S0047-2727(97)00097-2

Drazen, A., & Eslava, M. (2010). Electoral manipulation via voter-friendly spending: Theory and evidence. *Journal of Development Economics*, *92*(1), 39–52. https://doi.org/10.1016/j.jdeveco.2009.01.001

Dubois, E. (2016). Political business cycles 40 years after Nordhaus. *Public Choice*, *166*, 235–259. https://doi.org/10.1007/s11127-016-0313-z

Efthyvoulou, G. (2012). Political budget cycles in the European Union and the impact of political pressures. *Public Choice*, *153*, 295–327. https://doi.org/10.1007/s11127-011-9795-x

Erikson, R. S. (1971). The Advantage of Incumbency in Congressional Elections. *Polity*, *3*(3), 395–405. https://doi.org/10.2307/3234117

Ferris, J. S., & Dash, B. B. (2019). Expenditure visibility and voter memory: A compositional approach to the political budget cycle in Indian states, 1959–2012. *Economics of Governance*, *20*, 129–157. https://doi.org/10.1007/s10101-018-0216-1

Garofalo, P., Lema, D., & Streb, J. M. (2020). Political budget cycles and voting within a federal country: The influence of political alignment. *Economics & Politics*, *32*(2), 305–334. https://doi.org/10.1111/ecpo.12154

Imai, K., & Kim, I. S. (2019). When should we use unit fixed effects regression models for causal inference with longitudinal data? *American Journal of Political Science*, *63*(2), 467–490. https://doi.org/10.1111/ajps.12417

Imami, D., Uberti, L. J., Lami, E., & Zhllima, E. (2018). Political business cycles and construction licensing: Evidence from post-socialist Tirana, Albania (1994–2015). *Economics of Transition*, *26*(3), 523–552. https://doi.org/10.1111/ecot.12151

India Votes. (2006–2022). Indian election data [Last accessed: July 11, 2025]. https://www.indiavotes.com/

Kauder, B., Krause, M., & Potrafke, N. (2018). Electoral cycles in MPs' salaries: Evidence from the German states. *International Tax and Public Finance*, *25*(4), 981–1000. https://doi.org/10.1007/s10797-017-9479-7

Klein, F. A., & Sakurai, S. N. (2015). Term limits and political budget cycles at the local level: Evidence from a young democracy. *European Journal of Political Economy*, *37*, 21–36. https://doi.org/10.1016/j.ejpoleco.2014.10.008

Lee, D. S. (2001). The electoral advantage to incumbency and voters' valuation of politicians' experience: A regression discontinuity analysis of elections to the u.s. *NBER Working Papers*. https://doi.org/10.3386/w8441

Lindbeck, A., & Weibull, J. W. (1987). Balanced-Budget Redistribution as the Outcome of Political Competition. *Public Choice*, *52*, 273–297. https://doi.org/10.1007/BF00116710

Manjhi, G., & Mehra, M. K. (2018). Political Transfer Cycles from the Centre to the states. *Ensayos sobre Política Económica*, *36*(86), 207–241. https://doi.org/10.32468/espe.8604

Mayhew, D. R. (2008). Incumbency Advantage in U.S. Presidential Elections: The Historical Record. *Political Science Quarterly*, *123*(2), 201–228. https://doi.org/10.1002/j.1538-165X.2008.tb00622.x

Mechtel, M., & Potrafke, N. (2013). Electoral cycles in active labor market policies. *Public Choice*, *156*(1-2), 181–194. https://doi.org/10.1007/s11127-011-9890-z

Nordhaus, W. D. (1975). The Political Business Cycle. *The Review of Economic Studies*, *42*(2), 169–190. https://doi.org/10.2307/2296528

Oates, W. E. (1999). An essay on fiscal federalism. *Journal of Economic Literature*, *37*(3), 1120–1149. https://doi.org/10.1257/jel.37.3.1120

Persson, T., & Tabellini, G. E. (1990). *Macroeconomic policy, credibility and politics*. Harwood Academic Publishers.

Potrafke, N. (2010). The growth of public health expenditures in OECD countries: Do government ideology and electoral motives matter? *Journal of Health Economics*, *29*(6), 797–810. https://doi.org/10.1016/j.jhealeco.2010.07.008

Potrafke, N. (2012). Political cycles and economic performance in OECD countries: Empirical evidence from 1951–2006. *Public Choice*, *150*(1-2), 155–179. https://doi.org/10.1007/s11127-010-9695-5

Potrafke, N. (2020). General or central government? Empirical evidence on political cycles in budget composition using new data for OECD countries. *European Journal of Political Economy*, *63*, 101860. https://doi.org/10.1016/j.ejpoleco.2020.101860

Rao, M. G., & Singh, N. (2005). *The political economy of federalism in India*. Oxford University Press.

Reserve Bank of India. (2006–2022). State finances: A study of budgets [Last accessed: July 11, 2025]. https://rbi.org.in/Scripts/AnnualPublications.aspx?head=State%20Finances%20:%20A%20Study%20of%20Budgets

Rogoff, K. (1990). Equilibrium Political Budget Cycles [https://www.jstor.org/stable/2006731]. *The American Economic Review*, *80*(1), 21–36.

Rogoff, K., & Sibert, A. (1988). Elections and Macroeconomic Policy Cycles. *The Review of Economic Studies*, *55*(1), 1–16. https://doi.org/10.2307/2297526

Ruparelia, S. (2015). 'Minimum Government, Maximum Governance': The Restructuring of Power in Modi's India. *South Asia: Journal of South Asian Studies*, *38*(4), 755–775. https://doi.org/10.1080/00856401.2015.1089974

Shi, M., & Svensson, J. (2006). Political budget cycles: Do they differ across countries and why? *Journal of Public Economics*, *90*(8-9), 1367–1389. https://doi.org/10.1016/j.jpubeco.2005.09.009

Sundar, N. (2023). The Supreme Court in Modi's India. *Journal of Right-Wing Studies*, *1*(1), 106–144. https://doi.org/10.5070/RW3.1499

Veiga, L. G., & Veiga, F. J. (2007). Political business cycles at the municipal level. *Public Choice*, *131*, 45–64. https://doi.org/10.1007/s11127-006-9104-2

Wang, X., Bohn, F., & Veiga, F. J. (2023). When do more selfish politicians manipulate less, not more? *European Journal of Political Economy*, *77*, 102320. https://doi.org/10.1016/j.ejpoleco.2022.102320

Xu, B. (2014). India's corruption problem [Last accessed: July 11, 2025]. https://www.files.ethz.ch/isn/183547/India%27s%20Corruption%20Problem%20-%20Council%20on%20Foreign%20Relations.pdf

Appendix A

Appendix A.1 Proof of Proposition 1

Suppose, for now, that the equilibrium transfers always satisfy $\phi_1^{s*} > 0$ for all $s \in S$. The Lagrangian associated with the optimization problem 11, for given beliefs $\{\hat{u}_1^s\}_{s\in S}$, is:

$$\mathcal{L}(\phi_1, \lambda) = \psi^c - \lambda \left(B^f - \sum_s \phi_1^s \right),$$

which yields the first-order condition $\frac{\partial \psi^c}{\partial \phi_1^s} = -\lambda$ for all $s \in S$, and the constraint $\sum_s \phi_1^s = B^f$, with $\phi_1^s \geq 0$. Using the expression for $\frac{\partial \psi^c}{\partial \phi_1^s}$, this condition becomes:

$$u'(\phi_1^s) \frac{f\left(u(\phi_1^s) - \hat{u}_1^s + \bar{z}^s + \psi^c\right)}{\sum_{\bar{s}} f\left(u(\phi_1^{\bar{s}}) - \hat{u}_1^{\bar{s}} + \bar{z}^{\bar{s}} + \psi^c\right)} = -\lambda, \quad \forall s \in S.$$

In equilibrium, beliefs are correct: $\hat{u}_1^s = u(\phi_1^{s*})$. Substituting yields:

$$u'(\phi_1^{s*}) \frac{f(\bar{z}^s + \psi^c)}{\sum_{\bar{s}} f(\bar{z}^{\bar{s}} + \psi^c)} = -\lambda, \quad \forall s \in S.$$

This implies:

$$u'(\phi_1^{s^{(0)}*}) f(\bar{z}^{s^{(0)}} + \psi^c) = u'(\phi_1^{s^{(1)}*}) f(\bar{z}^{s^{(1)}} + \psi^c), \quad \forall s^{(0)}, s^{(1)} \in S.$$

To conclude, suppose by contradiction that $\phi_1^{s^{(0)}*} = 0$ for some $s^{(0)} \in S$. Then $u'(\phi_1^{s^{(0)}*}) \to \infty$, which implies $\frac{\partial \psi^c}{\partial \phi_1^{s^{(0)}*}} = -\infty$. For any $s^{(1)}$ with $\phi_1^{s^{(1)}*} > 0$, we have finite $\frac{\partial \psi^c}{\partial \phi_1^{s^{(1)}*}}$, so reallocating a small amount $\delta > 0$ from $s^{(1)}$ to $s^{(0)}$ strictly reduces ψ^c, violating optimality. Hence, $\phi_1^{s*} > 0$ for all $s \in S$.

Appendix A.2 Proof of Proposition 2

First, note that

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(0)}} + \psi^{c*}| \Rightarrow f(\bar{z}^{s^{(1)}} + \psi^{c*}) < f(\bar{z}^{s^{(0)}} + \psi^{c*}).$$

Given the first-order condition,

$$f(\bar{z}^{s^{(0)}} + \psi^{c*})\, u'(\phi_1^{s^{(0)}*}) = f(\bar{z}^{s^{(1)}} + \psi^{c*})\, u'(\phi_1^{s^{(1)}*}),$$

we then have

$$f(\bar{z}^{s^{(0)}} + \psi^{c*}) > f(\bar{z}^{s^{(1)}} + \psi^{c*}) \Rightarrow u'(\phi_1^{s^{(0)}*}) < u'(\phi_1^{s^{(1)}*}),$$

and by strict concavity of u, this implies

$$\phi_1^{s^{(0)}*} > \phi_1^{s^{(1)}*}.$$

Hence,

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(0)}} + \psi^{c*}| \Rightarrow \phi_1^{s^{(0)}*} > \phi_1^{s^{(1)}*}.$$

It remains to be shown that Conditions 2.1, 2.2, and 2.3 each imply

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(0)}} + \psi^{c*}|.$$

Condition 2.1:

$$\left(\bar{z}^{s^{(1)}} < 0 \wedge |\bar{z}^{s^{(1)}}| > |\bar{z}^{s^{(0)}}|\right) \Rightarrow \bar{z}^{s^{(1)}} < \bar{z}^{s^{(0)}} \Rightarrow \bar{z}^{s^{(1)}} + \psi^{c*} < \bar{z}^{s^{(0)}} + \psi^{c*}.$$

If

$$\bar{z}^{s^{(0)}} + \psi^{c*} \leq 0,$$

then clearly

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(0)}} + \psi^{c*}|.$$

Alternatively, suppose

$$\bar{z}^{s^{(0)}} + \psi^{c*} \geq 0,$$

which implies $\bar{z}^{s^{(0)}} > 0$ since $\psi^{c*} < 0$. Then $\psi^{c*} < 0$ and $\bar{z}^{s^{(1)}} < 0$ imply

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(1)}}|,$$

so

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(1)}}| = -\bar{z}^{s^{(1)}} > \bar{z}^{s^{(0)}} > \bar{z}^{s^{(0)}} + \psi^{c*} > 0,$$

which implies

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(0)}} + \psi^{c*}|.$$

Condition 2.2: First, suppose

$$\bar{z}^{s^{(0)}} + \psi^{c*} \geq 0.$$

Then

$$\psi^{c*} < 0 \Rightarrow 0 < \bar{z}^{s^{(0)}} < \bar{z}^{s^{(1)}} \Rightarrow \bar{z}^{s^{(0)}} + \psi^{c*} < \bar{z}^{s^{(1)}} + \psi^{c*},$$

and thus

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(1)}} + \psi^{c*}|.$$

Next, suppose

$$\bar{z}^{s^{(0)}} + \psi^{c*} < 0.$$

Then

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(1)}} + \psi^{c*}|$$

if

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < \bar{z}^{s^{(1)}} + \psi^{c*},$$

which holds if

$$-(\bar{z}^{s^{(0)}} + \psi^{c*}) < \bar{z}^{s^{(1)}} + \psi^{c*},$$

i.e.,

$$\psi^{c*} > -\frac{\bar{z}^{s^{(1)}} + \bar{z}^{s^{(0)}}}{2}.$$

Condition 2.3:

$$\left(\bar{z}^{s^{(0)}} = -\bar{z}^{s^{(1)}} > 0 \wedge \psi^{c*} < 0\right) \Rightarrow |\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(1)}} + \psi^{c*}|,$$

which is evidently true. Consider the two states: $\bar{z}^{s^{(1)}} + \psi^{c*} < \bar{z}^{s^{(1)}} < 0$, since $\psi^{c*} < 0$, so

$$|\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(1)}}|.$$

Now, suppose

$$\bar{z}^{s^{(0)}} + \psi^{c*} > 0,$$

which implies

$$\bar{z}^{s^{(0)}} + \psi^{c*} < \bar{z}^{s^{(0)}} \Rightarrow 0 < \bar{z}^{s^{(0)}} + \psi^{c*} < \bar{z}^{s^{(0)}} \Rightarrow |\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(0)}}|.$$

Since

$$\bar{z}^{s^{(0)}} = -\bar{z}^{s^{(1)}} > 0 \Rightarrow |\bar{z}^{s^{(0)}}| = |\bar{z}^{s^{(1)}}|,$$

and combining

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(0)}}| \quad \text{and} \quad |\bar{z}^{s^{(1)}} + \psi^{c*}| > |\bar{z}^{s^{(1)}}|,$$

we conclude

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(1)}} + \psi^{c*}|.$$

Finally, suppose

$$\bar{z}^{s^{(0)}} + \psi^{c*} < 0.$$

Then since $\bar{z}^{s^{(0)}} > \bar{z}^{s^{(1)}}$ and $\psi^{c*} < 0$, it follows that

$$\bar{z}^{s^{(1)}} + \psi^{c*} < \bar{z}^{s^{(0)}} + \psi^{c*} < 0,$$

which implies

$$|\bar{z}^{s^{(0)}} + \psi^{c*}| < |\bar{z}^{s^{(1)}} + \psi^{c*}|.$$

Appendix A.3 Proof of Proposition 3

Assume first that the equilibrium allocation satisfies $\phi_2^{s*} > 0$ for all $s \in S$. The Lagrangian associated with the optimization problem 15, for given beliefs $\{\hat{u}_2^s\}_{s\in S}$, is:

$$\mathcal{L}(\phi_2, \lambda) = \sum_s G\left(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s\right) + \lambda \left(B^s - \sum_s \phi_2^s\right).$$

The first-order condition with respect to ϕ_2^s is:

$$g\left(u(\phi_2^s) - \hat{u}_2^s + \bar{z}^s\right)\, u'(\phi_2^s) = \lambda, \quad \forall s \in S,$$

along with the constraint $\sum_s \phi_2^s = B^s$ and the assumption $\phi_2^s > 0$. Given correct beliefs $\hat{u}_2^s = u(\phi_2^{s*})$, the condition simplifies to:

$$g(\bar{z}^s)\, u'(\phi_2^{s*}) = \lambda, \quad \forall s \in S,$$

which implies:

$$g(\bar{z}^{s^{(0)}})\, u'(\phi_2^{s^{(0)}*}) = g(\bar{z}^{s^{(1)}})\, u'(\phi_2^{s^{(1)}*}), \quad \forall s^{(0)}, s^{(1)} \in S.$$

To confirm $\phi_2^{s*} > 0$, suppose by contradiction that $\phi_2^{s^{(0)}*} = 0$ for some $s^{(0)} \in S$. Then $u'(\phi_2^{s^{(0)}*}) \to \infty$, which implies the marginal payoff from increasing $\phi_2^{s^{(0)}*}$ is unbounded. If there exists any $s^{(1)}$ with $\phi_2^{s^{(1)}*} > 0$, then the marginal gain from decreasing $\phi_2^{s^{(1)}*}$ is finite. Thus, reallocating a small amount $\delta > 0$ from $s^{(1)}$ to $s^{(0)}$ would strictly raise the objective while respecting the budget, contradicting optimality. Therefore, equilibrium must have $\phi_2^{s*} > 0$ for all $s \in S$.

Appendix A.4 Proof of Proposition 4

Condition 4.1: Suppose $|\bar{z}^{s^{(0)}}| < |\bar{z}^{s^{(1)}}|$. Then, by symmetry and properties of g, it follows that

$$g(\bar{z}^{s^{(0)}}) > g(\bar{z}^{s^{(1)}}).$$

Using the first-order condition,

$$g(\bar{z}^{s^{(0)}})\, u'\big(\phi_2^{s^{(0)}*}\big) = g(\bar{z}^{s^{(1)}})\, u'\big(\phi_2^{s^{(1)}*}\big),$$

we conclude that

$$u'\big(\phi_2^{s^{(0)}*}\big) < u'\big(\phi_2^{s^{(1)}*}\big),$$

which implies

$$\phi_2^{s^{(0)}*} > \phi_2^{s^{(1)}*},$$

since $u'' < 0$.

Condition 4.2: Suppose $|\bar{z}^{s^{(0)}}| = |\bar{z}^{s^{(1)}}|$. Then clearly

$$g(\bar{z}^{s^{(0)}}) = g(\bar{z}^{s^{(1)}}),$$

and from the first-order condition,

$$g(\bar{z}^{s^{(0)}})\, u'\big(\phi_2^{s^{(0)}*}\big) = g(\bar{z}^{s^{(1)}})\, u'\big(\phi_2^{s^{(1)}*}\big),$$

it follows that

$$u'\big(\phi_2^{s^{(0)}*}\big) = u'\big(\phi_2^{s^{(1)}*}\big),$$

and thus

$$\phi_2^{s^{(0)}*} = \phi_2^{s^{(1)}*}.$$

Appendix A.5 Proof of Proposition 5

By similar reasoning as in the proofs of Proposition 1 and Proposition 3, we can show that $(\phi_1^*, \phi_2^*) > 0$ since $\lim_{x\to 0} u'(x) = \infty$. The Lagrangian of the maximization problem for given beliefs $\{(\hat{u}_1^s, \hat{u}_2^s)\}_{s\in S}$ is

$$\mathcal{L}(\phi_1, \phi_2, \lambda) = V(1-G(\psi^c), \sum_s G(\bar{z}^s + u(\phi_2^s) - \hat{u}_2^s), \beta) + \lambda \left(\bar{B} - \sum_s (\phi_1^s + \phi_2^s) \right).$$

The corresponding FOC yield

$$\frac{\partial V}{\partial(1 - G(\psi^c))} \cdot (-g(\psi^c)) \cdot \frac{\partial \psi^c}{\partial \phi_1^s} = \lambda, \quad \forall s \in S,$$

$$\frac{\partial V}{\partial \sum_s G(\bar{z}^s + u(\phi_2^s) - \hat{u}_2^s)} \cdot g(\bar{z}^s + u(\phi_2^s) - \hat{u}_2^s) \cdot u'(\phi_2^s) = \lambda,$$

$$\bar{B} = \sum_s (\phi_1^s + \phi_2^s).$$

Under correct beliefs, the FOCs become

$$\frac{\partial V}{\partial(1 - G(\psi^{c*}))} \cdot g(\psi^{c*}) \cdot u'(\phi_1^{s*}) \cdot \frac{f(\bar{z}^s + \psi^{c*})}{\sum_{\bar{s}} f(\bar{z}^{\bar{s}} + \psi^{c*})} = \lambda, \quad \forall s \in S,$$

$$\frac{\partial V}{\partial \sum_s G(\bar{z}^s)} \cdot g(\bar{z}^s) \cdot u'(\phi_2^{s*}) = \lambda.$$

Let $A^s = g(\psi^{c*}) \frac{f(\bar{z}^s + \psi^{c*})}{\sum_{\bar{s}} f(\bar{z}^{\bar{s}} + \psi^{c*})}$ and $B^s = \frac{\partial V}{\partial \sum_s G(\bar{z}^s)} g(\bar{z}^s)$, and define $V_f = \frac{\partial V}{\partial(1 - G(\psi^{c*}))}$. Then

$$V_f \cdot A^s \cdot u'(\phi_1^{s*}) = \lambda, \qquad B^s \cdot u'(\phi_2^{s*}) = \lambda, \qquad \bar{B} = \sum_s (\phi_1^{s*} + \phi_2^{s*}).$$

Differentiating with respect to β, we obtain

$$\frac{\partial \phi_1^{s*}}{\partial \beta} = \frac{1}{V_f A^s u''(\phi_1^{s*})} \left(\frac{\partial \lambda}{\partial \beta} - \frac{\partial V_f}{\partial \beta} A^s u'(\phi_1^{s*}) \right),$$

$$\frac{\partial \phi_2^{s*}}{\partial \beta} = \frac{1}{B^s u''(\phi_2^{s*})} \frac{\partial \lambda}{\partial \beta},$$

and from the budget constraint,

$$\sum_s \frac{\partial \phi_1^{s*}}{\partial \beta} + \sum_s \frac{\partial \phi_2^{s*}}{\partial \beta} = 0.$$

Since $u'' < 0$ and $\frac{\partial V_f}{\partial \beta} > 0$, this implies $\frac{\partial \lambda}{\partial \beta} > 0$, so $\frac{\partial \phi_2^{s*}}{\partial \beta} < 0$ and $\frac{\partial \phi_1^{s*}}{\partial \beta} > 0$. This proves Conditions 5.1 and 5.2. To prove Conditions 2.2.3 and 2.2.3, suppose $\lambda \to r < \infty$. Then $u'(\phi_1^{s*}) \to 0 \Rightarrow \phi_1^{s*} \to \infty$, which contradicts the budget constraint. Hence $\lambda \to \infty$, so $u'(\phi_2^{s*}) \to \infty \Rightarrow \phi_2^{s*} \to 0$, which implies $\sum_s \phi_2^{s*} \to 0$, so $\sum_s \phi_1^{s*} \to \bar{B}$.

Appendix A.6 Proof of Proposition 6

From the equilibrium characterization in Proposition 5, for each n and $s \in S$, we have

$$V_f \cdot A_n^s \cdot u'(\phi_{1,n}^{s*}) = \lambda_n, \quad \text{and} \quad B_n^s \cdot u'(\phi_{2,n}^{s*}) = \lambda_n,$$

where

$$A_n^s = g(\psi_n^{c*}) \frac{f_n(\bar{z}^s + \psi_n^{c*})}{\sum_{\bar{s}} f_n(\bar{z}^{\bar{s}} + \psi_n^{c*})} \quad \text{and} \quad B_n^s = \frac{\partial V(1 - G(\psi_n^{c*}), \sum_s G(\bar{z}^s), \beta)}{\partial \sum_s G(\bar{z}^s)} \cdot g(\bar{z}^s),$$

with budget constraint

$$\bar{B} = \sum_s (\phi_{1,n}^{s*} + \phi_{2,n}^{s*}).$$

For any $s^{(0)}, s^{(1)} \in S$, it follows that

$$\frac{u'(\phi_{2,n}^{s^{(0)}*})}{u'(\phi_{2,n}^{s^{(1)}*})} = \frac{B_n^{s^{(1)}}}{B_n^{s^{(0)}}} = \frac{g(\bar{z}^{s^{(1)}})}{g(\bar{z}^{s^{(0)}})},$$

which is constant and not equal to one when $g(\bar{z}^{s^{(0)}}) \neq g(\bar{z}^{s^{(1)}})$. By strict monotonicity and invertibility of u', there exists $\delta > 0$ such that

$$\lim_{n \to \infty} |\phi_{2,n}^{s^{(0)}*} - \phi_{2,n}^{s^{(1)}*}| = \delta > 0.$$

This requires $\lim_{n \to \infty} \phi_{2,n}^{s*} \neq 0$ for all s, because otherwise,

$$\phi_{2,n}^{s*} \to 0 \Rightarrow u'(\phi_{2,n}^{s*}) \to \infty \Rightarrow \lambda_n \to \infty \Rightarrow u'(\phi_{1,n}^{s*}) \to \infty \Rightarrow \phi_{1,n}^{s*} \to 0,$$

implying

$$\phi_{1,n}^{s*} + \phi_{2,n}^{s*} \to 0 \quad \forall s,$$

contradicting the budget constraint. So the gap in period-2 transfers persists. For period-1 transfers,

$$\frac{u'(\phi_{1,n}^{s^{(0)}*})}{u'(\phi_{1,n}^{s^{(1)}*})} = \frac{f_n(\bar{z}^{s^{(1)}} + \psi_n^{c*})}{f_n(\bar{z}^{s^{(0)}} + \psi_n^{c*})}.$$

By Conditions 6.1 and 6.2, for any $\epsilon > 0$, there exists N such that for all $n \geq N$,

$$\left| \frac{f_n(\bar{z}^{s^{(1)}} + \psi_n^{c*})}{f_n(\bar{z}^{s^{(0)}} + \psi_n^{c*})} - 1 \right| < \frac{\epsilon}{\gamma},$$

so

$$\frac{u'(\phi_{1,n}^{s^{(0)}*})}{u'(\phi_{1,n}^{s^{(1)}*})} \to 1 \quad \text{as } n \to \infty,$$

and by strict monotonicity of u',

$$|\phi_{1,n}^{s^{(0)}*} - \phi_{1,n}^{s^{(1)}*}| \to 0.$$

Therefore, for sufficiently large n,

$$|\phi_{1,n}^{s^{(0)}*} - \phi_{1,n}^{s^{(1)}*}| < |\phi_{2,n}^{s^{(0)}*} - \phi_{2,n}^{s^{(1)}*}|.$$

Appendix A.7 Proof of Proposition 7

Consider any ϕ_1^* and ϕ_2^* such that $\phi_1^{s*} \neq \phi_2^{s*}$ for some $s \in S$, and define (ϕ_1^p, ϕ_2^p) by

$$\phi_1^{s^p} = \phi_2^{s^p} = \frac{\phi_1^{s*} + \phi_2^{s*}}{2}, \quad \forall s \in S.$$

Then, the tuple

$$\big((\phi_1^p, \phi_2^p),\ (\hat{u}_1^s, \hat{u}_2^s) = \big(u(\phi_1^{s^p}), u(\phi_2^{s^p})\big)\ \forall s \in S\big)$$

generates the same incumbent utility as

$$((\phi_1^*, \phi_2^*),\ (\hat{u}_1^s, \hat{u}_2^s) = (u(\phi_1^{s*}), u(\phi_2^{s*}))\ \forall s \in S),$$

since beliefs are correct and the equilibrium value function is

$$V\left(1 - G(\psi^{c*}),\ \sum_s G(\bar{z}^s),\ \beta\right).$$

Thus, the incumbent is indifferent between the two allocations. Next, consider the effect on individuals. For each $s \in S$, we compare total utility under the original and the new allocation:

$$u(\phi_1^{s*}) + u(\phi_2^{s*}) \leq 2u\left(\frac{\phi_1^{s*} + \phi_2^{s*}}{2}\right) = u(\phi_1^{s^p}) + u(\phi_2^{s^p}),$$

with strict inequality whenever $\phi_1^{s*} \neq \phi_2^{s*}$, by Jensen's inequality and the strict concavity of u. Therefore, no individual is made worse off, and some are strictly better off. Hence, the reallocation (ϕ_1^p, ϕ_2^p) constitutes a Pareto improvement.

Appendix A.8

Proposition 8. ***Relative transfer differences under power utility function***
Suppose $u(x) = x^\alpha$ for some $\alpha \in (0,1)$. Let ϕ_1^* and ϕ_2^* be the equilibrium transfers as characterized in Proposition 5. For any $s^{(0)}, s^{(1)} \in S$, if

$$|f(\bar{z}^{s^{(0)}} + \psi^{c*}) - f(\bar{z}^{s^{(1)}} + \psi^{c*})| < |g(\bar{z}^{s^{(0)}}) - g(\bar{z}^{s^{(1)}})|,$$

then

$$\frac{|\phi_1^{s^{(0)}*} - \phi_1^{s^{(1)}*}|}{\phi_1^{s^{(0)}*} + \phi_1^{s^{(1)}*}} < \frac{|\phi_2^{s^{(0)}*} - \phi_2^{s^{(1)}*}|}{\phi_2^{s^{(0)}*} + \phi_2^{s^{(1)}*}}.$$

Proof: Suppose $u(x) = x^\alpha$ for some $\alpha \in (0,1)$. Let ϕ_1^* and ϕ_2^* be equilibrium transfers as characterized in Proposition 5, and consider any $s^{(0)}, s^{(1)} \in S$. From the equilibrium conditions in the proof of Proposition 5, there exist constants c_1, c_2 such that for each $s \in S$,

$$u'(\phi_1^{s*}) = c_1 f(\bar{z}^s + \psi^{c*}) \quad \text{and} \quad u'(\phi_2^{s*}) = c_2 g(\bar{z}^s).$$

Since $u(x) = x^\alpha$, we have $u'(x) = \alpha x^{\alpha-1}$, so

$$\phi_1^{s*} = \left(\frac{c_1 f(\bar{z}^s + \psi^{c*})}{\alpha}\right)^{\frac{1}{\alpha-1}}, \quad \phi_2^{s*} = \left(\frac{c_2 g(\bar{z}^s)}{\alpha}\right)^{\frac{1}{\alpha-1}}.$$

Let $f_i = f(\bar{z}^{s^{(i)}} + \psi^{c*})$, $g_i = g(\bar{z}^{s^{(i)}})$, and define $p = \frac{1}{\alpha-1} < 0$. Define the normalized difference function

$$h(x,y) = \frac{|x^p - y^p|}{x^p + y^p}.$$

For $p < 0$, $h(x,y)$ is strictly increasing in $|x-y|$ for all $x, y > 0$. Indeed, when $x = y$, we have $h(x,y) = 0$, and for $x \neq y$, assume without loss of generality that $x > y$, so

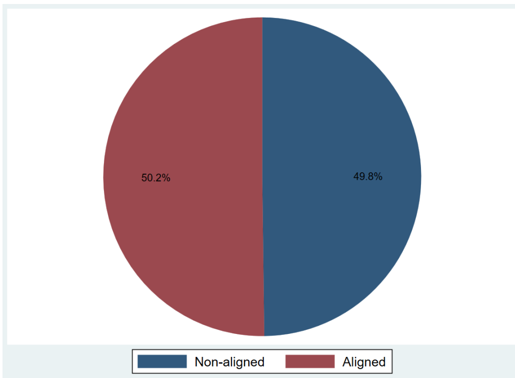
$$h(x,y) = \frac{y^p - x^p}{y^p + x^p}, \quad \frac{\partial h}{\partial x} = \frac{-2py^p x^{p-1}}{(y^p + x^p)^2} > 0, \quad \frac{\partial h}{\partial y} = \frac{2py^{p-1}x^p}{(y^p + x^p)^2} < 0.$$

Thus, $h(x,y)$ increases strictly with $|x-y|$. By assumption, $|f_0 - f_1| < |g_0 - g_1|$, which implies $h(f_0, f_1) < h(g_0, g_1)$. Then,

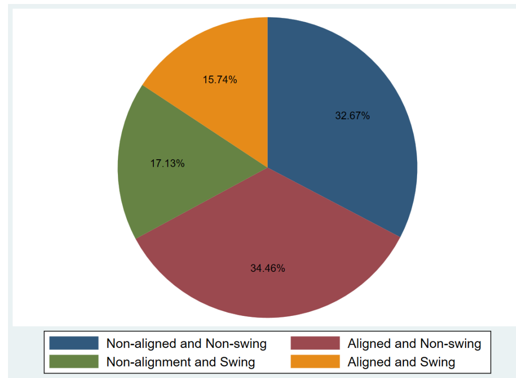
$$\frac{|\phi_1^{s^{(0)}*} - \phi_1^{s^{(1)}*}|}{\phi_1^{s^{(0)}*} + \phi_1^{s^{(1)}*}} = h(f_0, f_1) < h(g_0, g_1) = \frac{|\phi_2^{s^{(0)}*} - \phi_2^{s^{(1)}*}|}{\phi_2^{s^{(0)}*} + \phi_2^{s^{(1)}*}}.$$

Appendix B

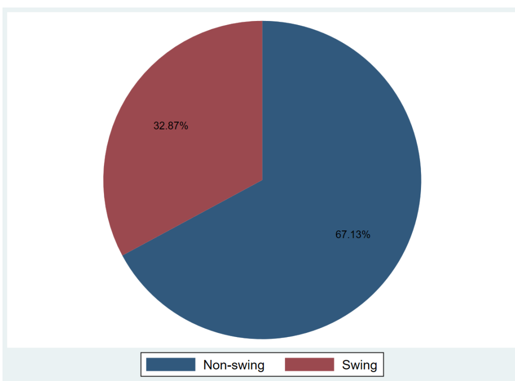
Figure B1: Overview of proportions of different state types in the sample



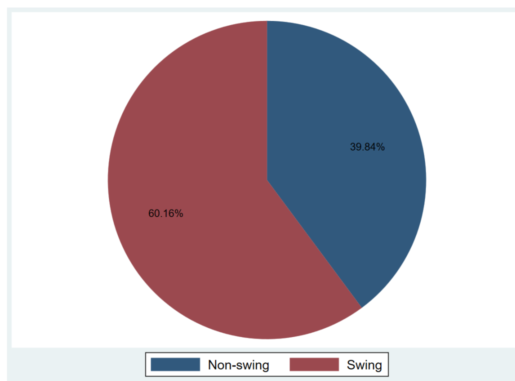
(a) Proportion of aligned and non-aligned states



(b) Proportion of 4 types of states



(c) Proportion of swing and non-swing states (using 5% bandwidth)



(d) Proportion of swing and non-swing states (using 10% bandwidth)

Table B1: Electoral cycles of per capita discretionary transfers by swing status in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Swing	0.110	0.122	0.120	0.432*
	(0.265)	(0.195)	(0.194)	(0.245)
Election_{t-1}	0.222*	0.328***	0.329***	0.374***
	(0.110)	(0.108)	(0.107)	(0.106)
Swing × Election_{t-1}	-0.309	-0.218	-0.219	-0.326**
	(0.192)	(0.155)	(0.155)	(0.155)
Political alignment			-0.056	0.016
			(0.158)	(0.161)
State election			0.048	0.048
			(0.092)	(0.107)
Observations	424	396	396	396
Adjusted R^2	0.432	0.538	0.536	0.591
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table B2: Electoral cycles of per capita discretionary transfers by political alignment in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Political alignment	0.273	-0.035	-0.035	0.068
	(0.227)	(0.156)	(0.157)	(0.194)
Election period	0.132	0.321**	0.320**	0.340**
	(0.148)	(0.141)	(0.140)	(0.137)
Political alignment × Election period	-0.083	-0.085	-0.083	-0.130
	(0.277)	(0.223)	(0.229)	(0.245)
State election			0.008	0.006
			(0.087)	(0.100)
Observations	424	396	396	396
Adjusted R^2	0.436	0.542	0.541	0.587
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table B3: Electoral cycles of per capita discretionary transfers by alternative swing status in Indian states, 2006-2022

	(1)	(2)	(3)
Swing (VS=10%)	0.631***		
	((0.218)		
Election period	0.680***	0.327**	0.314
	(0.183)	(0.154)	(0.219)
Political alignment	-0.018	0.016	0.077
	(0.160)	(0.149)	(0.147)
State election	-0.010	0.019	0.012
	(0.086)	(0.090)	(0.089)
Swing (VS=10%) × Election period	-0.658***		
	(0.212)		
Swing (LS=5%)		0.383	
		(0.245)	
Swing (LS=5%) × Election period		-0.222	
		(0.273)	
Swing (LS=10%)			0.350
			(0.236)
Swing (LS=10%) × Election period			-0.107
			(0.279)
Observations	396	396	396
Adjusted R^2	0.610	0.591	0.592
Controls	✓	✓	✓
State fixed effects	✓	✓	✓
State-specific trends	✓	✓	✓

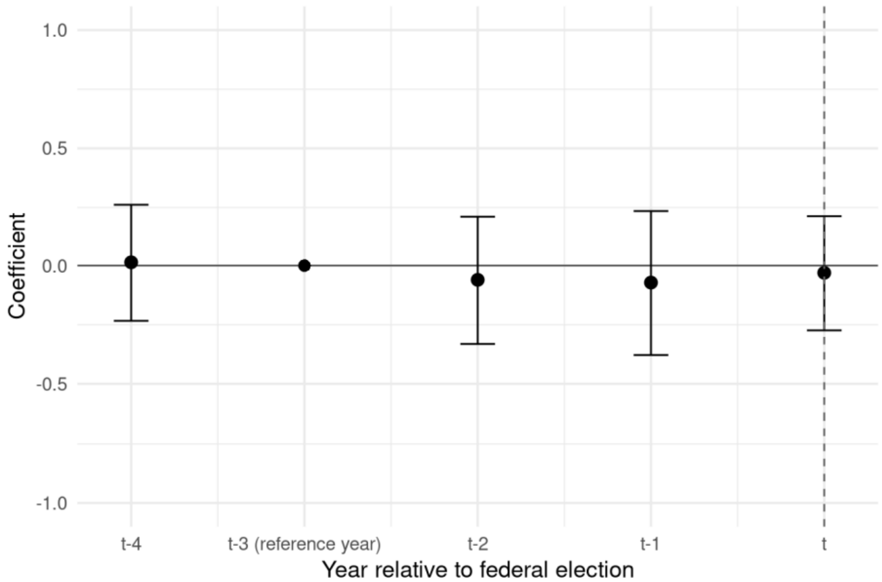
Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table B4: Electoral cycles of per capita loans from the center in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Election_t	0.058	0.029	0.040	-0.030
	(0.117)	(0.120)	(0.117)	(0.124)
Election_{t-1}	0.000	-0.014	-0.022	-0.072
	(0.138)	(0.138)	(0.139)	(0.156)
Election_{t-2}	0.017	0.031	0.021	-0.060
	(0.137)	(0.132)	(0.139)	(0.138)
Election_{t-4}	0.040	0.070	0.059	0.014
	(0.137)	(0.127)	(0.129)	(0.126)
State election			-0.137	-0.139
			(0.097)	(0.104)
Political alignment			-0.054	-0.124
			(0.093)	(0.115)
Swing			-0.265	-0.245
			(0.171)	(0.247)
Observations	287	287	287	287
Adjusted R^2	0.514	0.520	0.524	0.575
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita loans from the center*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Figure B2: Electoral cycles of per capita loans from center in Indian states, 2006-2022



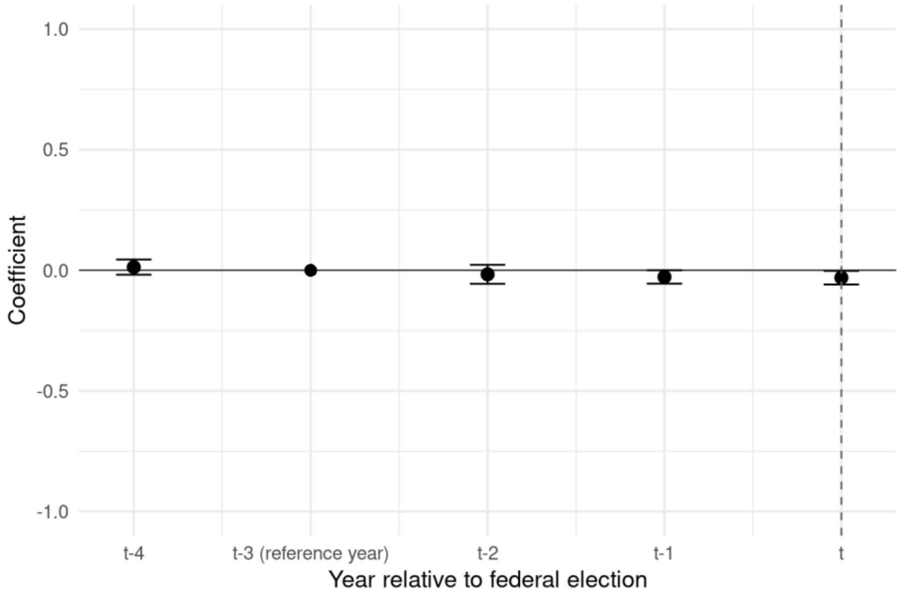
Note: The figure plots estimated coefficients and 95% confidence intervals for $Election_t$, $Election_{t-1}$, $Election_{t-2}$, $Election_{t-4}$, corresponding to Model 4 in Table B4. The dependent variable, *per capita loans from the center*, is log-transformed.

Table B5: Electoral cycles of per capita social expenditure in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Election_t	0.021	-0.026*	-0.030**	-0.031**
	(0.016)	(0.013)	(0.013)	(0.014)
Election_{t-1}	-0.032*	-0.046**	-0.046**	-0.027*
	(0.017)	(0.020)	(0.021)	(0.014)
Election_{t-2}	-0.078***	-0.059**	-0.057*	-0.017
	(0.023)	(0.028)	(0.028)	(0.020)
Election_{t-4}	-0.050**	-0.012	-0.010	0.013
	(0.022)	(0.019)	(0.019)	(0.016)
State election			0.032	0.026
			(0.022)	(0.023)
Political alignment			0.026	0.009
			(0.034)	(0.024)
Swing			-0.005	-0.006
			(0.045)	(0.041)
Observations	340	339	339	339
Adjusted R^2	0.822	0.910	0.910	0.970
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita social expenditure*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* $p<0.1$, ** $p<0.05$, *** $p<0.01$

Figure B3: Electoral cycles of per capita social expenditure in Indian states, 2006-2022



Note: The figure plots estimated coefficients and 95% confidence intervals for $Election_t$, $Election_{t-1}$, $Election_{t-2}$, $Election_{t-4}$, corresponding to Model 4 in Table B5. The dependent variable, *per capita social expenditure*, is log-transformed.

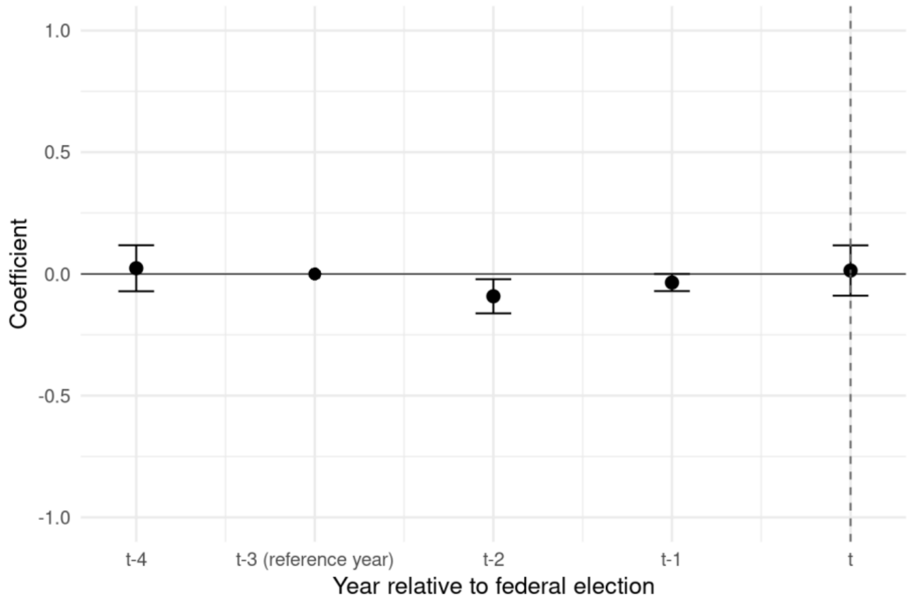
Table B6: Electoral cycles of per capita development expenditure in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Election_t	0.047	0.004	0.007	0.014
	(0.044)	(0.044)	(0.047)	(0.053)
Election_{t-1}	-0.029	-0.051**	-0.051**	-0.035*
	(0.018)	(0.021)	(0.020)	(0.018)
Election_{t-2}	-0.205***	-0.150***	-0.153***	-0.092**
	(0.032)	(0.037)	(0.038)	(0.036)
Election_{t-4}	-0.020	0.008	0.006	0.023
	(0.047)	(0.047)	(0.047)	(0.048)
State election			-0.026	-0.053
			(0.030)	(0.032)
Political alignment			0.010	-0.067
			(0.043)	(0.054)
Swing			-0.016	0.019
			(0.063)	(0.070)
Observations	314	313	313	313
Adjusted R^2	0.803	0.828	0.827	0.859
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

Note: The dependent variable, *per capita development expenditure*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.

* p<0.1, ** p<0.05, *** p<0.01

Figure B4: Electoral cycles of per capita development expenditure in Indian states, 2006-2022



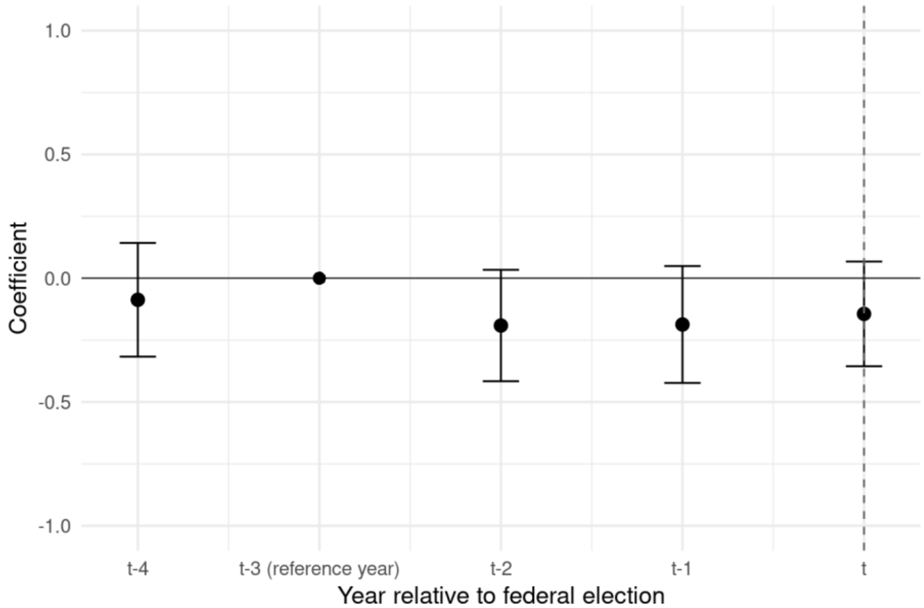
Note: The figure plots estimated coefficients and 95% confidence intervals for $Election_t$, $Election_{t-1}$, $Election_{t-2}$, $Election_{t-4}$, corresponding to Model 4 in Table B6. The dependent variable, *per capita development expenditure*, is log-transformed.

Table B7: Electoral cycles of per capita expenditure on wages and salaries in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
$Election_t$	-0.113	-0.151	-0.147	-0.144
	(0.101)	(0.111)	(0.109)	(0.108)
$Election_{t-1}$	-0.153	-0.163	-0.160	-0.187
	(0.108)	(0.118)	(0.116)	(0.120)
$Election_{t-2}$	-0.181	-0.172	-0.169	-0.191
	(0.127)	(0.133)	(0.131)	(0.115)
$Election_{t-4}$	-0.104	-0.094	-0.089	-0.087
	(0.101)	(0.105)	(0.104)	(0.117)
State election			-0.012	0.028
			(0.044)	(0.037)
Political alignment			0.057	0.019
			(0.052)	(0.052)
Swing			-0.017	-0.023
			(0.060)	(0.045)
Observations	247	246	246	246
Adjusted R^2	0.767	0.773	0.770	0.885
Controls	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	×	×	✓

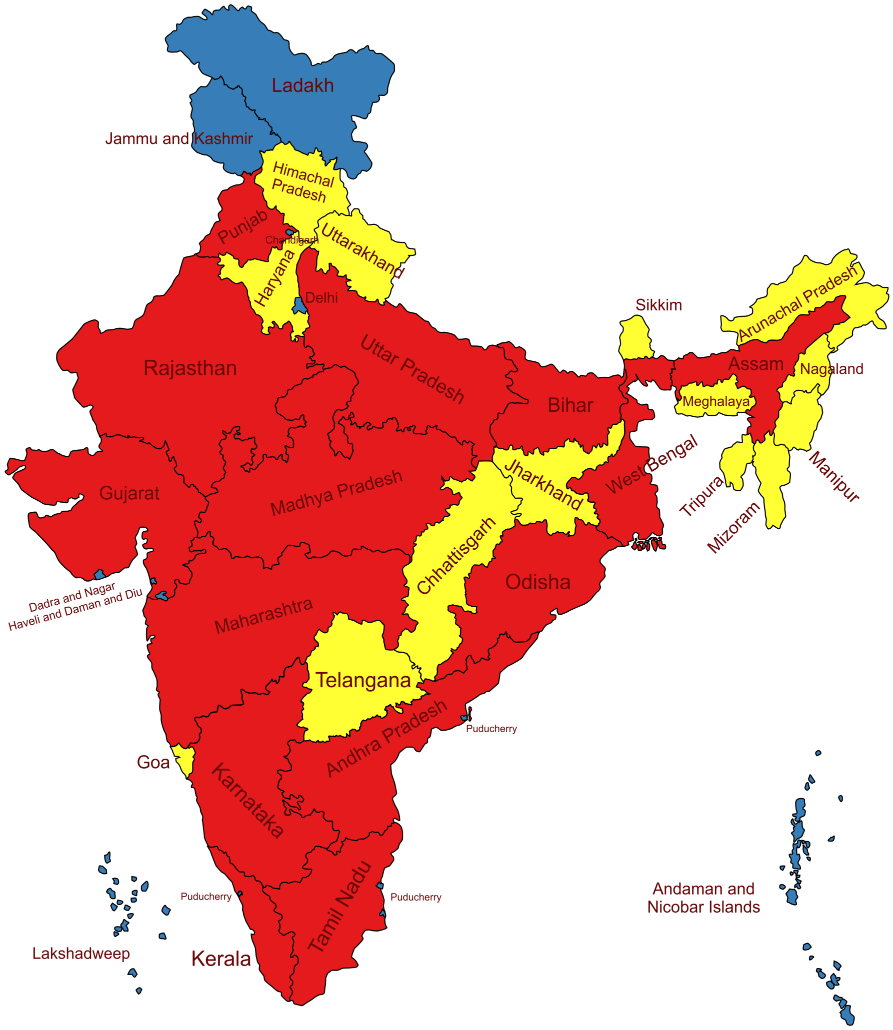
Note: The dependent variable, *per capita expenditure on wages and salaries*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Figure B5: Electoral cycles of per capita expenditure on wages and salaries in Indian states, 2006-2022



Note: The figure plots estimated coefficients and 95% confidence intervals for $Election_t$, $Election_{t-1}$, $Election_{t-2}$, $Election_{t-4}$, corresponding to Model 4 in Table B7. The dependent variable, *per capita expenditure on wages and salaries*, is log-transformed.

Figure B6: Indian states and union territories



Note: States in red are classified as large states and those in yellow as small states, based on the number of LS constituencies. Union territories, shown in blue, are excluded from our analysis.

Table B8: Electoral cycles of per capita discretionary transfers in Indian states, 2006-2022: Large vs. small states

	Large states				**Small states**			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Election_t	0.537**	0.445*	0.428*	0.379	0.297**	0.207	0.224	0.236
	(0.246)	(0.227)	(0.213)	(0.221)	(0.134)	(0.126)	(0.129)	(0.148)
Election_{t-1}	0.671***	0.559***	0.577***	0.529**	0.289**	0.218	0.236	0.353**
	(0.212)	(0.177)	(0.172)	(0.185)	(0.126)	(0.139)	(0.136)	(0.154)
Election_{t-2}	0.040	-0.008	0.007	-0.028	-0.169**	-0.175	-0.189	-0.098
	(0.125)	(0.152)	(0.151)	(0.154)	(0.075)	(0.111)	(0.110)	(0.096)
Election_{t-4}	-0.189	-0.068	-0.036	-0.035	-0.020	0.010	0.018	0.065
	(0.154)	(0.185)	(0.161)	(0.151)	(0.140)	(0.136)	(0.139)	(0.143)
State election			0.153	0.194			-0.170	-0.131
			(0.162)	(0.153)			(0.121)	(0.151)
Political alignment			-0.216	0.047			0.153	0.212
			(0.313)	(0.316)			(0.178)	(0.169)
Swing			0.592**	0.527			-0.084	-0.096
			(0.240)	(0.339)			(0.211)	(0.182)
Observations	180	180	180	180	161	159	159	159
Adjusted R^2	0.081	0.121	0.139	0.245	0.568	0.638	0.639	0.678
Controls	×	✓	✓	✓	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
State-specific trends	×	×	×	✓	×	×	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table B9: Electoral cycles of per capita discretionary transfers by swing status in Indian states, 2006-2022: Large vs. small states

	Large states				**Small states**			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Swing	0.736*	0.808**	0.830***	1.120***	-0.330	-0.167	-0.132	-0.075
	(0.390)	(0.275)	(0.250)	(0.250)	(0.345)	(0.228)	(0.227)	(0.200)
Election period	0.448	0.563**	0.562**	0.654**	0.015	0.192	0.204*	0.276***
	(0.260)	(0.241)	(0.238)	(0.239)	(0.116)	(0.119)	(0.099)	(0.085)
Swing × Election period	-0.760**	-0.582**	-0.595**	-0.724**	0.008	-0.014	-0.032	-0.097
	(0.302)	(0.240)	(0.236)	(0.250)	(0.292)	(0.238)	(0.253)	(0.240)
Political alignment			-0.273	-0.161			0.207	0.188
			(0.253)	(0.264)			(0.168)	(0.161)
State election			0.100	0.098			-0.109	-0.079
			(0.149)	(0.148)			(0.105)	(0.138)
Observations	222	208	208	208	202	188	188	188
Adjusted R^2	0.042	0.244	0.246	0.324	0.512	0.655	0.658	0.709
Controls	×	✓	✓	✓	×	✓	✓	✓
State fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
State-specific trends	×	×	×	✓	×	×	×	✓

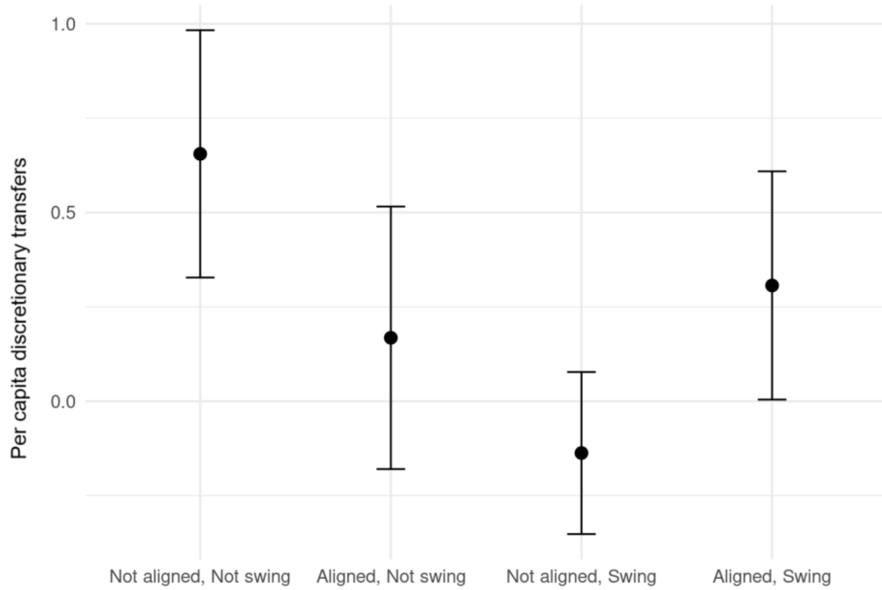
Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table B10: Electoral cycles of per capita discretionary transfers by swing status and political alignment in Indian states, 2006-2022

	(1)	(2)	(3)	(4)
Alignment	0.128	0.421	0.039	0.316
	(0.273)	(0.292)	(0.282)	(0.281)
Swing	0.419*	1.029***	0.215	0.838**
	(0.221)	(0.328)	(0.221)	(0.323)
Election period	0.651***	0.703***		
	(0.159)	(0.144)		
State election	-0.013	-0.017	0.044	0.051
	(0.086)	(0.103)	(0.094)	(0.110)
Alignment × Swing	-0.454	-0.913**	-0.186	-0.705*
	(0.385)	(0.408)	(0.365)	(0.380)
Alignment × Election period	-0.499	-0.502		
	(0.301)	(0.297)		
Swing × Election period	-0.848***	-0.934***		
	(0.199)	(0.207)		
Alignment × Swing × Election period	1.132**	0.985**		
	(0.425)	(0.399)		
Election_{t-1}			0.556***	0.574***
			(0.146)	(0.137)
Alignment × Election_{t-1}			-0.441*	-0.386
			(0.238)	(0.233)
Swing × Election_{t-1}			-0.622***	-0.711***
			(0.179)	(0.157)
Alignment × Swing × Election_{t-1}			0.876**	0.832***
			(0.317)	(0.280)
Observations	396	396	396	396
Adjusted R^2	0.551	0.612	0.537	0.596
Controls	✓	✓	✓	✓
State fixed effects	✓	✓	✓	✓
State-specific trends	×	✓	×	✓

Note: The dependent variable, *per capita discretionary transfers*, is log-transformed. All models include the following control variables: *Population*, *Per capita GDP*, *Years as a CM*, *Ideology*, and first lag of *Debt-to-GDP*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Figure B7: Electoral cycles of per capita discretionary transfers by swing status and political alignment in Indian states, 2006-2022



Note: This figure visualizes the estimated coefficients and 95% confidence intervals for the interaction terms involving *Political alignment*, *Swing*, and *Election*$_{t-1}$, based on Model 4 in Table B10.