Political Budget Cycles in Federal Systems: The Case of India

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Abstract

This paper analyzes Political Budget Cycles in federal systems considering center-state vertical affinity. It introduces a novel theoretical model that distinguishes between two main budgetary elements: loans from the central government and discretionary transfers. The model posits that before federal elections, aligned-swing states are more likely to get higher loans from the central government. In contrast, all states get higher discretionary transfers prior to the federal election. The empirical section of the study examines data on loans from the central government, discretionary transfers, and other budgetary components across major Indian states over a period from 1999 to 2023. The findings confirm the theoretical predictions. Before federal elections, aligned-swing states receive per capita loans from the central government that are 76.4 percent higher than those received by other states, while all states, experience a 212.2 percent increase in per capita discretionary transfers.

Key-words: Political budget cycles, Federal systems, Alignment, Elections, India
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1 Introduction

A main assumption of Public Choice theory is that governments pursue opportunistic goals for political survival. Hence, the literature on political economy extensively debates the existence and determinants of political budget cycles, which refer to the manipulation of fiscal policy by incumbent politicians when elections are approaching (Akhmedov & Zhuravskaya, 2004; Alesina et al., 1989, 1993).

The seminal work of Nordhaus (1975) introduced the concept of the "Political Business Cycle", positing that governments strategically induce inflation prior to elections. This move aims to achieve a short-term reduction in unemployment, leveraging the Phillips curve and enhancing prospects for reelection. One implication is that electoral manipulation of fiscal policy can be effective when voters are not fully rational.

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 (PBC) theory. These studies mainly investigate fiscal and monetary policy instruments and suggest that governments adopt specific budgetary policies as signals of their competence to the public (Aidt et al., 2011; Brender & Drazen, 2005; Drazen & Eslava, 2010; Efthyvoulou, 2012; Persson & Tabellini, 1990).[1]

Given the significant economic costs of such distortions in fiscal policy for electoral purposes, understanding the conditions under which this manipulation is likely to occur is crucial. Despite the advancements, as highlighted by Dubois (2016), there remain untapped avenues for further exploration within this theoretical framework. In particular, our understanding of PBCs in federal systems is notably limited. While existing studies examine the phenomenon at the local level within federal structures, primarily at the municipal level (e.g., Veiga and Veiga (2007) in Portugal, Sakurai and Menezes-Filho (2011) in Brazil, Drazen and Eslava (2010) in Colombia, Benito et al. (2013) in Spain), there exists a scarcity of literature specifically examining PBCs with a focus on the intricate dynamics of center-state vertical affinity. This research seeks to address this gap, analyzing the interplay of PBCs within the context of federal structures.

In most federal countries, states receive two types of transfers from the central government. Formula-based transfers are allocated according to legally established criteria such as states' population sizes or tax bases. The main goal is to equalize state fiscal capacities and ensure that citizens have access to a minimum level of public goods regardless of their location. Discretionary transfers, on the other hand, are distributed according to unspecified and often ad hoc criteria. The stated aim here is to enable the central government to respond to asymmetric shocks or address specific funding needs in selected states. In line with public choice theory, central governments may also utilize

[1] Recently, research on non-fiscal or non-monetary variables, such as construction permits, has also gained interest (see e.g. Imami et al. (2018)).

discretionary transfers to achieve political rather than economic objectives. Additionally, the central government can strategically provide loan facilities to the states, which can also help the central government to achieve its political objectives.[2]

The essence of our theoretical model lies in the strategic approach of the central incumbent, who can strategically offer loans and discretionary transfers the year before the federal election. The rationale is clear: more loans and discretionary transfers translate into increased provision of public goods, leading to heightened voter satisfaction and, consequently, the central governor's enhanced chances of reelection.

The model differentiates states based on their political alignment with the central government, categorizing them as either aligned or non-aligned. Further, it subdivides these groups into swing and non-swing states. Given that loan allocation requires negotiation between the central and state governments, non-aligned states will face more challenges in these discussions. Consequently, negotiations are more likely to occur smoothly between the central government and states that are politically aligned with it. Among these aligned states, the process is expected to be particularly straightforward and flexible with aligned-swing states. Conversely, when it comes to discretionary transfers, which do not require negotiation (or require very little negotiation), the central government is inclined to increase these transfers to all states in the year before the federal election.

We focus our analysis on major Indian states. Our analysis spans the time frame from 1999 to 2023, encompassing diverse elements of the budget to unravel the PBCs within federal structures. Specifically, we examine per capita loans from the center, per capita discretionary transfers, per capita development expenditure, per capita social expenditure, per capita expenditure on wages and salaries, and nightlight data.

Our primary findings unfold in two dimensions. Firstly, our analysis yields evidence that before the federal election, aligned-swing states receive 76.4 percent higher per capita loans from the center. Secondly, our findings indicate a surge of 212.2 percent in per capita discretionary transfers from the central government to the states in the year before the federal election.

Our paper is connected to the literature on vertical transfers. We leverage literature on the political use of discretionary transfers, which explains how central governments can politically utilize 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 swing states are more likely to receive such discretionary transfers from the center.

We adopt the framework from the literature on the political use of discretionary transfers, which classifies states into categories based on their political alignment and swing status. Specifically, states are initially categorized

[2]This is possible if the interest rate is negotiable.

as either aligned or non-aligned with the central government. Within these groups, they are further classified as either swing or non-swing states. Consequently, we identify four types of states: aligned-swing, aligned-non-swing, non-aligned-swing, and non-aligned-non-swing.

Theoretically, we primarily draw on the works of Shi and Svensson (2006), Arulampalam et al. (2009), and Garofalo et al. (2020). Our paper introduces a theoretical model that builds on the framework proposed by Shi and Svensson (2006). We adapt their model to a federal system that distinguishes between aligned and non-aligned states, similar to the structures examined by Arulampalam et al. (2009) and Garofalo et al. (2020). The key innovation in our approach is the focus on federal elections rather than state elections, providing new insights into the dynamics of political budget cycles within a federal context.

As we test the theoretically derived hypotheses, we also contribute to the wide body of empirical literature on the existence of PBCs. For developed countries, for instance, Alt and Lassen (2006) identify PBC in low-transparency countries using a sample of 19 OECD countries in the 1990s. Potrafke (2020) studies a sample of OECD countries as well (period 1995-2016) and finds that the ideology of the governments plays a crucial role in creating PBC.[3] Baskaran et al. (2016) find evidence of PBC in Israeli municipalities, analyzing data from 1999 to 2009. Similarly, Chortareas et al. (2016) observe PBC in Greek municipalities for the period from 1985 to 2004. Additionally, Klomp and De Haan (2013) evaluate the impact of PBC on the probability of incumbent government reelection. Analyzing data from 65 democracies over the years 1975 to 2005, their study finds a significant yet small positive effect of PBC on reelection probabilities.[4]

Several studies also focus specifically on developing countries.[5] Our paper is connected to a series of papers studying the Indian context. For example, Ferris and Dash (2019) detect the presence of PBC in Indian states, using data spanning from 1959 to 2012. Baskaran et al. (2015) examines the influence of

[3]According to the estimated results, the effect of ideology is larger on central government compared to the general government. Left-wing central governments are more likely to spend on education, but less likely to spend on public service.

[4]The most recent literature on PBC seeks to resolve the puzzle of why PBC is observed in some cases and not in others (Crombach & Bohn, 2024). The study argues that if the number of uninformed voters is large and their expected perception of the government's competence is uncertain, then PBC is likely to occur. Bohn (2018, 2019) also attempt to explain why PBC occurs.

[5]For example, Schuknecht (1996) examines 35 developing countries over the period from 1970 to 1992 and finds that incumbent governments tend to increase their fiscal deficits prior to elections. This behavior is particularly evident in countries with limited external trade. Schuknecht (1999) shows that prior to elections, incumbent governments are likely to increase inflation, except in countries with fixed exchange rates and adequate reserve levels (25 developing countries from 1978 to 1992). Additionally, Schuknecht (2000) finds that incumbent governments in developing countries are more likely to increase expenditure budgets rather than lower taxes as a means of implementing expansionary fiscal policy before elections (24 developing countries from 1973-1992).

Indian state governments on electricity service provision. The findings indicate that electricity distribution is higher in constituencies where special elections are held.[6] Khemani (2004) find that in Indian states, election cycles lead to targeted policy manipulation benefiting special interest groups for campaign support rather than broad populist spending to attract mass voter support.

The aforementioned studies primarily focus on central governments, examining how central incumbents increase budget volume before elections. Our study argues that in federal systems, the PBC may also occur differently, specifically through the discretionary power of the central government. A closely related study is Manjhi and Mehra (2018), identifying an upward trend in loans from the central government and intergovernmental grants prior to various elections. Furthermore, the study demonstrates that such loans and grants during election years can enhance the incumbent's chances of reelection.[7]

Apart from this, our study does not focus on the possibility of reelection. Instead, it focuses on whether the incumbent central government strategically distributes loans and discretionary transfers to the states prior to the federal election.

The subsequent sections of this paper are as follows: Section 2 introduces the theoretical model, Section 3 explains the institutional background, Section 4 elucidates our empirical strategy, Section 5 outlines the data set and variables, Section 6 presents the regression results, Section 7 critically discusses the findings, and Section 8 concludes.

2 Model

2.1 Setup

Consider two candidates $i = A, B$ for the position of the central governor. The federal state consists of two individual states. One of them is aligned with the central governor, denoted by s^a, while the other one, s^{na}, is non-aligned. Alignment indicates that the state government in s^a belongs to the same party as the central governor or is at least very friendly towards him. For $s = s^a, s^{na}$, the exogenous income of citizens in state s is normalized to be equal across every period t and is given by $y_{st} = y_s$. This income, minus two taxes, one set by the central governor and the other by the state, is converted into consumption. Thus,

$$c_{st} = y_s - \tau_{st} - \tau_t. \tag{1}$$

τ_{st} is the tax set by the state, while τ_t is the tax collected by the central governor on a national level from each state, both aligned and non-aligned.

[6] These elections are held to fill unexpected vacancies.

[7] Specifically, more intergovernmental grants in federal election years increase the likelihood of reelection in federal elections, while more loans during state election years increase the chances of reelection in state elections.

The utility function of citizen and voter j in state s during period t is given by

$$U_{jst} = \sum_{k=t}^{T} \beta^{k-t}(q_t + q_{st} + u(c_{st}) + \chi^{js} z). \tag{2}$$

β represents the discount factor. q_t stands for a national public good provided by the central governor equally to both states, irrespective of their alignment, while q_{st} is a public good provided by the state government only to the citizens of each state. Apart from the two public goods, all voters derive utility from their consumption c_{st} in every period, where u is a strictly increasing and concave function with $u(0) = 0$. $z \in \{-1, 1\}$ is a binary variable, equal to -1 when candidate A is elected as the central governor and $z = 1$ when candidate B holds this role. χ^{js} is a personal characteristic of voter j in state s, described as the ideological preference that a voter has for a candidate over the other, disregarding the economic policies of the candidates. χ^{js} follows a uniform distribution $U_{\left[-\frac{1}{2\psi_s}, \frac{1}{2\psi_s}\right]}$ with density ψ_s. Negative values of χ^{js} indicate an ideological preference of voter j in state s for candidate A, while positive values of χ^{js} indicate a preference for candidate B. High density ψ_s for state s implies that the state is relatively swing. This means that a state with high ψ_s has many voters who care only about the economic policies of the candidates and not about other aspects like ideology when voting.

The public good provided by the state is financed by state taxes τ_s and by the discretionary transfers and loans from the central governor.[8] These financial tools are targeted, and the central governor decides how to allocate them over the two states. Therefore, ϕ_{st} and d_{st} represent the discretionary transfers and loans to state s during period t. The state government must repay in period t the loans from period $t-1$, represented by a continuous cost function $R(d)$ where $R(0) = 0$ and $R'(d), R''(d) > 0$ for every d. The public good of state s during t is then given by the following equation

$$q_{st} = \tau_{st} + \phi_{st} + d_{st} - R(d_{st-1}). \tag{3}$$

The utility function that both candidates maximize at every period t is given by

$$U_{it} = \sum_{k=t}^{T} \beta^{k-t} \left(q_t + \sum_{s=s^a, s^{na}} \left(a_s \left(q_{st} + u(c_{st}) \right) - c(\overline{\phi}_s - \phi_{st}) \right) + X_k \right). \tag{4}$$

q_t is the national public good and is financed by the taxes that the central governor collects from both states and the interest payments. However, the

[8] The state tax is given exogenously. In this setting, we focus on the central elections and neglect any state-level elections. The state tax ensures that the state government can repay the loans plus interest to the central governor. In a more complex setting where state elections occur either between or simultaneously with the central elections, the state tax rate can be decided endogenously by the state candidates and can influence both elections. However, we do not consider this scenario here.

central governor also uses his revenues to finance the discretionary transfers and loans of the current period. Hence, the public good q_t is determined by

$$q_t = 2\tau_t + \sum_{s=s^a,s^{na}} (R(d_{st-1}) - \phi_{st} - d_{st}) + \eta_t^i. \tag{5}$$

η_t^i describes the competence of the candidates and follows a first-order moving average process,

$$\eta_t^i = \mu_t^i + \mu_{t-1}^i. \tag{6}$$

Each μ_t^i is an independent and identically distributed random variable with zero mean and finite variance. The distribution function is $F(\mu_t^i)$, and the density function is $f(\mu_t^i)$ with $f(0) > 0$. Therefore, the competence of the candidates changes over time, and all agents are aware of every previous competence shock. The central governor, apart from the national public good, seeks to maximize the state public goods and the private consumption for electoral reasons, with a relative weight on the aligned state. Therefore, $a_{s^a} + a_{s^{na}} = 1$ and $a_{s^a} > \frac{1}{2}$. To influence the provision of the state goods, the central governor uses the financial tools of discretionary transfers and loans. Providing loans includes the incentive of repayment, which contributes to his revenues. For discretionary transfers, there is a cost to the central governor that increases as the transfers fall below a certain threshold $\overline{\phi}_s$. We assume that c is a strictly increasing and convex function with $c(0) = 0$. The last component of the utility function for the central governor is the ego rent $X_t = X > 0$ for each period he holds power. This ego rent reflects non-materialistic aspects like status and prestige, as well as the potential for personal wealth accumulation by leveraging his power.

Elections take place every other period. The timing of events in an election period t unfolds as follows. The central governor decides on τ_t, ϕ_{st}, and d_{st} for both states $s = s^a, s^{na}$. Thereafter, the competence shock materializes, and at the end of the period, elections between the two candidates occur. Due to this timing, the central governor faces some uncertainty regarding his ability to convert revenues into public and state output.[9]

2.2 Solution

We will use as a benchmark the case where there are no central elections in our setting. Let us assume also that candidate A has the power and therefore remains forever in power. Thus, there is no need for him to use the tools of discretionary transfers and loans at all. This means that the central governor

[9]It is assumed that the central governor allocates the discretionary transfers and loans to the state, and both types of resources contribute to the provision of the public good. The results that follow remain unchanged whether we assume that a part of the resources is lost along the way or if we introduce some uncertainty regarding the competence of the state government.

A solves the maximization problem

$$\max_{\tau_t} \mathbb{E}\left[q_t + \sum_{s=s^a,s^{na}} \left(a_s\left(q_{st} + u(c_{st})\right) + X\right)\right] \tag{7}$$

subject to

$$q_t = 2\tau_t + \eta_t^A, \tag{8}$$

$$q_{st} = \tau_{st}, \tag{9}$$

and

$$c_{st} = y_s - \tau_{st} - \tau_t. \tag{10}$$

Substituting equations (8), (9), and (10) into (7), we get

$$\mathbb{E}\left[2\tau_t + \eta_t^A + \sum_{s=s^a,s^{na}} \left(a_s\left(\tau_{st} + u\left(y_s - \tau_{st} - \tau_t\right)\right) + X\right)\right]. \tag{11}$$

The optimal tax τ_t^* is then given by

$$\tau^* = \arg\max_{\tau_t} \mathbb{E}\left[2\tau_t + \eta_t^A + \sum_{s=s^a,s^{na}} \left(a_s\left(\tau_{st} + u\left(y_s - \tau_{st} - \tau_t\right)\right) + X\right)\right]. \tag{12}$$

We use the result of this benchmark case without central elections to investigate further the interesting case where central elections take place. We divide the electorate into two segments in both states. A share δ of the electorate is "informed" and able to observe the discretionary transfers and the loans before deciding on their vote, apart from the tax rates and the public goods, which are the only instruments that the "uninformed" share of the electorate is able to gain information about.

Assuming that the central elections take place in period t, and given that the entire process of competence, as well as past episodes of competence, are common knowledge to everyone, the incumbent A does not need to use discretionary transfers and loans in $t+1$. Therefore, (5) yields that

$$q_{t+1} = 2\tau^* + \sum_{s=s^a,s^{na}} \left(R(d_{st})\right) + \eta_{t+1}^A. \tag{13}$$

For the very same reason, and recalling that elections occur every other period, there are no discretionary transfers and loans in period $t-1$. Again, this implies that in t we have

$$q_t = 2\tau^* - \sum_{s=s^a,s^{na}} \left(\phi_{st} + d_{st}\right) + \eta_t^A. \tag{14}$$

With ϕ_{st}^* and d_{st}^* being the optimal solutions that will be determined later for $s = s^a, s^{na}$, the expected outcome if incumbent A wins again is

$\left(\tau^*, \mathbb{E}\left[q^A_{t+1} + q^A_{st+1}\right]\right)$. The expected outcome if electing the opposition candidate B is then $\left(\tau^*, \mathbb{E}\left[q^B_{t+1} + q^B_{st+1}\right]\right)$. Considering that voters have no information on the competence of the opposition candidate, nor on the future competence of the incumbent A, a voter j in state s would decide to cast the vote for A if and only if

$$\mathbb{E}\left[\mu^A_t\right] \geq \chi^{js}. \tag{15}$$

Using the uniform distribution of the ideology, the share of votes for A in state $s = s^a, s^{na}$ is

$$\Pi(\mu^A_t) = \frac{1}{2} + \psi_s \mathbb{E}[\mu^A_t]. \tag{16}$$

Except for the ideological preferences, voters also differ in the level of information they can obtain before voting. The "informed" share δ can observe every policy of A and then conclude on his competence based on all these. This implies that

$$\mu^A_t = q_t - 2\tau^* + \sum_{s=s^a,s^{na}} (\phi_{st} + d_{st}) - \mu^A_{t-1}. \tag{17}$$

Conversely, the "uninformed" share $1-\delta$ is able to observe some of the policies of A and concludes on his competence based on estimations of the rest. Therefore, the "uninformed" citizens believe that the competence of A is given by $\hat{\mu^A_t} = q_t - 2\tau^* + \sum_{s=s^a,s^{na}} \left(\hat{\phi_{st}} + \hat{d_{st}}\right) - \mu^A_{t-1}$, which transforms into

$$\hat{\mu^A_t} = \mu^A_t - \sum_{s=s^a,s^{na}} \left(\phi_{st} - \hat{\phi_{st}} + d_{st} - \hat{d_{st}}\right). \tag{18}$$

Using (16), (17), and (18), we can define the probability that the incumbent has to win the elections in state s as

$$P^s_t = \Pr\left[\psi_s\left(\delta\left(\mu^A_t + \frac{1}{2}\right) + (1-\delta)\left(\mu^A_t - \sum_{s=s^a,s^{na}} \left(\phi_{st} - \hat{\phi_{st}} + d_{st} - \hat{d_{st}}\right) + \frac{1}{2}\right)\right) \geq \frac{1}{2}\right]. \tag{19}$$

The probability can be rewritten as

$$P^s_t = \Pr\left[\mu^A_t \geq \frac{1-\psi_s}{2\psi_s} + (1-\delta) \sum_{s=s^a,s^{na}} \left(\phi_{st} - \hat{\phi_{st}} + d_{st} - \hat{d_{st}}\right)\right], \tag{20}$$

and after using the distribution function $F(\mu^i_t)$,

$$P^s_t = 1 - F\left(\frac{1-\psi_s}{2\psi_s} + (1-\delta) \sum_{s=s^a,s^{na}} \left(\phi_{st} - \hat{\phi_{st}} + d_{st} - \hat{d_{st}}\right)\right). \tag{21}$$

Given that the central elections take place in both states of the country, the probability that incumbent A wins and remains in power is a weighted combination of the probabilities that he wins the elections in each of the states.[10] That is

$$\mathbb{P}_t = w_{s^a} P_t^{s^a} + w_{s^{na}} P_t^{s^{na}}. \tag{22}$$

The whole framework therefore converts into a two-period maximization problem of the incumbent A. He decides on the financial tools of discretionary transfers and loans to both states, aligned and non-aligned, to maximize his expected utility in both periods t and $t+1$. Since the elections happen at the end of period t, the incumbent A does not know whether he will remain in power or not and thus considers the scenario where he loses the central elections and spends period $t+1$ in opposition. Formally, the maximization problem is

$$\begin{aligned}
\max_{\substack{\phi_{s^a t}, d_{s^a t} \\ \phi_{s^{na} t}, d_{s^{na} t}}} \mathbb{E}\Bigg[& 2\tau^* - \sum_{s=s^a, s^{na}} (\phi_{st} + d_{st}) + \eta_t^A + X \\
& + \sum_{s=s^a, s^{na}} \big(a_s \left(q_{st} + u(c_{st}) \right) - c(\overline{\phi}_s - \phi_{st}) \big) \\
& + \mathbb{P}_t \Bigg(2\tau^* + \eta_{t+1}^A + X + \sum_{s=s^a, s^{na}} \big(a_s \left(q_{st+1} + u(c_{st+1}) \right) - c(\overline{\phi}_s - \phi_{st+1}) + R(d_{st}) \big) \Bigg) \\
& + (1 - \mathbb{P}_t) \Bigg(2\tau^* + \eta_{t+1}^B + \sum_{s=s^a, s^{na}} \big(a_s \left(q_{st+1} + u(c_{st+1}) \right) - c(\overline{\phi}_s - \phi_{st+1}) + R(d_{st}) \big) \Bigg) \Bigg].
\end{aligned} \tag{23}$$

With the help of (3), the first-order conditions of (23) with respect to $\phi_{s^a t}$ and $\phi_{s^{na} t}$,

$$\frac{\partial \mathbb{E}\left[\cdot\right]}{\partial \phi_{s^a t}} = 0 \tag{24}$$

and

$$\frac{\partial \mathbb{E}\left[\cdot\right]}{\partial \phi_{s^{na} t}} = 0, \tag{25}$$

produce the optimal discretionary transfers of incumbent A to both the aligned and non-aligned states. These are

$$\phi_{s^a t}^* = \overline{\phi}_{s^a} - c'(1 - a_{s^a}) \tag{26}$$

and

$$\phi_{s^n a t}^* = \overline{\phi}_{s^n a} - c'(1 - a_{s^n a}) \tag{27}$$

[10] We use the weighted probability for simplicity reasons. There are many alternative systems of countries with federal elections and different ways that the winner secures the electoral win. The specific case of India, which is the case study of this paper, is already too complicated to be captured in a one-to-one representation within the context of a simple model.

In the same way, using that

$$\frac{\partial \mathbb{P}_t}{\partial \phi_{st}} = -(1-\delta) w_s F(\cdot)', \tag{28}$$

$$\frac{\partial \mathbb{P}_t}{\partial d_{st}} = -(1-\delta) w_s F(\cdot)', \tag{29}$$

and the fact that in equilibrium the optimal decisions of the incumbent A meet the expectations of the voters, hence ${d_{st}}^* = d_{st} = \hat{d_{st}}$ and ${\phi_{st}}^* = \phi_{st} = \hat{\phi_{st}}$, the first-order conditions of (23) with respect to $d_{s^a t}$ and $d_{s^{na} t}$,

$$\frac{\partial \mathbb{E}\left[\cdot\right]}{\partial d_{s^a t}} = 0 \tag{30}$$

and

$$\frac{\partial \mathbb{E}\left[\cdot\right]}{\partial d_{s^{na} t}} = 0, \tag{31}$$

give

$$R'(d_{s^a t}) = \frac{1}{1 - a_{s^a}} \left(1 - a_{s^a} + X(1-\delta) w_{s^a} f\left(\frac{1-\psi_{s^a}}{2\psi_{s^a}}\right)\right) \tag{32}$$

and

$$R'(d_{s^{na} t}) = \frac{1}{1 - a_{s^{na}}} \left(1 - a_{s^{na}} + X(1-\delta) w_{s^{na}} f\left(\frac{1-\psi_{s^{na}}}{2\psi_{s^{na}}}\right)\right). \tag{33}$$

Both expressions increase as a_{s^a} and $a_{s^{na}}$ increase. However, a_{s^a} and $a_{s^{na}}$ describe the level of alignment, and by assumption, $a_{s^a} > a_{s^{na}}$. Finally, considering the properties of the functions $R(d)$ and $f(\mu_t^i)$, the optimal allocation of loans d_{st}^* increases as ψ_s rises over 1.

2.3 Results

Proposition 1.

1. *For sufficiently large $\overline{\phi}_{s^a}$ and $\overline{\phi}_{s^{na}}$, the optimal discretionary transfers $\phi_{s^a t}^*$ and $\phi_{s^{na} t}^*$ are positive. Before central elections, the incumbent A offers more discretionary transfers to both states, aligned and non-aligned.*

2. *Assuming that the relative weights on the winning probability and the densities of the ideological preferences are the same across both states, the more aligned a state is, the more loans it receives before the central elections.*

3. *For sufficiently large ψ_s, indicating states classified as swing states, the amount of loans is relatively higher than in states that are less swing.*

The model developed in this paper examines the strategic behavior of the incumbent central governor in using discretionary transfers and loans to influence electoral outcomes in a federal state comprising both aligned and non-aligned states. Key findings from the model demonstrate that before central elections, the incumbent significantly increases discretionary transfers to both aligned and non-aligned states, leveraging these financial tools to maximize his electoral chances.

The key findings also demonstrate that the amount of loans allocated is positively correlated with the degree of alignment of a state. More aligned states receive higher loans compared to less aligned ones. This is likely because aligned states either benefit from additional support by the central governor or possess greater bargaining power. Moreover, among aligned states, aligned-swing states receive relatively higher amounts of loans as they are critical battlegrounds that the incumbent targets to sway election results in his favor.

Finally, the model reveals that if a state is both aligned and non-swing, it may be perceived as too "safe" for an electoral win. Consequently, the incumbent may not target it with extra loans, preferring to allocate resources where they can more effectively influence voter behavior and election outcomes.

Following this theoretical exposition, the paper proceeds to the empirical analysis, focusing on the case of India. Before moving to the empirical results, the subsequent section provides pertinent information on the institutional background and electoral framework of the country.

3 Institutional Background

The Indian federal system is composed of two main levels. The central government and the state governments. India has 28 states and 8 union territories. Each state has its own government, elected through state elections (direct election), also known as Vidhan Sabha elections. Vidhan Sabha elections are held every five years. Among the 8 union territories, only Delhi and Jammu-Kashmir have their own legislative assemblies or Vidhan Sabha. The remaining union territories are administered by a centrally appointed governor. On the other hand, the central government of India is also elected through direct elections (also called Lok Sabha election) by the registered voters in the country. This is considered the most important election in India as it elects the central incumbent. Among all democratic nations, the Indian federal election sees the highest number of registered voters and voter turnout (For example, In the last Lok Sabha election in 2019, total registered voters were around 900 million and voter turnout was around 67 percent).[11] This makes India the largest democracy in the world.

Regarding the timing of elections, Vidhan Sabha elections typically do not

[11] https://economictimes.indiatimes.com/news/elections/lok-sabha/india/lok-sabha-polls-overall-voter-turnout-reduces-to-65-8-in-2024-from-record-high-of-67-1-in-2019/articleshow/110769066.cms?from=mdr

coincide with Lok Sabha elections, except in a few exceptional cases.[12] They are held on different dates across different states. In the context of Indian politics, besides prominent national parties, Vidhan Sabha elections see active participation from numerous regional parties. However, over the past two decades, two major political alliances have dominated the Lok Sabha elections: the BJP (Bharatiya Janata Party)-led NDA (National Democratic Alliance) and the INC (Indian National Congress)-led UPA (United Progressive Alliance). For the time period of 1999-2023, these two alliances have alternated between being the incumbent government and the main opposition in Lok Sabha.

Among the states and union territories, this study identifies the following as large states: Andhra Pradesh, Assam, Bihar, Chhattisgarh, Gujarat, Jharkhand, Karnataka, Kerala, Maharashtra, Madhya Pradesh, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, and West Bengal. These states are classified as large due to their extensive coverage of Lok Sabha constituencies (492 out of 543) and their significant share of Indian territory and population (see Figure 2 and appendix Figure A1).

Regarding the fiscal responsibilities of both levels of government, the central assembly, or Lok Sabha, holds more fiscal power than the states. The central government collects more revenue than the states, while state governments undertake more expenditure activities compared to the center. This necessitates transfers from the center to the states. The central government transfers its revenue to the states through tax devolution, formula-based grants, discretionary transfers, and loans. Among these, tax devolution and formula-based grants are allocated using a formula, leaving little room for political manipulation. However, discretionary transfers and loans (in most cases) are not formula-based, their distribution depends on the center's discretion and negotiations between the center and the states. These two budget elements are more likely to be politically manipulated by the central incumbent within the Indian federal structure. Consequently, the federal structure of India provides an ideal testing ground for our theory.

4 Empirical Strategy

Incorporating the center-state vertical affinity, the empirical model is

$$\begin{aligned} Y_{it} = {} & \beta_0 + \beta_1 \, (Political\ alignment)_{it} + \beta_2 \, (Swing)_{it} + \beta_3 \, (Election)_{it} \\ & + \beta_4 \, (Political\ alignment)_{it} \#(Swing)_{it} + \beta_5 \, (Political\ alignment)_{it} \\ & \#(Election)_{it} + \beta_6 \, (Swing)_{it} \#(Election)_{it} + \beta_7 \, (Political\ alignment)_{it} \\ & \#(Swing)_{it} \#(Election)_{it} + \beta_s \, Controls_{it} + \alpha_i + \gamma_t + \epsilon_{it}. \end{aligned} \tag{34}$$

where Y_{it} represents different dependent variables such as *per capita loan from the center*, *per capita discretionary transfer*, *per capita development expen-*

[12]For example, Andhra Pradesh, Arunachal Pradesh, Odisha, Sikkim, and Telangana. However, this list may vary slightly in different election years.

diture, *per capita social expenditure*, *per capita expenditure on wages and salaries*, and *nightlight* that are considered in our empirical analysis. The main target variables of this study are the interaction between these three dummies- $Political\ alignment_{it}$*$Swing_{it}$*$Election_{it}$ when analyzing loans and only $Election_{it}$ dummy when analyzing discretionary transfers. The control variable includes *Population*, *GDP per capita*, *Years as a CM*, and *Ideology*. The α_i denotes state fixed effects that absorbs the impact of any time-invariant state characteristics, and γ_t denotes the year fixed effects. Finally, the error term ϵ_{it} captures all time-varying unobserved shocks.

5 Data and Variables

Our analysis is based on data collected from 28 states and 2 Union territories of India, covering the period from 1999 to 2023 (with some years missing for some variables).[13] For our empirical analysis, we will utilize data from both the full sample and the large state sample. However, our primary focus will be on the large state sample due to its critical importance in Indian electoral politics (see Figure 2).

5.1 Key Explanatory Variables

We focus on three key explanatory variables: *Political alignment*, *Swing*, and *Election*. For a specific time t, if the incumbent party in state s is also the incumbent party in the center or has a coalition with the central incumbent, then *Political alignment* takes a value of 1 for that year t, otherwise, it takes a value of 0.

The *Swing* variable is created by looking at the results of the last Vidhan Sabha election (state election). If the winning margin of the state incumbent is 10 percent or less in the last Vidhan Sabha election, then the state takes a value of 1 for all years until the next Vidhan Sabha election. Additionally, we also consider another *Swing* variable where 5 percent or less winning margin in the last Vidhan Sabha election is considered.

The *Election* variable is specifically centered on Lok Sabha elections (federal elections). For any given state s, if year t is the year before a Lok Sabha election, then state s takes a value of 1 for that year, if not, it takes a value of 0.

5.2 Dependent Variables

We consider seven dependent variables: *per capita loan from the center*, *per capita discretionary transfer*, *per capita development expenditure*, *per capita social expenditure*, *per capita expenditure on wages and salaries*, and *nightlight*. All of these variables are continuous. In the empirical analysis, we use the log-

[13]It is not possible to obtain data of all required variables for the remaining 6 union territories because they do not have Vidhan Sabha.

transformed values of all of these variables.[14]

We use nighttime luminosity as a proxy for economic activity at the state level (DMSP-OLS extension series). (Ghosh et al., 2021; Henderson et al., 2012; Hodler & Raschky, 2014). These data are based on nighttime images of the earth obtained by US Air Force (USAF) Defense Meteorological Satellite Program Operational Linesman System (DMSP-OLS) satellites. The National Oceanic and Atmospheric Agency (NOAA) processes and releases these images as raster datasets. We use annual composites from satellites F10, F12, F14, F15, F16, and F18, with ephemeral lights removed. The imagery, available at a 30 arc-seconds resolution (about 0.86 km^2 at the equator), stores a 6-bit digital value per pixel (0-63), indicating average light levels. Higher values imply more light. To measure economic development, we overlay Indian state maps on the raster data and calculate the mean digital values for each state. The data from 2014-2021 extends the initial series (1992-2013) and includes pre-dawn measurements from satellites F15 and F16.

5.3 Control Variables

We use several control variables which include *Population*, *GDP per capita*, *Years as a CM*, and *Ideology*. We have used log transformed population and GDP data. The variable *Years as a CM* refers to the number of years of experience of a specific chief minister of a state, who is the elected head of the state. Finally, the variable *Ideology* takes a value of 1 to indicate if the state incumbent is right wing.

6 Empirical Results

6.1 Main Result

We have detailed the main findings of our analysis in Tables 2a through 3b. These tables show the results of our regression analysis for both the entire dataset (in column 1) and a subset focusing on larger states (in column 2). As we have previously outlined in the "Data and Variables" section, we will particularly discuss the outcomes related to the larger states.

Our analysis mainly revolves around three key variables: *Political Alignment*, *Swing*, and *Election*. Specifically, we are interested in the interaction of these three variables when analyzing loans from the center and only the *Election* dummy when analyzing discretionary transfers.

Tables 2b and 3b calculate the *Swing* variable based on a 5 percent winning margin from the most recent Vidhan Sabha election. Conversely, Tables 2a and 3a determine the swing variable using a 10 percent winning margin from the same election. This distinction in winning margins represents the main difference between these two sets of regression analyses.

According to the results from Tables 2b and 3b, there is no evidence to

[14]That's why, in the empirical section these variables will be denoted as *log_loan*, *log_discretionary*, *log_development*, *log_social*, *log_wage*, *log_nightlight*, respectively.

support the predictions of our theoretical model. However, Tables 2a and 3a do show effects that align with our expectations. Table 2a shows the regression analysis results for the dependent variable, *log_loan*. According to the estimated coefficient of *Political Alignment*Swing*Election*, aligned-swing states receive 76.4 percent higher loans from the central government before Lok Sabha elections. This finding is statistically significant with a 5 percent level of significance.

Table 3a presents the results of the regression analysis for the dependent variable *log_discretionary*. The coefficient associated with the *Election* indicates a notable increase of 212.2 percent in discretionary transfers to states prior to Lok Sabha elections, a finding that is statistically significant at the 5 percent level.

6.2 Robustness of the Main Result

This subsection outlines the robustness of the main results presented in the previous section. As per the previous section, we find that the estimated results support our theoretical predictions only when we create a *Swing* variable based on a 10 percent winning margin from the most recent Vidhan Sabha election. However, for the *Swing* variable based on a 5 percent winning margin from the most recent Vidhan Sabha election, we do not find an effect that aligns with our theoretical model. Therefore, in this section, we aim to conduct some robustness checks on both results to see if they have consistent effects. To achieve this, we drop two states, namely Andhra Pradesh and Telangana, from the large state sample. We exclude these states because Telangana was created in 2014 from Andhra Pradesh. Therefore, we do not have any observations for Telangana before 2014. The creation of the state of Telangana has also brought about many institutional changes, such as adjustments in the count of Vidhan Sabha and Lok Sabha constituencies, reallocation (and sometimes creation) of major institutions such as the high court, state financial and political institutions, and so on in the both Telangana and Andhra Pradesh. However, other states did not face such situations during the time period of our analysis. Hence, analyzing the states that did not face such situations is an ideal way to verify the robustness of our main result. The results obtained have been presented in appendix (see Tables A1 and A2). Based on these results, we can conclude that the effects observed in the previous subsection are robust. Interestingly, although we construct a *Swing* variable considering a 5 percent winning margin in the last Vidhan Sabha election, the *Election* dummy is now significant for *log_discretionary*, which was not the case in the previous subsection.

6.3 Effect on Some State-Level Budgetary Elements

As the Lok Sabha election is considered the most important election in India, in addition to the efforts made by the central government, the states are also likely to increase their budgetary allocation towards publicly visible and easily noticeable public goods and services. This is true for both aligned and non-

aligned states. Aligned state governments will aim to support the re-election of their ally, while non-aligned states will do so to bring their preferred political party, currently in opposition, to power. To check whether this really happens, we consider the following dependent variables, namely *log_development*, *log_social*, and *log_wage*. The findings reveal that the *Election* variable significantly impacts both *log_development* and *log_social*. Specifically, state spending on per capita development expenditures increases by 92.2 percent in the year before a Lok Sabha election, while spending on per capita social expenditures increases by 113.3 percent. These increases are statistically significant at a 5 percent significance level (see Tables 4 and 5). Concerning *log_wage*, no statistically significant effect of *Election* is observed in the larger state sample (see Table 6). Here too, we take into account a *Swing* variable defined by a 5 percent winning margin in the previous Vidhan Sabha election. Despite using different *Swing* variables, the results remain qualitatively consistent (see Tables A3-A5). For robustness checks, we employed the same approach as for our main analysis, which involved excluding two states that experienced unique circumstances. The robustness of the findings is further supported by the consistent results presented in appendix (see Tables A7-A9).

6.4 Economic Development Before Election

We also examine whether these extra flow of discretionary transfers (and loans for aligned-swing states) from the central government lead to increased economic development at the state level. If the central incumbent focuses on upcoming elections while distributing discretionary transfers and loans, they will likely spend it to appease people rather than consider its overall economic impact. To check this we turn our attention to night light data, employed as a proxy for economic development. However, we find no significant effect of *Election* dummy on *log_nightlight* (see Table 7). We also considered an alternative *Swing* variable using a 5 percent winning margin. However, the same results appear (see Table A6). We also check the robustness of both findings by excluding Telangana and Andhra Pradesh, which also yield insignificant results (see Table A10).

7 Discussion

The findings presented above support the predictions of our theoretical model, though this holds true under some specific conditions. Regarding discretionary transfers, we find a strong effect of *Election* dummy on discretionary transfers. Even for changing the swing percentage from 10 percent to 5 percent we get almost the same effect.[15] This clearly indicates that the central government strategically uses its discretionary transfers to signal to people prior to the Lok Sabha election. Employing discretionary transfers as a signaling mechanism offers a superior and more adaptable approach for the central in-

[15]Apart from the sample, when Telangana and Andhra Pradesh were included. This might be because of including these two states that went through a special situation.

cumbent. This method's effectiveness and flexibility are underpinned by three key reasons. Firstly, discretionary transfers are predominantly financed by the central government, with few exceptions. Secondly, the absence of an interest rate eliminates the complexities associated with negotiation, streamlining the process significantly. Thirdly, the initiation and implementation of projects funded through discretionary transfers make it readily apparent to the public that the central government is spearheading these developments. This visibility is enhanced as the names of most projects prominently feature terms like "Prime Minister" or "Central Government".[16]

As for loans from the center, the analysis reveals that aligned-swing states receive higher loan allocations prior to Lok Sabha elections, which goes in line with the prediction of our theoretical model. However, this effect is true only if we construct the *Swing* variable taking a 10 percent winning margin in the last state election. So, considering this effect, aligned-swing states prove to be the winners in the game of negotiation with the center. This should come as no surprise as they have the strongest negotiating power among all states due to their electoral importance.

It is crucial to note that, despite observing higher discretionary transfers and an increased supply of loans from the central government to aligned-swing states, we do not see a corresponding increase in economic development at the state level prior to Lok Sabha elections. This suggests a potential inefficiency in the utilization of these resources by the central government. A more detailed analysis of the efficiency loss (or gain) of such strategic use of discretionary transfers and loans could be a valuable area for future research.

Our study closely aligns with Garofalo et al. (2020). Their approach highlights how the central government may use discretionary transfers to create PBC in federal states. In this regard, our study is similar to Garofalo et al. (2020). However, we differ in our theoretical prediction: we posit that all states will receive higher discretionary transfers before a federal election. This distinction sets our findings apart from those of Garofalo et al. (2020). Additionally, we introduce loans from the center as another form of discretionary power wielded by the central government, which was not considered by Garofalo et al. (2020).

8 Conclusion

In this study, we present the foundations of a theoretical model aimed at unraveling the intricacies of PBCs in federal systems. We focus on the strategic dynamics between central and state governments, specifically exploring how the central government strategically deploys loans and discretionary transfers

[16]For example, Prime Minister Krishi Sinchai Yojana, Prime Minister Poshan Shakti Nirman Abhiyaan, Prime Minister Matsya Sampada Yojana, Prime Minister Kisan Samman Nidhi, Prime Minister Kisan Urja Suraksha Evam Utthan Mahabhiyan, Prime Minister Shram Yogi Mandhan, Prime Minister Annadata Aay Sanrakshan Abhiyan, Rashtriya Gram Swaraj Abhiyan ("Rashtriya" refers to central government), Rashtriya Uchchatar Shiksha Abhiyan, Rashtriya Swasthya Bima Yojana, Rashtriya Krishi Vikas Yojana etc.

to influence state governments.

In the empirical part, we use data from India and find substantial evidence of the existence of PBC in center-state vertical affinity. According to our findings, states identified as aligned-swing receive loans that are 76.4 percent higher as the federal election approaches. Furthermore, all states experience a 212.2 percent increase in discretionary transfers in the lead-up to the federal election. This strategy allows central incumbents to convey to their competence and intent to secure a larger vote share in the forthcoming federal election.

This study contributes to the knowledge of PBC in two major ways. First, it broadens our comprehension of PBC within a federal system. Second, it addresses the limited knowledge of PBC in developing countries, particularly in India, which is the world's largest democracy and most populous nation.

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10 Tables and Graphs

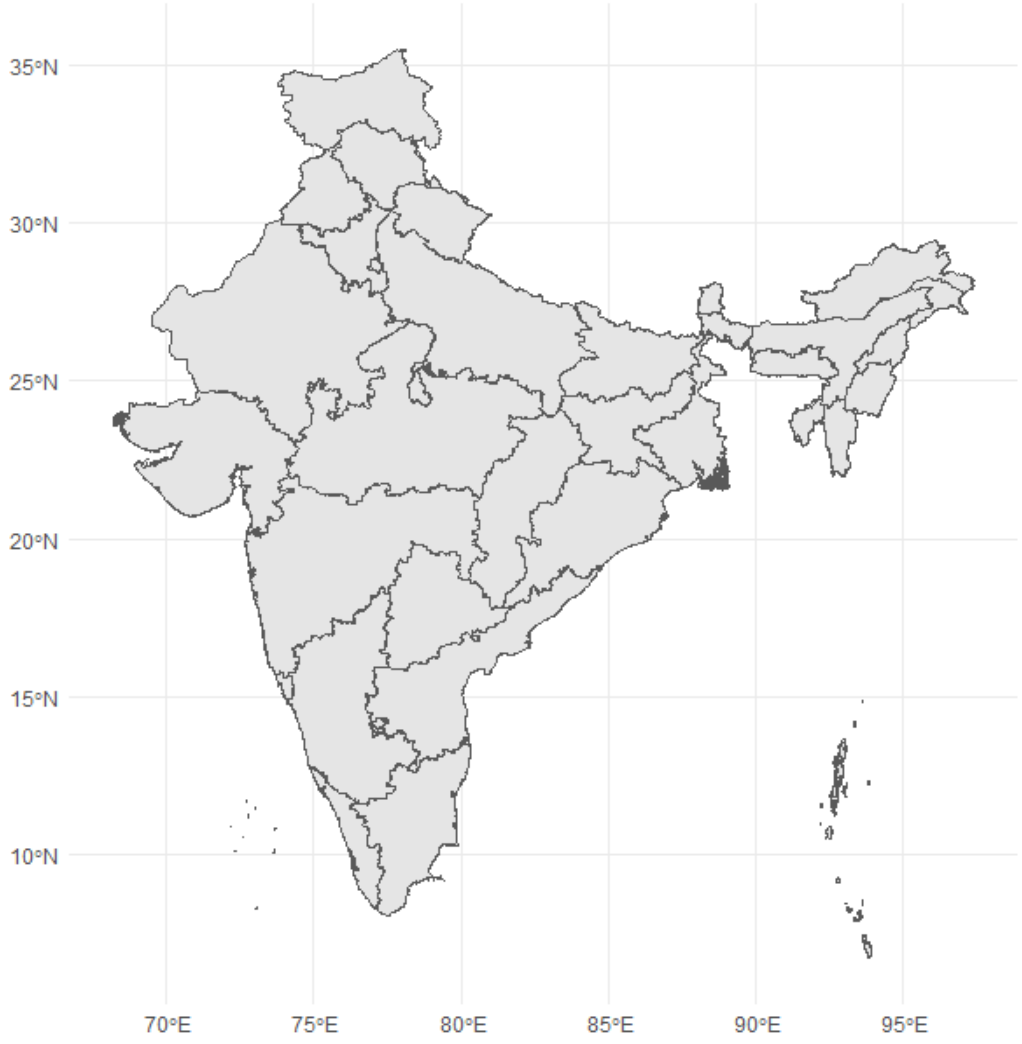


Figure 1: Map of Indian States

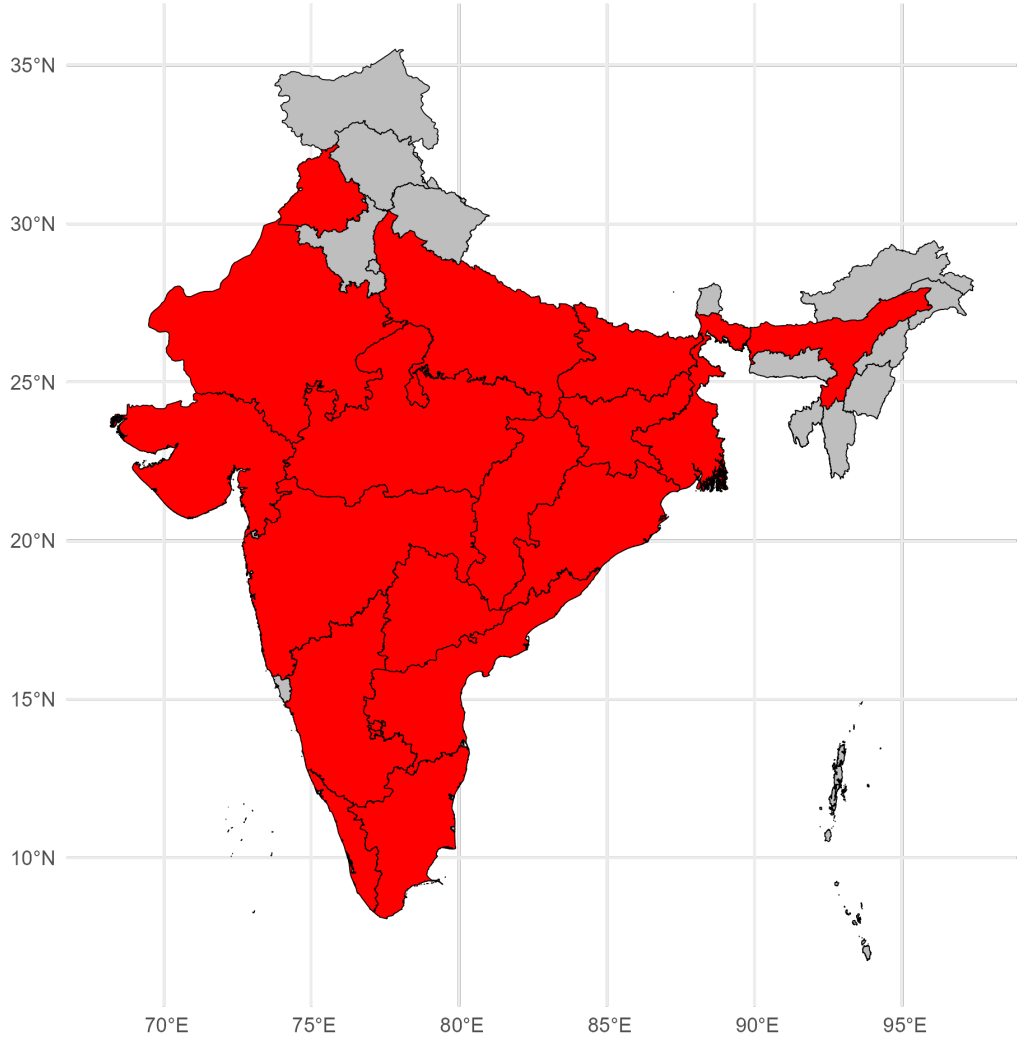


Figure 2: Map of Large Indian States (highlighted in red)

Table 1a: Descriptive Statistics

	Obs	Mean	Std. Dev.	Min	Max
Full sample					
Dependent variables					
log per capita loan from center	536	12.60	1.55	5.72	16.63
log per capita discretionary transfer	560	13.95	1.31	6.75	17.05
log p.c. development expenditure	514	16.83	0.69	15.10	19.77
log per capita social expenditure	586	16.42	0.60	14.70	18.12
log p.c. exp. on wages and salaries	425	15.85	0.83	13.64	20.60
log nightlight	651	1.07	1.28	-2.38	4.12
Explanatory variables					
Political alignment	706	0.47	0.50	0.00	1.00
Swing	695	0.63	0.48	0.00	1.00
Election	748	0.16	0.37	0.00	1.00
Control variables					
log population	688	9.71	1.66	6.29	12.41
log GDP per capita	539	18.22	0.60	16.48	19.69
Years as a CM	706	6.39	5.28	0.00	25.00
Ideology	705	0.38	0.49	0.00	1.00

Table 1b: Descriptive Statistics

	Obs	Mean	Std. Dev.	Min	Max
Large state sample					
Dependent variables					
log per capita loan from center	334	12.42	1.31	6.61	15.33
log per capita discretionary transfer	323	13.43	1.05	7.92	15.53
log p.c. development expenditure	293	16.42	0.44	15.10	17.32
log per capita social expenditure	329	16.07	0.44	14.70	17.27
log p.c. exp. on wages and salarie	282	15.49	0.63	13.64	20.45
log nightlight	357	1.50	0.86	-0.03	4.12
Explanatory variables					
Political alignment	394	0.40	0.49	0.00	1.00
Swing	385	0.69	0.46	0.00	1.00
Election	423	0.16	0.37	0.00	1.00
Control variables					
log population	391	10.96	0.57	9.94	12.41
log GDP per capita	305	18.04	0.55	16.48	19.08
Years as a CM	394	5.83	4.76	0.00	23.00
Ideology	394	0.41	0.49	0.00	1.00

Table 2a: Two way Fixed effect regression for dependent variable: *log_loan*

	(1)	(2)
	Full sample	Large state sample
Political alignment	-0.110	-0.225
	(0.261)	(0.261)
Swing	-0.165	-0.099
	(0.168)	(0.191)
Political alignment*Swing	0.027	0.029
	(0.270)	(0.322)
Election	-2.399**	-2.924
	(0.931)	(1.756)
Political alignment*Election	-0.440	-0.351
	(0.285)	(0.283)
Swing*Election	-0.308	-0.411*
	(0.185)	(0.227)
Political alignment*Swing*Election	0.669***	0.764**
	(0.235)	(0.278)
Constant	-8.248	-42.353
	(23.820)	(49.798)
Controls	Yes	Yes
N	452	285
Adjusted R^2	0.502	0.511

Note: Dependent variable- *log per capita loan from center*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 2b: Two way Fixed effect regression for dependent variable: *log_loan*

	(1)	(2)
	Full sample	Large state sample
Political alignment	-0.008	-0.279
	(0.211)	(0.177)
Swing	-0.160	-0.239
	(0.190)	(0.226)
Political alignment*Swing	-0.217	0.133
	(0.295)	(0.284)
Election	-2.407**	-3.440*
	(1.002)	(1.825)
Political alignment*Election	-0.067	0.053
	(0.218)	(0.263)
Swing*Election	-0.100	-0.161
	(0.221)	(0.247)
Political alignment*Swing*Election	0.167	0.342
	(0.406)	(0.367)
Consant	-2.109	-50.115
	(25.767)	(50.756)
Controls	Yes	Yes
N	452	285
Adjusted R^2	0.505	0.510

Note: Dependent variable- *log per capita loan from center*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 3a: Two way Fixed effect regression for dependent variable: *log_discretionary*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.195	-0.064
	(0.215)	(0.301)
Swing	0.204	0.355**
	(0.156)	(0.130)
Political alignment*Swing	-0.291	-0.004
	(0.225)	(0.309)
Election	1.406***	2.122*
	(0.449)	(1.170)
Political alignment*Election	-0.090	-0.038
	(0.238)	(0.371)
Swing*Election	-0.295	-0.777**
	(0.245)	(0.286)
Political alignment*Swing*Election	0.154	-0.062
	(0.363)	(0.572)
Constant	20.476*	33.485
	(10.870)	(36.488)
Controls	Yes	Yes
N	502	289
Adjusted R^2	0.336	0.409

Note: Dependent variable- *log per capita discretionary transfers*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 3b: Two way Fixed effect regression for dependent variable: *log_discretionary*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.141	0.013
	(0.190)	(0.214)
Swing	0.375**	0.545**
	(0.166)	(0.188)
Political alignment*Swing	-0.340	-0.126
	(0.234)	(0.257)
Election	1.464***	2.006
	(0.481)	(1.363)
Political alignment*Election	-0.214	-0.542
	(0.216)	(0.383)
Swing*Election	-0.449	-0.783**
	(0.307)	(0.357)
Political alignment*Swing*Election	0.557	0.934*
	(0.391)	(0.522)
Constant	21.538*	29.921
	(12.269)	(40.810)
Controls	Yes	Yes
N	502	289
Adjusted R^2	0.341	0.421

Note: Dependent variable- *log per capita discretionary transfers*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 4: Two way Fixed effect regression for dependent variable: *log_development*

	(1) Full sample	(2) Large state sample
Political alignment	0.040	0.006
	(0.063)	(0.068)
Swing	-0.010	0.000
	(0.050)	(0.042)
Political alignment*Swing	-0.007	0.004
	(0.073)	(0.093)
Election	0.694***	0.922**
	(0.238)	(0.351)
Political alignment*Election	-0.102	-0.108
	(0.097)	(0.066)
Swing*Election	-0.149	0.009
	(0.137)	(0.069)
Political alignment*Swing*Election	0.155	-0.073
	(0.213)	(0.128)
Constant	14.901**	16.657
	(6.514)	(9.726)
Controls	Yes	Yes
N	431	244
Adjusted R^2	0.374	0.695

Note: Dependent variable- *log per capita development expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 5: Two way Fixed effect regression for dependent variable: *log_social*

	(1) Full sample	(2) Large state sample
Political alignment	0.028	-0.045
	(0.052)	(0.054)
Swing	0.014	0.010
	(0.034)	(0.035)
Political alignment*Swing	0.029	0.068
	(0.057)	(0.073)
Election	1.067***	1.133***
	(0.102)	(0.219)
Political alignment*Election	0.014	-0.024
	(0.031)	(0.052)
Swing*Election	0.045*	0.047*
	(0.025)	(0.026)
Political alignment*SwingVS*Election	-0.095**	-0.089
	(0.043)	(0.063)
Constant	25.023***	23.721***
	(2.690)	(6.605)
Controls	Yes	Yes
N	526	294
Adjusted R^2	0.831	0.879

Note: Dependent variable- *log per capita social expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 6: Two way Fixed effect regression for dependent variable: *log_wage*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.207*	0.193
	(0.103)	(0.148)
Swing	0.191	0.230
	(0.125)	(0.171)
Political alignment*Swing	-0.259*	-0.261
	(0.144)	(0.192)
Election	0.643**	0.722
	(0.286)	(0.841)
Political alignment*Election	-0.036	0.048
	(0.102)	(0.121)
Swing*Election	-0.173	-0.192
	(0.182)	(0.223)
Political alignment*Swing*Election	0.159	0.158
	(0.200)	(0.211)
Constant	18.619***	21.988
	(6.022)	(24.263)
Controls	Yes	Yes
N	366	239
Adjusted R^2	0.255	0.203

Note: Dependent variable- *log per capita expenditure on wages and salaries*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table 7: Two way Fixed effect regression for dependent variable: *log_nightlight*

	(1)	(2)
	Full sample	Large state sample
Political alignment	-0.007	0.034
	(0.076)	(0.099)
Swing	-0.089	-0.084
	(0.067)	(0.074)
Political alignment*Swing	0.109	0.107
	(0.084)	(0.130)
Election	0.179	0.113
	(0.334)	(0.608)
Political alignment*Election	0.035	0.024
	(0.051)	(0.045)
Swing*Election	0.008	-0.004
	(0.058)	(0.044)
Political alignment*Swing*Election	0.027	0.027
	(0.081)	(0.060)
Constant	2.766	-3.408
	(9.034)	(17.634)
Controls	Yes	Yes
N	497	277
Adjusted R^2	0.407	0.403

Note: Dependent variable- *log night light data*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

11 Appendix

Table A1: Two way Fixed effect regression for dependent variable: *log_loan* (Large state sample only)

	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	-0.310	-0.342
	(0.221)	(0.283)
Swing	-0.279	-0.163
	(0.231)	(0.190)
Political alignment*Swing	0.007	0.064
	(0.253)	(0.302)
Election	-4.644**	-4.228*
	(2.115)	(1.998)
Political alignment*Election	0.077	-0.333
	(0.291)	(0.277)
Swing*Election	-0.255	-0.414*
	(0.246)	(0.229)
Political alignment*Swing*Election	0.391	0.852***
	(0.399)	(0.284)
Constant	-106.5	-103.6
	(70.32)	(68.75)
Controls	Yes	Yes
N	260	260
Adjusted R^2	0.531	0.530

Note: Dependent variable- *log per capita loan from center*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A2: Two way Fixed effect regression for dependent variable: *log_discretionary* (Large state sample only)

	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	0.005	-0.027
	(0.224)	(0.311)
Swing	0.603***	0.386***
	(0.191)	(0.166)
Political alignment*Swing	-0.101	-0.055
	(0.268)	(0.316)
Election	2.573*	2.498**
	(1.395)	(1.148)
Political alignment*Election	-0.511	-0.016
	(0.400)	(0.396)
Swing*Election	-0.779**	-0.819**
	(0.358)	(0.309)
Political alignment*Swing*Election	0.935*	-0.052
	(0.493)	(0.643)
Constant	34.77	37.97
	(47.61)	(37.23)
Controls	Yes	Yes
N	266	266
Adjusted R^2	0.409	0.393

Note: Dependent variable- *log per discretionary transfers*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A3: Two way Fixed effect regression for dependent variable: *log_development*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.057	0.006
	(0.042)	(0.057)
Swing	0.031	0.008
	(0.057)	(0.045)
Political alignment*Swing	-0.057	0.005
	(0.071)	(0.070)
Election	0.714***	0.944**
	(0.244)	(0.353)
Political alignment*Election	-0.059	-0.173
	(0.126)	(0.118)
Swing*Election	-0.179	0.028
	(0.141)	(0.067)
Political alignment*Swing*Election	0.112	0.030
	(0.142)	(0.083)
Constant	16.205**	16.854*
	(6.193)	(9.585)
Controls	Yes	Yes
N	431	244
Adjusted R^2	0.377	0.696

Note: Dependent variable- *log per capita development expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A4: Two way Fixed effect regression for dependent variable: *log_social*

	(1) Full sample	(2) Large state sample
Political alignment	0.051	0.032
	(0.032)	(0.038)
Swing	0.028	0.063
	(0.036)	(0.038)
Political alignment*Swing	-0.002	-0.043
	(0.047)	(0.055)
Election	1.076***	1.203***
	(0.109)	(0.233)
Political alignment*Election	-0.004	-0.044
	(0.024)	(0.037)
Swing*Election	0.038	0.025
	(0.028)	(0.028)
Political alignment*Swing*Election	-0.121**	-0.113
	(0.052)	(0.079)
Constant	24.767***	25.412***
	(2.672)	(7.326)
Controls	Yes	Yes
N	526	294
Adjusted R^2	0.831	0.880

Note: Dependent variable- *log per capita social expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A5: Two way Fixed effect regression for dependent variable: *log_wage*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.051	0.040
	(0.045)	(0.062)
Swing	-0.038	-0.039
	(0.064)	(0.086)
Political alignment*Swing	-0.022	-0.013
	(0.081)	(0.101)
Election	0.359**	0.394
	(0.160)	(0.780)
Political alignment*Election	0.120	0.193
	(0.124)	(0.175)
Swing*Election	0.109	0.195
	(0.111)	(0.164)
Political alignment*SwingVS*Election	-0.159	-0.155
	(0.139)	(0.157)
Constant	15.753***	18.060
	(4.700)	(26.397)
Controls	Yes	Yes
N	366	239
Adjusted R^2	0.240	0.182

Note: Dependent variable- *log per capita expenditure on wages and salaries*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A6: Two way Fixed effect regression for dependent variable: *log_nightlight*

	(1)	(2)
	Full sample	Large state sample
Political alignment	0.037	0.135*
	(0.059)	(0.072)
Swing	-0.054	-0.062
	(0.076)	(0.071)
Political alignment*Swing	0.054	-0.050
	(0.088)	(0.107)
Election	0.217	0.189
	(0.328)	(0.569)
Political alignment*Election	0.056*	0.074
	(0.030)	(0.044)
Swing*Election	0.051	0.014
	(0.054)	(0.051)
Political alignment*Swing*Election	-0.005	-0.077
	(0.065)	(0.066)
Constant	3.806	0.822
	(9.141)	(16.597)
Constant	Yes	Yes
N	497	277
Adjusted R^2	0.402	0.410

Note: Dependent variable- *log night light data*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A7: Two way Fixed effect regression for dependent variable: *log_development* (Large state sample only)

	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	-0.009	-0.007
	(0.060)	(0.067)
Swing	0.001	-0.005
	(0.044)	(0.048)
Political alignment*Swing	0.023	0.015
	(0.073)	(0.096)
Election	0.875*	0.863*
	(0.413)	(0.395)
Political alignment*Election	-0.216	-0.118
	(0.134)	(0.069)
Swing*Election	0.033	0.028
	(0.070)	(0.080)
Political alignment*Swing*Election	0.071	-0.106
	(0.102)	(0.151)
Constant	13.32	14.59
	(13.97)	(12.99)
Controls	Yes	Yes
N	224	224
Adjusted R^2	0.692	0.689

Note: Dependent variable- *log per capita development expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A8: Two way Fixed effect regression for dependent variable: *log_social* (Large state sample only)

	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	0.028	-0.048
	(0.044)	(0.056)
Swing	0.062	0.018
	(0.038)	(0.040)
Political alignment*Swing	-0.038	0.067
	(0.062)	(0.075)
Election	1.195***	1.134***
	(0.262)	(0.235)
Political alignment*Election	-0.060	-0.038
	(0.036)	(0.050)
Swing*Election	0.032	0.047*
	(0.029)	(0.023)
Political alignment*Swing*Election	-0.111	-0.096
	(0.101)	(0.069)
Constant	23.79**	21.80**
	(10.41)	(8.53)
Controls	Yes	Yes
N	269	269
Adjusted R^2	0.873	0.874

Note: Dependent variable- *log per capita social expenditure*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

Table A9: Two way Fixed effect regression for dependent variable: *log_wage* (Large state sample only)

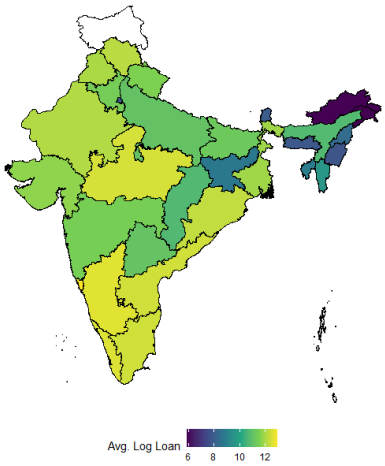
	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	0.001	0.078
	(0.046)	(0.069)
Swing	-0.039	0.070
	(0.055)	(0.082)
Political alignment*Swing	0.027	-0.093
	(0.078)	(0.094)
Election	-0.206	-0.043
	(0.423)	(0.293)
Political alignment*Election	0.020	0.030
	(0.045)	(0.092)
Swing*Election	0.048	0.028
	(0.041)	(0.066)
Political alignment*Swing*Election	-0.008	-0.017
	(0.069)	(0.090)
Constant	-3.125	1.057
	(15.130)	(12.490)
Controls	Yes	Yes
N	216	216
Adjusted R^2	0.662	0.668

Note: Dependent variable- *log per capita expenditure on wages and salaries*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01

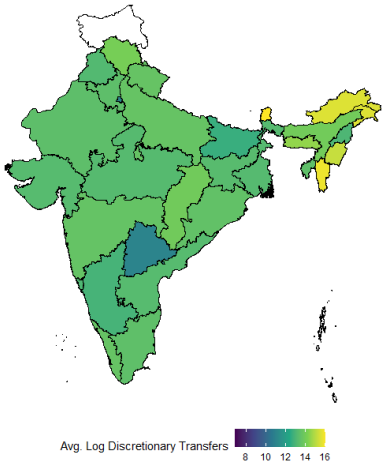
Table A10: Two way Fixed effect regression for dependent variable: *log_nightlight* (Large state sample only)

	(1) When *Swing* considers 5 percent winning margin	(2) When *Swing* considers 10 percent winning margin
Political alignment	0.037	-0.065
	(0.061)	(0.090)
Swing	-0.030	-0.043
	(0.068)	(0.074)
Political alignment*Swing	-0.007	0.129
	(0.141)	(0.132)
Election	-0.655	-0.602
	(0.483)	(0.512)
Political alignment*Election	0.031	-0.041
	(0.043)	(0.043)
Swing*Election	-0.035	-0.039
	(0.053)	(0.050)
Political alignment*Swing*Election	-0.044	0.084
	(0.054)	(0.050)
Constant	-59.88**	-61.18**
	(25.36)	(26.38)
Controls	Yes	Yes
N	254	254
Adjusted R^2	0.553	0.558

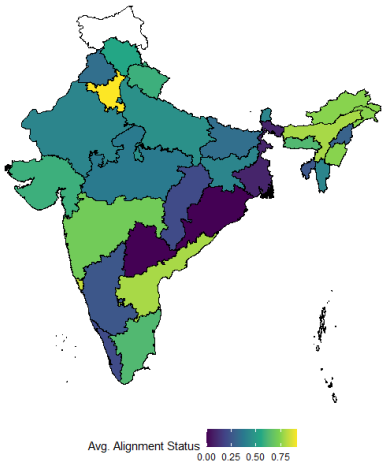
Note: Dependent variable- *log night light data*. All models include the following control variables: *log population*, *log per capita GDP*, *Years as a CM*, and *Ideology*. Standard errors clustered at the state level in parentheses.
* p<0.1, ** p<0.05, *** p<0.01



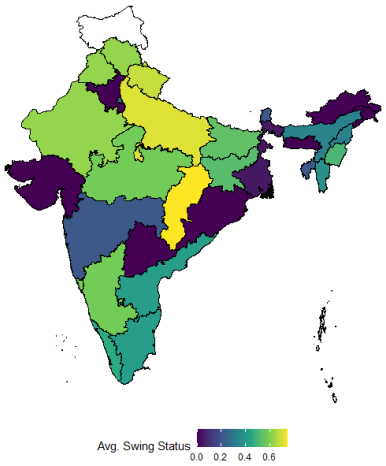
(a) Average Log Per Capita Loan



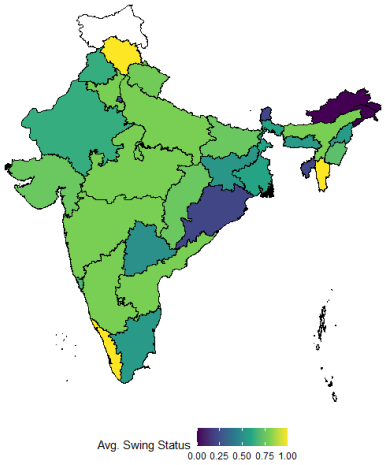
(b) Average Log Per Capita Discretionary Transfers



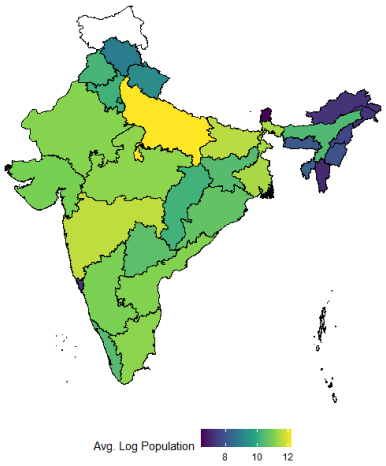
(c) Average Alignment Status of States



(d) Average Swing Status of States (based on 5% winning margin)



(e) Average Swing Status of States (based on 10% winning margin)



(f) Average Log Population

Figure A1: Some Important Variables (on average) Across Indian States