Are Public Funds Used to Maintain Ruling Coalitions?

Evidence from India

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Abstract

Political considerations can distort public policies in developing countries, making them less effective. While past literature has focused on incumbent politicians manipulating policies for reelection purposes in two-party settings, around 52% of the world’s democracies have coalition governments. In such settings a national incumbent can not only allocate funds to woo voters pre-election, but also to buy legislative support from smaller parties post-election. My paper presents a simple framework formalizing these two mechanisms and tests it using a newly constructed dataset of district-level disbursements from India’s Total Sanitation Campaign. These two mechanisms give rise to two distinct patterns in the disbursement of funds: the “Buying Votes Cycle” and the “Patronage Cycle.” The former is the traditional cycle with a pre-election increase (60%) in the release of funds in swing districts for the national parties. The latter is a previously undocumented cycle with a post-election increase (55%) in the release of funds that occurs, as predicted by the model, only in safe districts for smaller parties. Both cycles are large enough to affect the timing of household consumption and hence their welfare.

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1 Introduction

Politically motivated disbursements of government resources that are large, inefficient, and welfare reducing are well-documented in developing countries. Past work has documented that manipulations in infrastructure provision (Baskaran et al. (2015)), agricultural credit (Cole (2009)), and government expenditures (Akhmedov and Zhuravskaya (2004)) arise right before elections, motivated by an incumbent’s attempts to “buy” voters’ support. However, most of the literature has studied political manipulations using predictions from two-party models (Cox and McCubbins (1986), Lindbeck and Weibull (1987), Dixit and Londregan (1996)). While this framework can describe political competition in countries with two political parties, 76 of the world’s 145 democracies have coalition government systems, all featuring important smaller parties. Ignoring the unique incentives of central incumbents in coalition governments can underestimate the extent of (and mischaracterize the nature of) politically motivated manipulations in multi-party settings.

I examine how the presence of politically relevant regional parties in India, the world’s largest democracy, affects policy manipulations used by a central incumbent in a coalition government. In particular, I study how the central incumbent manipulates the distribution of public funds to districts when it cares about both (a) winning subsequent state elections and (b) enjoying sufficient legislative support to maintain a governing coalition. I provide evidence of political manipulation by estimating political cycles in the release of funds, i.e., by tracking government expenditure against state electoral cycles and studying patterns in the distribution of funds relative to the time of state elections. State elections are the appropriate setting to find evidence of the central incumbent “buying support” from regional parties because regional parties primarily care about winning state elections and

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1Regional parties are smaller political parties that operate in sub-national geographical regions and have a loyal voter base organized on some common characteristic like language, religion, ethnicity, etc. Throughout this paper I use the terms smaller parties and regional parties interchangeably. For Example, Samajwadi Party (India), Basque Nationalist Party (Spain), Pachakutik Plurinational Unity Movement (Ecuador), United Republican Party (Kenya), and Bloc Québécois (Canada).

2Using cross-sectional data instead of political cycles to find evidence of political manipulation in the disbursement of funds is less informative because it is difficult to determine if a district is receiving more funds out of necessity rather than political importance. Models of political cycles include Nordhaus (1975), Rogoff and Sibert (1988), Rogoff (1990), Shi and Svensson (2006). Drazen (2000b,a) survey the literature.
use funds from the central government to fulfill their electoral promises.

I present a simple framework that formalizes how the two political incentives of the central incumbent affect the spatial allocation of funds across districts. This framework allows the central incumbent to have two goals: winning elections and maintaining ruling coalitions. To achieve these goals the central incumbent manipulates the disbursement of funds to either buy votes pre-election or to buy support from a regional party post-election. In any given district, the central incumbent will at most commit one of these two manipulations depending on the district’s type of political competition. Specifically, my framework predicts that the central incumbent will only buy votes pre-election in swing districts\textsuperscript{3} for the two national parties and will only buy support post-election in districts where regional parties are strong.

I empirically demonstrate that, consistent with the predictions of my model, there are two types of political cycles in the disbursement of public funds for a government scheme by the Indian central incumbent: the “Buying Votes Cycle” and the “Patronage Cycle.” The former is consistent with findings in the literature and involves a 60% increase in the release of funds by the central incumbent right before an election in districts where the two national parties compete with one another. The latter is a heretofore undocumented political cycle with increases of 55%-75% in the release of funds right after the election in districts where regional parties are strong.\textsuperscript{4}

To show both types of cycles, I construct a unique monthly panel dataset covering 466 rural districts in India. This dataset combines administrative data from 2004–2014 on district-level, monthly release of funds under the Total Sanitation Campaign (TSC), a government scheme providing subsidized sanitation in rural areas; political data on 90

\textsuperscript{3}I define swing districts as districts where two political parties have won at least one election during a specified period.

\textsuperscript{4}To the best of my knowledge, Cole (2009) is the only paper looking at political cycles that finds evidence of post-election political manipulations in government policy tools (an increase in write-off of bank loans after an election). However, he finds these manipulations in districts where the ruling party in a state wins and interprets them as the ruling party rewarding its loyal supporters. Other papers have found evidence of shuffling of government personnel after elections or appointment of new chief ministers for political reasons (e.g., Fagernäs and Pelkonen (2016), Iyer and Mani (2012)) but not in the context of incumbents buying support from regional parties.
State Assembly Elections from 1994–2014; and district-level demographic data from Indian Censuses. The political setting in India during 2004–2014 is ideal to study manipulations by a central incumbent in a coalition government because it has the two characteristics needed to study the role of regional parties on political manipulations: strong regional parties and a central incumbent that needs the support of these regional parties.\(^5\)

I estimate political cycles *separately* in districts with different types of political competition to understand how different political incentives of the central incumbent across types of districts can lead to heterogeneous political manipulations across space. I exploit the unsynchronized nature of Indian state elections to estimate each political cycle using space and time fixed effects, accounting for district-specific time invariant characteristics and time-varying shocks that affect all districts with similar political competition equally. Intuitively, identification of political cycles comes from comparing changes in the release of funds for two districts within the same category of political competition, at the same points in time, but at different points in their electoral cycle.

The cycles I estimate are consistent with the central incumbent having two different incentives across districts: buying support from regional parties and wooing voters. I show that the “Patronage Cycle” only exists in districts where the central incumbent never wins, confirming it is not driven by the central incumbent rewarding core supporters after winning an election itself. Instead, the “Patronage Cycle” only exists in districts where crucial allies of the central incumbent are politically competitive, confirming that it is a *consequence of the central incumbent rewarding regional party allies for their support*. I also show that the previously well-documented\(^6\) “Buying Votes Cycle” only exists in districts that most closely resemble swing districts in a two-party setting (i.e., districts that are swing for the two national parties) and not in other types of districts. This suggests that the “Buying

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\(^5\) For example, in July 2008, the national coalition would not have survived a no-confidence motion without the support of the Samajwadi Party, a political party active in only one state in India. In August 2013, support from three smaller parties the Samajwadi Party, the Bahujan Samaj Party, and the Janata Dal (United) allowed the government to pass the Food Security Bill in the national legislative assembly.

\(^6\) For example, Drazen and Eslava (2010) on investment expenditure in Colombian regions, Faye and Niehaus (2012) on foreign aid to developing countries, Golden and Min (2013) on electricity loses in India (Uttar Pradesh), Alesina and Paradisi (2014) on the introduction of real estate taxes in Italy.
Votes Cycle” I document is caused by similar central incumbent motivations as in two-party models — manipulating policy to improve its chances of winning an upcoming election.

I construct a second novel dataset by combining all rounds of NSS consumption surveys during 2004–2014 with the political data described earlier, to show that both types of political manipulations are large enough to introduce political cycles in household consumption.

To the best of my knowledge, political cycles using household consumption data have not been previously documented. Consumption cycles indicate that government manipulations increase the volatility of household income, reducing household welfare compared to funds being released without political cycles.\(^7\) I find that households in districts with the “Buying Votes Cycle” have a 6.3% increase in monthly per capita expenditure in the year prior to an election and households in districts with the “Patronage Cycle” have a 4.3% increase in monthly per capita expenditure post-election. These patterns in household consumption also suggest that both types of manipulations are not restricted to just the TSC but are a general pattern across various government schemes.

To the best of my knowledge, my paper is the first one to study political cycles arising from political incentives specific to a political system with coalition governments. The insight that coalition governments have different motivations for manipulating policy tools compared to a single-party government is not new (e.g., Rodden and Wilkinson (2004)). However, empirical work is limited to documenting how political appointments are used to maintain coalitions or how the strength of a coalition affects the magnitude of pre-election fiscal deficits.\(^8\)

My work contributes to literatures on politically motivated redistribution and political cycles by showing that in a setting with coalition governments, disaggregating swing

\(^7\)Political cycles have been shown to be inefficient and welfare reducing in other settings. For example, Akhmedov and Zhuravskaya (2004) find sizable increases and changes in the composition of public expenditure in the months prior to regional elections in Russia in a way that disproportionately affects poor people, Cole (2009) finds that increased agricultural lending in election years does not translate into increased agricultural output, Baskaran et al. (2015) find that increased electricity provision in special election years does not lead to improvements in GDP and may come at the expense of constituencies that do not have an upcoming election.

\(^8\)For example, Ansolabehere et al. (2005), Hanusch (2010), Tutar and Tansel (2000), Chang (2008), Balassone and Giordano (2001), Hanusch (2012)
and safe districts by the identity of political parties that compete for them is crucial to account for differences in the way they are targeted by the central incumbent. My paper provides further evidence that central governments use transfers to influence outcomes of local elections by documenting how central transfers are correlated with state electoral cycles. Finally, my findings complement the literature that documents political cycles in the actions of Indian state governments before state elections by showing that the central government also uses its resources for political gain in these elections.

The rest of the paper is organized as follows. Section 2 gives the institutional background of the setting of this paper — details about the political setting in India. Section 3 proposes a simple framework to predict how a central incumbent in a coalition government disburses funds across districts with different types of political competition. Sections 4 and 5 discuss the data and empirical strategy used to test these predictions, respectively. Section 6 states the main empirical results along with robustness checks. Section 7 provides further evidence that the “Patronage Cycle” is consistent with the central incumbent buying support from regional parties. Section 8 discusses how the two types of political manipulations lead to cycles in household consumption. Section 9 concludes.

2 Institutional Background

To study how the presence of regional parties affects policy manipulations by the central incumbent, I need a political setting with both strong regional parties and coalition governments. India during 2004–2014 possessed both features: it had strong and important

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9The large literature on politically motivated redistribution (e.g., Levitt and Snyder (1997), Case (2001), Johansson (2003), Brender and Drazen (2008), Eslava (2011), Klomp and de Haan (2013)) either focuses on two-party settings, or collapses multi-party settings into the framework of two-party settings, to study whether swing or safe districts are targeted by an incumbent, generally before an election.

10For example, Dahlberg and Johansson (2002), Bracco et al. (2015), and Arulampalam et al. (2009) show that central governments are more likely to give grants to swing Swedish municipalities, aligned Italian municipalities, and aligned and swing Indian states, respectively. Solé-Ollé and Sorribas-Navarro (2008) show that Spanish municipalities where coalition partners of the national incumbent win are also more likely to receive grants from the incumbent.

11For example, Khemani (2004) finds increases in proportion of spending on public investment projects, Cole (2009) finds increases in the provision of agricultural credit by government banks, and Min and Golden (2014) find increases in electricity loses in the year before a state election.
regional parties and the central incumbent ruled a coalition of several political parties and needed to maintain inter-party relationships. In the following sub-sections, I describe these two institutional features in detail. I also discuss that using state elections to study pre- and post-election manipulations by the central incumbent is appropriate in the Indian context because the outcomes of state elections in India are important for both the central incumbent and its coalition partners.

2.1 Political Parties and Coalition Governments in India

In this section, I describe the role of regional parties in Indian politics. In particular, I discuss the political setting in India during 2004–2014 when the national government was a coalition government and many regional parties were giving outside support to the government. I also discuss political events that suggest the central incumbent had a constant need to prevent defections.

Regional parties are an important force in Indian politics (Ziegfeld (2016)). There are over 50 regional parties in India, in addition to the two main national parties,\textsuperscript{12} the Indian National Congress (INC) and the Bharatiya Janata Party (BJP). Most regional parties in India are caste, religion, or language based parties that enjoy the support of a core group of voters living in a region.\textsuperscript{13} Most, but not all of them are non-ideological and some of them have formed alliances with both national parties at different points in time. For example, the Dravida Munnetra Kazhagam was a coalition partner of the BJP at the central government during 1999–2004 and of the INC during 2004–2014.

Regional parties play two important roles in Indian politics. First, regional parties are competitive in the majority of state elections in India. For example, at present 19 out of 29 states in India either have a regional party as the ruling party or as a member of the ruling coalition. Second, if national parties fail to win the majority of seats in a national election,

\footnote{I call a political party a national party if it is active in almost all states in India and if it has ever won the largest number of constituencies in a national election. This implies that in a coalition government the national party will be the largest member.}

\footnote{Examples of Indian regional parties include, the Samajwadi Party, the Bahujan Samaj Party, the Dravida Munnetra Kazhagam, the Pattali Makkal Katchi, etc.}
regional parties can play the role of kingmaker in national coalitions. For example, the Pattali Makkal Katchi (PMK), a political party with only 6 out of 543 seats at the national legislative assembly was given a cabinet position in the government and was an important member of the central coalition from 2004–2009.

During the period studied in this paper, 2004–2014, the INC was the single largest party in the national elections, however, it only won 26.3% and 38% constituencies in the national elections in 2004 and 2009, respectively. It formed a minority (coalition) government that constantly needed the support of regional parties to survive no-confidence motions or to pass bills it was working towards. For example, in July 2008, the central government survived a no-confidence motion with the support of two regional parties, the Samajwadi Party (SP) and the Jharkhand Mukti Morcha. Similarly, in December 2012, the central government could only pass a legislation on Foreign Direct Investment in retail because the SP and the Bahujan Samaj Party (BSP) either abstained or voted for the bill.\textsuperscript{14} These regular threats to the stability of the government ensured that the INC had a constant need to keep its allies (regional parties) satisfied during its tenure.

This minority government received support from two types of regional parties, those that were officially part of the coalition (e.g., the PMK) and others that provided outside support (e.g., the SP). A political party gives outside support to a government by agreeing to not vote against the government in case of a no-confidence motion or by helping the government pass bills in the legislative assembly, while not officially joining the government. Regional parties giving outside support to the government can not be “rewarded” with cabinet positions for their support,\textsuperscript{15} and the central incumbent has to use other means to prevent them from defecting (Rodden and Wilkinson (2004)). In this paper, I argue that the central incumbent can buy support of such regional parties by allocating funds under

\textsuperscript{14}Additional examples include: In July 2010, the central government defeated a cut motion on petroleum prices with the help of the BSP, the SP, and the Rashtriya Janata Dal; in August 2013, support from three regional parties the SP, the BSP, and, the Janata Dal (United) allowed the government to pass the Food Security Bill in the Lok Sabha (the lower house of Parliament).

\textsuperscript{15}There is a large literature on incumbents rewarding their coalition partners with cabinet positions in the government, including Warwick and Druckman (2001), Ansolabehere et al. (2005), Carroll and Cox (2007), Bäck et al. (2011), Laver et al. (2011).
centrally-sponsored schemes to districts where regional parties win.

2.2 State Elections in India

A central incumbent only manipulates policies around an election if it cares about the outcome of the election and if the election occurs at a time when the central incumbent has sufficient resources to influence the outcome. State elections in India are an appropriate setting to study manipulations by the central incumbent because they satisfy both these conditions.

Indian state elections occur every five years and are usually contested by both national and regional parties. Elections are unsynchronized across states implying that each state has an election during the tenure of an elected central incumbent and state elections are separated in time both across years and within a year. For example, during the tenure of a single central incumbent (May 2009 – April 2014), there were several state elections, including Kerala in April 2011, and Punjab in January 2012, and Gujarat in December 2012. The staggered nature of state elections allows the central incumbent greater latitude to manipulate election outcomes.

Central incumbents in India care about winning state elections for several reasons. First, state elections directly impact the legislative power of the central incumbent by changing the composition of the Upper House of Parliament. For example, if the central incumbent does not win a single assembly constituency\(^{16}\) in any state election, it will hold zero seats in the Upper House and would have to rely on other political parties to pass any legislation.\(^{17}\) Second, alignment between state and central governments helps the central incumbent better achieve its policy goals without opposition from state governments. Third, state elections are seen as a referendum on the central incumbent’s popularity during its term. When a central incumbent loses elections across several states during its tenure, voters see it as a sign of the national incumbent’s weakening popularity, thus lowering its chances of

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\(^{16}\)Assembly constituencies are the electoral districts, each electing a single member of the state legislative assembly by plurality rule.

\(^{17}\)The number of seats a party holds in the Rajya Sabha increases with their seat share in state elections, implying that national parties have an incentive to win as many state legislative assembly seats as possible.
winning the next national election.\textsuperscript{18} The former two reasons ensure the central incumbent would also want its allies to win wherever it is too weak to win itself.\textsuperscript{19}

Finally, state elections are the appropriate setting to find evidence of the central incumbent buying support from allied regional parties. Regional parties care primarily about successfully contesting state elections, in part by signaling to voters in their state their ability to extract resources from the center (Rodden and Wilkinson (2004), Ziegfeld (2012)). For example, in 2012 Akhilesh Yadav (Samajwadi Party), the Chief Minister of UP, met with the Prime Minister to ask the central government to demand smooth transfer of funds for various Center sponsored schemes;\textsuperscript{20} in 2015 Nitish Kumar (Janata Dal (United)), the Chief Minister of Bihar, announced his support for an upcoming bill at the national legislative assembly and asked the Prime Minister for central funds to help fulfill his electoral promises.\textsuperscript{21} As regional parties in part fulfill their electoral promises to voters using funds released by the central incumbent to their state, we expect the release of funds to be correlated with a state election cycle.

\section{Theoretical Framework}

I propose a simple framework with two national parties and a regional party that predicts how a central incumbent manipulates the spatial allocation of funds under a government sponsored scheme in order to sway the results of state elections and to maintain national legislative support from regional parties. I show that the central incumbent releases funds pre-election only in swing districts for the two national parties and releases funds post-election only in districts where the regional party is competitive. This framework provides testable predictions for different types of political cycles that can arise across space due to manipulations by the central incumbent. I test these predictions in Section 6.

\textsuperscript{18}For example, Dettman (2004), “Assembly polls in 5 states: Will it be referendum on Central govt?”, Hindustan Times, March 9, 2016.
\textsuperscript{19}For example, “Rajya Sabha polls: BJP gains edge in Upper House but still short of majority”, The Indian Express, June 12, 2016.
\textsuperscript{20}“Akhilesh meets PM, seeks smooth transfer of funds for UP”, rediff NEWS, 14th April 2012.
\textsuperscript{21}“Nitish Backs GST Bill to Woo Central Funds”, The Indian Express, 13th December 2015.
My framework focuses only on the spatial dimension of the national incumbent’s political manipulations. For simplicity, I have abstracted away from endogenous budgets and the possibility of the national opposition party also attempting to woo the regional party. Inclusion of these features does not qualitatively change the predictions of my model.\footnote{Allocation of funds for government schemes are determined in a two-step process: choice of overall budget, and choice of spatial allocation. At the second step, the budget is fixed. Extending the model to have an endogenous budget will impact the size of the budget in a given year, but not the incumbent’s incentives for different manipulations across space at the time of allocation. Thus, endogenous budgets can affect the magnitude of the cycles, but will not qualitatively alter the results.}

3.1 Setting of Model

Consider a three period model with parties $I$ (for Incumbent), $O$ (for Opposition), and $Z$ (for Regional Party). Parties $I$ and $O$ are national parties with national voter bases and differ from each other on some ideological grounds. Both these parties compete in central and state level elections. Party $Z$ is a regional party concerned with the issues of people living in the region it is representing.\footnote{My model focuses on a central incumbent’s manipulations around state elections. As the national opposition party does not control the national government, it can only keep promises it makes to the regional party if it wins a subsequent national election and has incentives to honor those promises post-victory. Therefore, the national opposition party’s offers to the regional party have greater uncertainty than offers made by the national incumbent, and allowing the national opposition party to make offers to the regional party will not qualitatively affect the results of the model, given the low commitment associated with such offers.} It can never win the majority of seats in the central election but can get enough votes that its support is important for a coalition central government.

Multiple state elections occur during the tenure of an elected central government, and all three parties compete for the up-for-grabs state governments. The central incumbent, $I$, is interested in winning state-level elections and enjoying sufficient legislative support at the national level to be able to pass legislation. The central government can use transfers to increase the party’s chances of winning in as many state elections as possible and can also use these funds to buy legislative support at the national level from party $Z$.

Party $Z$ is interested in winning state-level elections, while party $O$ is interested in both

\begin{footnotesize}
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  \item[23] In case of India we can think of $Z$ as a set of regional parties where each of these parties has a loyal vote base in the region it is active in.
\end{itemize}
\end{footnotesize}
winning state-level elections and maintaining sufficient ideological difference from party $I$ to be competitive in the next national election. The central incumbent needs the support of party $Z$ to pass national legislations and can promise to reward the supporters of party $Z$ after a state election in return for its support at the center. The central incumbent can make a similar proposal to party $O$, but is always rejected given $O$’s preference for ideological purity.

I divide districts into six groups based on their level of political competition and the identity of the winning party within a level of political competitiveness. Districts that are safe for parties $I$, $O$, and $Z$ are denoted by $D_I$, $D_O$, and $D_Z$, respectively. Districts that are swing for parties, $I$ and $O$, $O$ and $Z$, and $I$ and $Z$, are labelled $D_{IO}$, $D_{OZ}$, and $D_{IZ}$, respectively. Denote by $\mathcal{D}$ all the districts in these six categories.\footnote{I assume that there are no districts where all three political parties can win elections.}

3.2 Timing of Model

There are three periods in the model. Elections are held in all districts at the end of period 1 and the beginning of period 3. Figure 1 describes the timing of the model in each district.

**Period 1:** In each district $i$ party $I$ chooses to release an amount of funds $m_i$ to increase its probability of winning the upcoming election. I refer to this behavior of party $I$ as ‘buying votes’ in the rest of the paper. If party $I$ wins the election in a district, it gets a fixed payoff $u$ that is the same across all districts. I interpret $u$ as the utility party $I$ gets from capturing a district’s seat in the state legislative assembly. I denote by $p_j^y(m_i)$
the probability that party \( y \in \{ I, O, Z \} \) wins the election in district \( i \) in category \( j \).

**Period 2:** If party \( I \) does not win the election in district \( i \), it decides whether to ‘buy support’ from the district’s winning party \( x \in \{ O, Z \} \) by releasing funds \( n_i \) to the district. Party \( I \)’s utility from receiving support from party \( x \) is given by a fixed utility \( v \) across all districts. I denote by \( q^x_j(n_i) \) the probability that party \( I \) receives support from winning party \( x \) in district \( i \) after releasing funds \( n_i \).

**Period 3:** There is a second election at the beginning of period three. Party \( I \)’s probability of winning this election in district \( i \) is \( s(m_i, n_i) \) and its utility from winning this election is \( W \). The probability \( s(m_i, n_i) \) increases if party \( I \) releases more funds to buy votes in a district in period 1 and it decreases in the amount of funds it uses to buy support from the winning party.

### 3.3 Central Incumbent’s Maximization Problem

In every district \( i \), the central incumbent has two choice variables: funds \( m_i \) used to buy votes before the first election, and funds \( n_i \) used to buy support from the winning party in the district if the central incumbent does not win the first election. The total budget that can be manipulated by the central incumbent under this scheme is given by \( M \) and is fixed for a given fiscal year. The central incumbent maximizes expected future utility

\[
\max_{m_i, n_i} \sum_{j \in J} \sum_{i \in D_j} \left[ p^I_j(m_i)u + \delta \sum_{k \in \{O, Z\}} \left( p^k_j(m_i)q^k_j(n_i) \right) v + \delta^2 s(m_i, n_i)W \right]
\]

subject to the budget constraint:

\[
\sum_{i \in D} [m_i + n_i] \leq M \quad \text{and} \quad m_i \geq 0, \quad n_i \geq 0
\]

With reasonable restrictions on probabilities\(^{25}\) the central incumbent maximizes its ex-

\(^{25}\)I assume that all probabilities are continuously differentiable in their elements to ensure that the above maximization problem has a well-defined solution. Party \( I \)’s probabilities of winning both elections and successfully buying support increase in the magnitude of funds it uses to buy votes and buy support, respectively and its probability of winning the subsequent election in a district decreases if it buys support.
pected utility by employing three different types of manipulations across six groups of districts defined by different types of political competition. The solution to the maximization problem is formally stated in Proposition 1.

**Proposition 1.** Under reasonable restrictions on probabilities, the central incumbent’s maximization problem has a solution such that:

1. In swing districts for parties I and O, $m_i \geq 0$ and $n_i = 0$.
2. In safe districts for party Z and in swing districts for parties O and Z, $m_i = 0$ and $n_i \geq 0$.
3. In safe districts for parties I and O and in swing districts for parties I and Z, $m_i = n_i = 0$.

*Proof:* See Appendix A. □

Given the timing of the three types of manipulations conducted by an optimizing central incumbent, I can predict three types of political cycles in the release of funds in a district around the first election.

**Predictions.** If the total budget $M$ is large enough, all three types of actions predicted in Proposition 1 occur in the optimal solution and there are three testable empirical predictions about the shapes of political cycles observed in different types of districts:

**P1:** There is a “Buying Votes Cycle” in the release of funds with a peak pre-election in swing districts for parties I and O.

**P2:** There is a “Patronage Cycle” in the release of funds with a peak post-election in districts that are safe for party Z and in swing districts for parties O and Z.

**P3:** There are No Political Cycles in the release of funds in districts that are safe for parties I and O, and in swing districts for parties I and Z.

from the party that won the previous election. Party I’s funds are better used buying votes in swing districts for parties I and O than in swing districts for parties I and Z. Party I’s benefit from using an additional unit of funds to buy support from party Z is less than the cost it has to bear (reduced probability of winning) in the next election. I formalize these assumptions in Appendix A.
The mapping between the types of manipulations predicted in Proposition 1 and the corresponding political cycles described above is summarized in Table 1.

Table 1: Predicted Political Cycles in Various Districts

<table>
<thead>
<tr>
<th>Type of District</th>
<th>Pre-election Manipulation</th>
<th>Post-election Manipulation</th>
<th>Predicted Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Swing for parties $I$ and $O$</td>
<td>Yes</td>
<td>No</td>
<td>Pre-Election Peak (&quot;Buying Votes Cycle&quot;)</td>
</tr>
<tr>
<td>Safe for party $Z$</td>
<td>No</td>
<td>Yes</td>
<td>Post-Election Peak (&quot;Patronage Cycle&quot;)</td>
</tr>
<tr>
<td>Swing for parties $O$ and $Z$</td>
<td>No</td>
<td>No</td>
<td>No Cycle</td>
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<tr>
<td>Safe for party $I$</td>
<td>No</td>
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</tbody>
</table>

Below, I provide intuition for why the central incumbent’s manipulations differ across districts with different types of political competitions. Party $I$ will only choose to ‘buy votes’ in districts where it faces uncertainty about winning the election at the end of period 1 – districts that are swing for parties $I$ and $O$ and parties $I$ and $Z$. In the optimal solution, party $I$ only chooses to ‘buy votes’ in the former districts, where pre-election manipulations have a higher chance of success. In the latter districts, core supporters of party $Z$ will never vote for party $I$, reducing the effectiveness of pre-election manipulations.

Party $I$ will only choose to ‘buy support’ in districts where the regional party can win the election at the end of period 1 – districts that are safe for party $Z$, and districts that are swing for parties $O$ and $Z$ and parties $I$ and $Z$. In the optimal solution, party $I$ only chooses to ‘buy support’ in the first two types of districts, where it can never win and buying support cannot impede its chances of winning future elections. In the third type of district party $I$ is directly competing with party $Z$, and post-election releases of funds in these districts will hurt party $I$’s chances of winning subsequent elections as voters can interpret post-election disbursement of funds as a signal of party $Z$’s competence.

**Corollary 1.** The aggregate cycle in the release of funds (pooled across all districts) can take one of four forms: no cycle, a cycle with a peak post-election, a cycle with a peak
pre-election, and a cycle with peaks both before and after an election.

Given the predictions of the three types of cycles across districts, the shape of the aggregate cycle depends on the number of districts and the magnitude of manipulation in each category of districts. Since the literature has focused on aggregate cycles, estimating an aggregate cycle will allow me to compare my results with previous work. I discuss results of empirically estimating the aggregate cycle in Section 6.

**Extensions of the Model:** In Appendix A, I consider two extensions to the above model. First, I extend the model to include the presence of two regional parties instead of one to capture a political setting where there are several regional parties and the central incumbent only needs the support of a few regional parties to maintain its national coalition. In this extension, the central incumbent only tries to buy support of regional parties that are likely to be its allies at the national level, a prediction I confirm in Section 7. Second, I extend the model to allow for independent budget constraints pre- and post-election that are chosen by the central incumbent subject to a global budget constraint. This robustness exercise yields qualitatively similar behavior by the central incumbent.

4 Data

One contributions of this paper is the construction of the panel data I use to test the presence of politically motivated manipulations in the disbursement of public funds. I construct a unique panel dataset that matches district-level administrative data on the monthly release of funds under the Total Sanitation Campaign (TSC) during 2004–2014 with data on demographic characteristics of districts from Census 2001 and Census 2011, and political data on 90 state assembly elections during 1994–2014. To the best of my knowledge, this is the first paper to use all these data sets together. This dataset covers 466 rural districts across 18 states in India. Since the TSC is a rural sanitation scheme all

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26To coincide with the tenure of the coalition government I restrict my data to May 2004–Feb 2014.
27The states in my sample include Andhra Pradesh, Bihar, Chhattisgarh, Haryana, Himachal Pradesh, Gujarat, Jharkhand, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Uttarakhand, and West Bengal. These states accounted for over 93% of India’s
my analysis is restricted to rural districts in India. To test if the political manipulations in the disbursement of government funds are large enough to affect household consumption, I construct a second dataset that combines data on household consumption expenditure from six rounds of National Sample Surveys during 2004–2014 with the political data mentioned above.

**TSC Funds Data:** Under the TSC, central and state governments in India give subsidies to households in rural areas to construct sanitation facilities. Launched in April 1999, the TSC's budget increased from Rs. 1.65 billion in 2002–03 to Rs. 32 billion in 2012–13 (Figure 2), with the central government contributing 60-70% of total funds.  

There are four features of the TSC that provide me with clean opportunities to test the predictions of my model. First, the central government determines the allocation of funds for the TSC after reviewing financial plans submitted by districts. This structure of the scheme allows me study manipulations by the central government in the disbursement of funds. Second, high-frequency data for a period of over 10 years of a government scheme, rare in developing countries, enables me to use an identification strategy with very few assumptions on the unobservables by exploiting the staggered timing of state elections in India. Third, previous research has not shown large increases in latrine construction (Stopnitzky (2012), Hueso and Bell (2013)), raising questions about the effectiveness of this scheme and where the allocated funds are being spent. Fourth, relative to other schemes, the size of the TSC was still small during 2004–2014. As such, the TSC was likely subject to less scrutiny compared to the larger schemes and less of a priority for the government to hide political manipulations under this scheme.

The data on monthly release of funds under the TSC for each district come from the population according to Census 2001.

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28 Since I am interested in the behavior of the central government in this paper, I will only use data for the share of funds allocated by the central government to each district.

29 For example, Rao and Singh (2003) discuss that among various types of transfers by the central government in India, centrally-sponsored schemes are the most susceptible to political discretion.

30 During each fiscal year districts prepare a financial plan for the upcoming fiscal year based on the data reported by the Gram Panchayats (Village Councils). These district-level plans are then aggregated by the state governments and sent to the central government. The central government then decides the allocation of funds across districts at the beginning of each fiscal year, based on the financial plans submitted by the districts.
website of the Ministry of Drinking Water and Sanitation, Government of India.\footnote{This data was collected during March 2014 from http://sbm.gov.in/tsc/NBA/NBAHome.aspx.}

**Political Data:** I construct political variables using data on 90 state assembly elections across 3395 assembly constituencies during 1994–2014. This data is available from the website of the Election Commission of India. I use the following information about each election: timing of the election (month and year), identity of the winning party in each assembly constituency, margin of victory in each assembly constituency, and reservation status of each assembly constituency.\footnote{During each election a share of assembly constituencies are reserved for two groups, Scheduled Castes and Scheduled Tribes, based on their population in a state.}

**Demographic Data:** I use district-level demographic characteristics including population, Scheduled Caste population, Scheduled Tribe population, and religious composition of a district from Census of India (2001).

**Household Surveys:** I also construct a repeated cross-section dataset using six rounds of NSS Consumption Surveys during 2004–2014, to test for the presence of political cycles in household consumption. I discuss the details of this dataset in Section 8.

**Geographic Unit of Analysis:** While the TSC is implemented at the district level, state elections occur at the level of assembly constituencies that are typically smaller than a district.\footnote{The median district in my data has 8 assembly constituencies.} For example, Figure 3 shows 68 assembly constituencies (as boundaries) and 12 districts (shaded in different colors) for the state of Himachal Pradesh. To construct my dataset, I aggregate political information from assembly constituencies to the district level and define the winning party in a district as the political party that wins the largest proportion of assembly constituencies in a district.\footnote{Appendix B discusses an example of how I define the winning party in a district in more detail. One limitation with doing political analysis at the district level versus assembly constituency level is that there may be greater variation in which party gets elected at the assembly constituency level in the latter that can get averaged when I aggregate constituencies to districts. To deal with the aggregation issue, I have tried defining the winning party in a district in different ways as robustness checks. I discuss one of these alternative definitions in Appendix C.2.} The number and boundaries of districts changed during the period of analysis as new districts were created. As such, I adhere to the district boundaries found in the Census 2001 as closely as possible.
5 Empirical Methodology

I exploit the unsynchronized nature of Indian state elections and use a space and time fixed effects regression strategy to test for the existence of different types of political cycles in the release of funds in districts with different types of political competition. I also discuss how I partition Indian districts into the six categories from Section 3 and use pre-period election data to address the endogeneity in the classification of districts that arises from using contemporaneous political variables.

5.1 Strategy to Estimate Political Cycles in the Data

As the theoretical framework in Section 3 predicts that the political cycle observed in a district depends on the type of political competition in a district, I estimate the following regression model separately in the six categories of districts to establish the existence of different types of political cycles in the release of funds for the TSC in India. Specifically, for each district category I estimate:

$$Exp_{dt} = \alpha + \sum_{i=2}^{5} \beta_i Year_{(+i)dt} + \gamma X_{dt} + \delta_d + \theta_t + \epsilon_{dt}$$

(3)

where the dependent variable is the per capita funds released for the TSC in a district $d$ at time (year-month) $t$, $X_{dt}$ is a vector of controls that includes the ratio of assembly constituencies reserved for Scheduled Castes in a district and the ratio of assembly constituencies reserved for Scheduled Tribes in a district,35 $\delta_d$ and $\theta_t$ are district and monthly time fixed effects respectively, and $Year_{(+i)dt}$ is a dummy which takes the value 1 if time $t$ falls in the $i^{th}$ year after state assembly elections in district $d$.36 For example, if state elections are held in district $d$ in December 2000 then $Year_{(+1)dt}$ takes the value 1 in the year 2001 and 0 otherwise, $Year_{(+2)dt}$ takes the value 1 in the year 2002 and 0 otherwise, etc (see Figure 4). As elections are held every 5 years, $i$ takes values from 1 to 5.37 I show

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35Reservations for Scheduled Castes and Scheduled Tribes have been shown to affect spending patterns by the government (e.g., Pande (2003)).

36Results are robust to using Half-Yearly or Quarterly dummies (Appendix C.4).

37Elections are scheduled by the Election Commission of India around 60 months after the previous
all political cycles with $Year_{(+1)}$ as the base category.

$Year_{(+1)} = 1$ $Year_{(+2)} = 1$ $Year_{(+3)} = 1$ $Year_{(+4)} = 1$ $Year_{(+5)} = 1$

Jan 01  Jan 02  Jan 03  Jan 04  Jan 05  Jan 06

Figure 4: An example of the definition of electoral cycle dummies

I include district fixed effects and monthly time fixed effects for each month during 2004–2014 to control for time invariant characteristics of a district that can affect the release of funds and for trends in the release of funds in each type of district over time, respectively. In particular, monthly time fixed effects deal with the national election cycle. Similarly, district fixed effects account for baseline levels of latrines in a district and thus for the baseline need for public funds in a district. Additionally, estimating specification (3) separately in the six categories of districts allows districts in different categories to have completely different time trends.

The variables of interest are the coefficients $\beta_i$. Each $\beta_i$ is the average monthly release of funds in a district in the $i^{th}$ year since the last state election, controlling for time-varying district characteristics, and district and monthly time fixed effects. If $\beta_2$, $\beta_3$, $\beta_4$, and $\beta_5$ are statistically distinguishable from $\beta_1$ (the base category) then I conclude there is a political cycle in the release of funds.

The identification of each $\beta_i$ comes from comparing changes in the release of funds for two districts in the same category at the same points in time but at different points in their electoral cycle. The unsynchronized nature of state elections in India is crucial for the identification of political cycles in the above specification. If all elections were synchronized with each other it would not be possible to flexibly account for trends in the election. However, there is a some variation in the exact month in which an election is held, therefore, in my data 93% of elections occur during 56-61 months after the last election. To deal with the variation in the exact period between two elections, I define dummies $Year_{(+1)}$, $Year_{(+2)}$, $Year_{(+3)}$, $Year_{(+4)}$, and $Year_{(+5)}$ as taking value 1 in months 1-12 after the election month, 13-24 after the election month, 25-36 after the election month, 37-48 after the election month, and 48 to the next election after the election month, respectively. I drop all election months from my analysis.

38This means that I am comparing two districts such that the previous elections in these two districts did not occur at the same time.
release of funds using monthly time fixed effects. For example, it would not be possible to control for the potential effects of national election cycle on the release of funds. Thus, exploiting the staggered nature of state elections allows me to estimate political cycles with much weaker identification assumptions compared to a scenario where all elections are scheduled simultaneously.

Standard errors are clustered at the district level to account for serial correlation in error terms in a given district. As a robustness check, I also report results for two-way clustering of standard errors (Cameron et al. (2011)) at district and state-year level in the Appendix. The two-way clustering accounts for spatial correlation in the release of funds in a state at a given point in time in its electoral cycle in addition to the serial correlation in error terms in a given district.

5.2 Defining Sub-Samples to Test the Existence of Different Types of Political Cycles

To estimate specification (3) separately in districts with different types of political competition I partition Indian districts into six categories to match the categories from Section 3. I first divide districts into two categories based on their level of political competitiveness: Safe if the same political party has won all the elections in the district during 1993–2003 and Swing if two different political parties have won at least one election each in the district during 1993–2003. I define the winning party in a district in an election as the political party winning the largest proportion of assembly constituencies in a district in that election.39 I then further divide Safe and Swing districts into three groups each based on the identity of the winning political party in a district. Parties I (Incumbent), O (Opposition), and Z (Regional Party) correspond to the INC, the BJP, and regional parties in the data, respectively. The mapping of the six categories of districts between the theoretical framework (Section 3) and Indian data along with the number of districts classified in each

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39My results are robust to using other definitions of Safe districts. For example, in Appendix C.2 I report the results for classifying a district as Safe if the same political party wins at least 60% of the assembly constituencies in a district in all elections during 1993–2003.
Table 2: Mapping of Different Types of Districts Between the Model and Data

<table>
<thead>
<tr>
<th>Type of District in the Model</th>
<th>Type of District in the data</th>
<th>Number of Districts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe for Party $I$</td>
<td>INC</td>
<td>22</td>
</tr>
<tr>
<td>Safe for Party $O$</td>
<td>BJP</td>
<td>47</td>
</tr>
<tr>
<td>Safe for Party $Z$</td>
<td>Regional Party</td>
<td>118</td>
</tr>
<tr>
<td>Swing for Parties $I$ and $O$</td>
<td>INC/BJP</td>
<td>87</td>
</tr>
<tr>
<td>Swing for Parties $O$ and $Z$</td>
<td>BJP/RP</td>
<td>62</td>
</tr>
<tr>
<td>Swing for Parties $I$ and $Z$</td>
<td>INC/RP</td>
<td>90</td>
</tr>
</tbody>
</table>

category is summarized in Table 2.\textsuperscript{40}

Using political data and release of funds data from the same period to classify districts and estimate political cycles, respectively, can introduce endogeneity in categorizing districts. For example, one can argue that swing districts for the INC and the BJP are classified as such because the central incumbent is releasing funds in these districts right before an election, and otherwise they would be safe districts for one of the two parties. To deal with the potentially endogenous classification of districts, I use data from 1993–2003 to categorize districts and data from 2004–2014 to estimate political cycles in the release of funds. Using pre-period (1993–2003) political data to classify districts addresses endogeneity but introduces noise from districts changing classification over time (see Table 4 for a transition matrix between districts categorized using election data from the pre-period and contemporaneous period). Pre-period data predicts districts that are safe for regional parties and swing districts for the INC and the BJP in the contemporaneous period quite well but a large proportion of districts in the other four categories change classification over time. Since my model has the strongest predictions for the first two categories of districts and pre-period data deals with endogenous classification of districts, I use the pre-period categorization of districts as my preferred specification. All my results are robust to using

\textsuperscript{40}There can be a seventh category of districts, those with turnover between all three political parties. I find that there are no political cycles in the release of funds in these districts (Appendix D.1).
contemporaneous election data to define district categories.

6 Results

I show that the central incumbent in India was manipulating the spatial allocation of public funds to both influence the outcomes of state elections by pre-election disbursement of funds and by buying support from regional parties. I confirm that the “Buying Votes Cycle” only exists in swing districts for the two national parties, and has a 60.2% increase in the release of funds in the year before an election.\(^{41}\) Similarly, I confirm that the “Patronage Cycle” only exists in safe districts for regional parties and swing districts for the BJP and regional parties, where there is a 54.9% and 74.9% post-election increases in the release of funds, respectively.

The rest of the Section is organized as follows. I first confirm the existence of the three types of political cycles predicted by hypotheses (P1)-(P3) by estimating specification (3) in the six types of districts defined in Section 5.2, separately.\(^{42}\) Then I discuss the aggregate political cycle that exists in all districts pooled together to compare my results to other papers in the literature. Finally, I discuss robustness.

6.1 Existence of Three Types of Political Cycles in the Data

Consistent with hypothesis (P1), swing districts for the INC and the BJP exhibit the “Buying Votes Cycle” with a 60.2% increase in the release of funds in the year prior to an election. The shape of the “Buying Votes Cycle” is consistent with the central incumbent trying to enhance its chances of winning seats in upcoming state elections by disbursing additional funds prior to elections in swing districts for the two national parties. I have

\(^{41}\)This increase is calculated relative to the mean release of funds over the five-year election cycle.\(^{42}\)Hypothesis (P1) predicted that swing districts for the two national parties (the INC and the BJP) should have a pre-election peak in the release of funds, hypothesis (P2) predicted that safe districts for regional parties and swing districts for the opposition (the BJP) and regional parties should have a post-election peak in the release of funds, and hypothesis (P3) predicted that safe districts for either of the two national parties, and swing districts for the incumbent (the INC) and regional parties should have no cycles in the release of funds.
plotted the “Buying Votes Cycle” in Figure 5 using the estimation results reported in column (1) of Table 5. In each figure of a political cycle, I plot the coefficients of interest, the $\beta_i$s, against years since election. I normalize coefficient on the first year after an election ($\beta_1$) to be zero and measure all other coefficients relative to $\beta_1$.

Consistent with hypothesis (P2), safe districts for regional parties and swing districts for the BJP and regional parties, exhibit the “Patronage Cycle” with 54.9% and 74.9% increase in the release of funds in the second year after an election, respectively. Using the estimation results reported in columns (2) and (3) of Table 5, I plot the “Patronage Cycle” exhibited by these two types of districts in Figure 6. The post-election increase in disbursement of funds is consistent with the central incumbent buying support from regional parties. Specifically, the central incumbent is buying support from its regional party allies (see Section 7.1). The precise timing of the peak in the “Patronage Cycle” coincides with the beginning of a new fiscal year after a state election, when the central incumbent decides how to allocate funds across districts under the TSC (see Section 7.2). Swing districts for the BJP and regional parties have a larger peak in the release of funds compared to safe districts for regional parties, a difference driven by the fact that most regional parties that win in the first category of districts are allied with the central incumbent, while the same is not true for regional parties that win in the second category of districts. Since the post-election peak in the release of funds is being driven by the central incumbent rewarding its allies, the second category of districts show a smaller increase in the release of funds (see Appendix E.1).

Consistent with hypothesis (P1), there are no cycles in the release of funds in safe districts for the INC, and in swing districts for the INC and regional parties. These results are reported in columns (4) and (6) of Table 5, respectively, and the political cycles are plotted in Figure 7. However, safe districts for the BJP show increases in the release of funds in the second and fifth years after an election. These peaks are not robust to defining political competition using contemporaneous election data (see Appendix C.1) or using a stricter definition of a safe district for a political party (see Appendix C.2 and
C.3), and are being driven by districts that change definition between the pre-period and the contemporaneous period. Specifically, 62% of districts classified as safe for the BJP transition into being swing districts for the INC and the BJP, or swing districts for the BJP and regional parties (see Table 4), suggesting that using pre-period election data to define these districts does not predict the political competition being observed by the central incumbent when it is allocating funds during 2004–2014.

My results both confirm the existence of pre-election political manipulations as documented by past literature and contribute to the literature by showing the existence of a previously undocumented political cycle, the “Patronage Cycle”, caused by post-election manipulations to compensate regional parties for their support. In two-party settings previous work has found evidence that swing districts for the two parties are most likely to receive funds from the incumbent before an election to increase its chances of winning these districts. The existence of the “Buying Votes Cycle” in swing districts for the two national parties confirms the findings of the literature in that these swing districts are the most similar to the competitive districts in the two-party settings. Unlike two-party models, where post-election political manipulations are consistent with the central incumbent rewarding loyal voters because they take the form of post-election benefits to safe districts for the incumbent, the “Patronage Cycle” is found in districts where the central incumbent never wins, ruling out the possibility that this cycle is about rewarding loyal voters.

Other papers studying political cycles have not looked at political cycles in districts disaggregated by the six types of political competition discussed above. To better compare my results to past literature I also look at the political cycle that exists across all districts pooled together (the aggregate cycle). I find that the shape of the ‘aggregate cycle’ looks very different from the ones previously documented because it has two peaks: one pre-election and one post-election, confirming that the effects of both the “Buying Votes Cycle” and the “Patronage Cycle” are large enough to appear in the aggregate data (see Figure 8). However, the magnitudes of the pre-election (18.1%) and post-election (26.1%) peaks are much smaller than the ones in the disaggregated data, suggesting that only exam-
ining an aggregate cycle underestimates the size of manipulations relative to manipulations experienced by certain categories of districts.

6.2 Robustness

All three types of cycles are robust to: defining district categories using contemporaneous election data (Appendix C.1), using an alternate definition of categorizing a district as *Safe* or *Swing* (Appendix C.2), estimating political cycles using half-yearly (6-month interval) dummies for the electoral cycle instead of yearly dummies (Appendix C.4), estimating political cycles by aggregating the data to half-yearly levels (Appendix C.5), and including district specific linear time trends (Appendix C.6). All cycles are also robust to using data from the entire 20 year period, 1994–2014, to categorize districts (Appendix C.3) and to dropping data for earlier than scheduled elections. I discuss some of these briefly below and all of them in detail in Appendix C.

The political cycles in all six categories of districts are robust to using contemporaneous election data instead of pre-period election data to define district categories. While using pre-period election data allows me to more exogenously define district categories, it introduces noise in the categorization of districts because districts transition between categories from the pre-period to the contemporaneous period. To confirm that noisy categorization of districts is not driving my results, I reclassify districts using contemporaneous election data and find that all six political cycles have the same shape as before. Additionally, safe districts for the BJP now have no political cycles and swing districts for the BJP and regional parties have no pre-election increase in the release of funds, confirming that these features of political cycles estimated using district categorizations from pre-period electoral data were a result of the noisy definition of these two types of districts.

The shapes of political cycles are not driven by estimating yearly political cycles using monthly frequency release of funds data. My preferred specification uses monthly frequency

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43 Results are also robust to using quarters instead of half-years.
44 Results are also robust to dropping Bihar and Jharkhand where the election in February 2005 gave a fractured verdict and led to re-election in October 2005, and to dropping all time-varying controls. Results are also robust to dropping one state at a time.
release of funds data and estimates political cycles using yearly electoral cycle dummies. Using monthly frequency data leads to better identification of political cycles as I can exploit the differences in specific timing of elections across districts. Using yearly electoral cycle dummies captures the institutional feature of the TSC where each district receives only one or two transfers in a given year; in most months a district does not receive any funds. To deal with the concern that choice of aggregation drives the shapes of political cycles, I show that all six political cycles are robust to: (a) using half-yearly or quarterly electoral cycle dummies, and (b) aggregating the data to half-yearly (yearly) level and estimating half-yearly (yearly) political cycles. Estimating monthly political cycles is inappropriate given the institutional features of the scheme. I discuss the details of the data, specification, and estimation results for robustness checks (a) and (b) in Appendix C.4 and C.5, respectively.

Political cycles are not driven by electoral cycles where the election occurred earlier than the scheduled date. As state governments in India can call elections earlier than the scheduled date, using actual election dates to define electoral cycle dummies can upwardly bias the \( \text{Year}_{(+5)} \) coefficient if state governments systematically call elections early when they observe more funds being allocated to districts in the state.\(^{45}\) However, early elections are rare in my sample: only 6 out of 59 state assembly occur before the scheduled date,\(^{46}\) of which only two were called by the existing state government, and estimated cycles are robust to dropping these six early election cycles.

In the following sections I provide additional results to show that the “Patronage Cycle” is in fact consistent with the central incumbent buying support from regional parties that are its allies and discuss suggestive evidence that both the “Buying Votes Cycle” and the “Patronage Cycle” are large enough to affect household consumption in districts where these cycles exists.

\(^{45}\)The central government can also recommend the imposition of President’s rule and removal of a state government (Article 356 of the Constitution of India), leading to early elections that can be correlated with the economic situation of a state.

\(^{46}\)The early state elections are Bihar (2005), Haryana (2009), Himachal Pradesh (2007), Jharkhand (2009), Karnataka (2008), and Orissa (2004).
7 Is the Patronage Cycle consistent with Buying Support?

I show that the “Patronage Cycle” is being driven by the central incumbent buying support from regional parties, ruling out two alternative explanations for the post-election increase in the release of funds. I also discuss why the peak occurs in the second year after an election. The “Patronage Cycle” is not consistent with the central incumbent rewarding its loyal voters because the post-election peak is only found in districts where the central incumbent never wins (Section 6). Similarly, the post-election peak is not driven by some underlying characteristic of the district that also makes the district safe for regional parties as the post-election increases in the release of funds are specifically targeted towards districts where allies of the central incumbent win. Additionally, I provide evidence that the timing of the post-election peak corresponds to the first fiscal year after an election, the first opportunity for a central incumbent to manipulate the allocation of funds across districts after an election. As I am studying the “Patronage Cycle” in this section, all analysis is restricted to districts that exhibit this cycle: districts that are safe for regional parties and swing districts for the BJP and regional parties.

7.1 Buying Support from Allies

The post-election peak in the release of funds is driven by the central incumbent rewarding its regional party allies, whose support it needs to keep its coalition together. Importantly, the peak in the “Patronage Cycle” is not being driven by some underlying characteristic common to all districts where regional parties win. I show this by estimating the “Patronage Cycle” separately in districts where regional parties allied to and opposed to the central incumbent win and finding that only the first set of districts have the post-election peak.

\[47\] In contrast, Cole (2009) finds evidence of state governments in India rewarding districts aligned with them post-election.

\[48\] Rodden and Wilkinson (2004) and Solé-Ollé and Sorribas-Navarro (2008) also find evidence of states and municipalities aligned with the national coalitions in India and Spain receiving more funds compared to unaligned states and municipalities, respectively.
To test if the post-election peak only exists in a subset of the districts, I first divide districts into two categories based on the identity of the regional parties that win them: districts where important regional party allies of the central incumbent win and districts where the rest of the regional parties win.\(^{49}\) The first category includes districts in the states of Bihar, Tamil Nadu, Uttar Pradesh, and West Bengal and the second category includes districts in the remaining states. I label these two categories *Allies* and *Opposition*, respectively.\(^{50}\) It is interesting to note that most of these allied regional parties gave outside support to the central incumbent at various points in time during 2004–2014 instead of being a part of the coalition government and thus could not be rewarded with cabinet positions in the government.\(^{51}\) Most of these regional parties were also not giving support to the central incumbent because of ideological reasons, and therefore their threats to withdraw support from the coalition were credible.

I estimate specification (3) separately in districts categorized as *Allies* and *Opposition* above, and find that the post-election peak in the “Patronage Cycle” only exists in the first set of districts. I report the results of these estimations in Table 6. For both, safe districts for regional parties, and swing districts for the BJP and regional parties, only districts classified as *Allies* show a post-election peak in the release of funds (columns (1) and (3) of Table 6), while districts classified as *Opposition* do not show any peak in the release of funds (columns (2) and (4) of Table 6). These results are consistent with hypotheses (P4) and (P5) derived from an extension of my simple model that adds an additional regional party unallied with the central incumbent. These hypotheses predict that only those districts where regional parties allied with the central incumbent win, exhibit the “Patronage Cycle” (See Appendix A.2).

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\(^{49}\)I classify a regional party as an ally of the central incumbent if for any period of time during 2004–2014 it was either a coalition partner of the central incumbent or provided outside support to the coalition.

\(^{50}\)Even though there some regional parties in states classified as *Opposition* were allied with the central incumbent, I classify only four states as *Allies* because these states had some of the most important (in terms of number of seats in the Parliament) regional parties that were allied with the central incumbent at the federal/central level during this period. For example, the Samajwadi Party and the Bahujan Samaj Party in Uttar Pradesh; the Rashtriya Janata Dal in Bihar; the Dravida Munnetra Kazhagam in Tamil Nadu; the Communist Party of India (Marxist) and the All India Trinamool Congress in West Bengal.

\(^{51}\)I have discussed outside support in the context of coalition governments in Section 2.1.
To deal with the issue of endogeneity in classifying a specific district as allied to or opposed to the central incumbent, I choose to define Allies as a broad category that includes four states that had important allies of the central incumbent since the beginning of the tenure of the central incumbent.\textsuperscript{52} The above categorization is likely to underestimate the magnitude of the “Patronage Cycle” in the districts classified as Allies because while I classify all districts in a state as being allied to the central incumbent, there are instances where there are multiple regional parties in a state and some of them are allied to the central incumbent while others are not. Therefore, the cycle I observe is a combination of the cycles for allied and non-allied regional parties in these states. If the central incumbent is not buying support from the latter, then the overall cycle should have a smaller peak compared to one restricted only to regional parties giving support to the central incumbent.

Another way to test if the “Patronage Cycle” is driven by districts where regional parties more likely to be important allies of the central incumbent are competitive, is to use the demographic characteristics of districts that are associated with core supporters of potential allies. In particular, several regional parties in India have a strong Muslim and Scheduled Caste (SC) vote base (Chandra (2004), Mehra (2010)) and these parties were also more likely to be allied with the INC during 2004–2014. Therefore, I classify districts with a larger proportion of Muslim and SC populations as districts\textsuperscript{54} where allied regional parties are more likely to be competitive. I show that the post-election peak in the “Patronage Cycle” is being driven by districts with high Muslim and high SC populations (see Table 7), while districts with low Muslim and low SC populations do not show any post-election increases in the release of funds. I can further show that the peaks in both political cycles are not just being driven by the presence of these groups because the pre-election peak in the “Buying Votes” cycle only exists in districts with low Muslim and low SC populations.

\textsuperscript{52}New regional parties were formed between the pre-period and contemporaneous period making it difficult to use pre-period data to classify districts as safe for a specific regional party. Additionally, it is difficult to use pre-period election data to classify a district as safe for a particular regional party because of strong competition among regional parties.

\textsuperscript{53}Safe districts for regional parties or swing districts for the BJP and regional parties.

\textsuperscript{54}I classify districts as having a low Muslim (SC) population if the proportion of Muslim (SC) population in a district is less than the median level in Census 2001.
7.2 Timing of the Peak in the Patronage Cycle

The timing of the peak in the “Patronage Cycle” coincides with the first 2-3 installments of funds released by the central incumbent after the beginning of a new fiscal year after an election. Given the institutional structure of the TSC, this is the first opportunity after an election for the central incumbent to manipulate the allocation of funds across districts. There are three institutional features of the TSC that affect the precise timing of the peak in the “Patronage Cycle”. First, districts have to prepare a financial plan for each upcoming fiscal year and submit it to the state and central governments by February for approval. This implies that if a state election occurs right before the start of a new financial year (e.g., in February) then districts do not have enough time to prepare a new financial plan that reflects the priorities of the changed political control over the district. Second, the central government makes decisions regarding the allocation of funds across districts for the upcoming financial year in March of every year. Therefore, if a state has an election in September, the central government can only allocate funds to its allies beginning in March of next year. Third, funds are typically released to a district one or two times in a year so the release of additional funds is spread over the first 2-3 installments (generally, 12 to 18 months) once the new budget is approved.

I test if the peak in the “Patronage Cycle” indeed coincides with the beginning of a new fiscal year after an election by estimating the following regression separately in districts that are safe for regional parties and districts with turnover between the BJP and regional parties:

\[ Exp_{dt} = \alpha + \kappa Fiscal_{dt} + \sum_{i=2}^{5} \beta_i Year_{(i+dt)} + \gamma X_{dt} + \delta_d + \theta_t + \epsilon_{dt} \]  \hspace{1cm} (4)

where \( Fiscal \) is a dummy that takes the value 1 for the first 15 months after the beginning of a new fiscal year after an election. Since all state elections do not occur in the same month in India, I define the dummy \( Fiscal \) as follows: it takes the value 1 for the 15 months

\[ Fiscal = \begin{cases} 1 & \text{for } 0 \leq \text{Month} \leq 15 \\ 0 & \text{otherwise} \end{cases} \]

\[ \text{Month} = \text{Month of election} - \text{Month of beginning of fiscal year} \]

\[^{55}\text{Fiscal years in India start in April every year.}\]
\[^{56}\text{See Government of India (2007)}\]
beginning in April of the next year if district $d$ had an election between January to October, and it takes the value 1 for the 15 months beginning in April of the next to next year, if district $d$ had an election in November or December.\footnote{I find that districts with elections in November-February do not get rewarded in the fiscal year beginning next April. I attribute this to the first institutional feature of the scheme, i.e., districts have to submit a financial plan by February and it takes some time to fully change this plan in a few months.} For example, if a district had an election in May 2005, then $Fiscal$ takes the value 1 from April 2006–July 2007, and if a district had an election in December 2005, $Fiscal$ takes the value 1 from April 2007–July 2008. The remaining variables are the same as defined in specification (3). While most of the increases in the release of funds occur in the first fiscal year (12 months), some districts get a third higher installment as well. To capture the peak in such districts well, I allow the dummy $Fiscal$ to take the value 1 in the first 15 months after the beginning of a fiscal year. I report the results with the dummy $Fiscal$ defined as just the first 12 months of a new fiscal year in Table D.2.

I show that the timing of the post-election peak in both types of districts with the “Patronage Cycle” can be explained by the $Fiscal$ dummy. I can include both the electoral cycle dummies and the $Fiscal$ dummy in specification (4) because different states in India have elections in different months, which implies that the dummy $Fiscal$ is not collinear with any given year in the election cycle. Including both types of dummies allows me to test which one can explain the precise timing of the peak in the “Patronage Cycle.” I find that upon including the $Fiscal$ dummy in my regression specification, the timing of the post-election peak is explained by the $Fiscal$ dummy and the dummies for years since election show no increases in the release of funds. The results for estimation of model (4) are reported in Table 8. Columns (1) and (3) report the original “Patronage Cycle” in the two types of districts from my earlier estimation of specification (3). Columns (2) and (4) report the results for the estimation of specification (4).
8 Effect of Political Cycles on Households

I use data on household consumption expenditure to provide evidence about the magnitude of political manipulations discussed above and their potential effects on household welfare. I find that monthly per capita consumption of households in districts that exhibit the “Buying Votes Cycle” increases by 6.2% in the year before an election, and monthly per capita consumption of households in districts that exhibit the “Patronage Cycle” increases by 4.3% post-election. Cycles in consumption are absent in the remaining districts.

Political cycles in household consumption suggest that: first, funds disbursed under both the “Buying Votes Cycle” and the “Patronage Cycle” reach households; second, political cycles in the release of funds for the TSC are indicative of a general pattern of government behavior since the funds involved in the TSC alone are not large enough to affect aggregate household consumption, and third, political cycles in the disbursement of funds reduce household welfare compared to funds being released without cycles by introducing volatility in household consumption.

8.1 Data and Estimation Strategy

I use all National Sample Survey (NSS) Household Consumption Rounds during 2004-2014 to construct a repeated cross-section dataset of monthly household consumption in rural districts. In each of these surveys, households are asked about consumption of various goods and services during a 30 day or 365 day recall period. The NSS surveys are representative at the district-rural level and were conducted annually during 2004–2008, and once every two years from 2008 to 2012.

To test if household consumption is affected by the “Buying Votes Cycle” and the

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58 Ideally I would directly test whether households receive funds under the TSC. However, there is only one household survey (the IHDS) that asks this question and it can not be used to comment on the timing of the receipt of funds.


60 Items with 30 day recall period include foodstuffs, tobacco, intoxicants, fuel, medical (non-institutional) services, other services, rents, consumer taxes etc. Items with 365 day recall period include clothing, bedding, footwear, education services, medical (institutional) services, durable goods etc.
“Patronage Cycle”, I estimate the following regression separately in districts\textsuperscript{61} that exhibit these cycles:

$$y_{hdt} = \alpha + \sum_{i=2}^{5} \beta_i Year_{(i)dt} + \theta X_{hdt} + \pi_t + \delta_d + \epsilon_{hdt}$$

(5)

where $h$ indexes households, $d$ indexes districts, and $t$ indexes date (year-month) of survey. My preferred dependent variable, $y_{hdt}$, is the monthly per capita expenditure on items with a 30-day recall period only. The short recall period on these items allows me to determine the precise timing of consumption relative to an election, and so to estimate political cycles in consumption accurately.\textsuperscript{62} The variable of interest, $Year_{(i)dt}$, is an indicator variable that takes value 1 if district $d$ at time $t$ is in its $i$th year since election. I include year-month fixed effects, $\pi_t$, district fixed effects, $\delta_d$, and a vector of household-level controls, $X_{hdt}$.\textsuperscript{63}

Standard errors are clustered at the district level.

The two types of cycles should affect household income differently. Since funds disbursed under the “Buying Votes Cycle” are used to influence election outcomes, funds should (a) reach households and (b) arrive before an election. Thus, household income should increase in the year prior to an election in these districts. By contrast, it is not necessary that funds disbursed under the “Patronage Cycle” should reach households, as funds can be diverted by local politicians. Moreover, even if regional parties release funds to households, it is unclear whether they have an incentive to do so without delay. Thus, if there is an increase in household income in districts exhibiting the “Patronage Cycle,” I can only predict that it must occur during or after the second year after an election (i.e., after the central incumbent has released funds).

I expect political cycles in funds released to households to affect consumption patterns

\textsuperscript{61} The “Buying Votes Cycle” only exists in swing districts for the INC and the BJP. The “Patronage Cycle” only exists in safe districts for regional parties and in swing districts for the BJP and regional parties. The remaining districts do not exhibit any political cycles.

\textsuperscript{62} As a robustness check, I also report results using the monthly per capita expenditure reported in the survey that includes expenditure on items with both 30 day and 365 day recall periods.

\textsuperscript{63} $X_{hdt}$ includes controls for: religion, caste group, quantity of land possessed, age, sex, and education of household head, proportion of household members who are women, proportion of household members who are under 15, and an indicator variable for whether or not the household had a ceremony in the last 30 days.
of households because rural household are unable to completely smooth their consumption against the income shocks caused by political cycles. In particular, political cycles in the release of funds to households can cause unpredictable and transient income shocks: households do not know whether they will receive a transfer, households do not know the amount of transfer, and households do not know the precise timing of transfer (beyond that it will be prior to an election in districts with the “Buying Votes Cycle”). Additionally, it has been documented that most poor households cannot save easily despite having money because lack of access to formal credit and savings institutions, temptation, lack of safe place to save, transfers to friends and family, etc. (e.g., Banerjee and Duflo (2007), Ashraf et al. (2010), Dupas and Robinson (2013)) may prevent households from saving. Both these features together imply that transient income shocks to households will affect their consumption and not just savings, producing cyclical patterns in household consumption expenditure.

8.2 Results

Relative to the first year after an election, there is a 6.2% increase in monthly per capita expenditure in the year prior to an election among households in districts that exhibit the “Buying Votes Cycle,” and a 4.3% increase in the monthly per capita expenditure post-election among households in districts that exhibit the “Patronage Cycle.” In addition, districts that exhibit no cycle in the release of funds under the TSC, do not show any political cycle in monthly per capita expenditure (see Table 9). All cycles are remarkably similar in shape to the patterns in the release of TSC funds in these districts, though the timing of the post-election increase suggests a potential delay between funds being released by the central incumbent and funds reaching households in districts exhibiting the “Patronage Cycle” (see Figure 10). It is unlikely that these peaks in consumption are driven solely by other determinants of households’ demand such as ceremonies, festivities,

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64When using items with both 30-day and 365-day recall, I find households in districts that exhibit the “Buying Votes Cycle” show an increase (8.35%) in the monthly per capita expenditure in the year prior to an election and households in districts that exhibit the “Patronage Cycle” show an increase (4.8%) in the monthly per capita expenditure post-election.
or rainfall, given that there is no reason to believe these determinants are correlated with 
electoral cycles during the period I study.

My results suggest that funds disbursed under both cycles reach households, are com-
mon to multiple government schemes, and affect household welfare. First, political cycles 
in household consumption match the political cycles I document in government expendi-
tures suggesting that these funds (or some proportion of funds) reach households. Second, 
given that the release of funds for the TSC is small relative to household consumption, 
political cycles in household consumption appear to be driven by common government ac-
tion across multiple schemes. Third, political cycles in government transfers to households 
introduce volatility into household income and lead to increased volatility in consumption. 
In addition to the peaks in household consumption discussed above, I find that households 
have significantly lower per capita consumption at other points in the electoral cycle. For 
example, household consumption is significantly lower in the second and third years since 
election, and in the fifth year since election in districts that exhibit the “Buying Votes Cy-
cle” and the “Patronage Cycle,” respectively (see Table 9). While political manipulations 
increase volatility of household consumption, they do not lead to an increase in the average 
consumption of households because the sum of coefficients on the election cycle dummies is 
statistically indistinguishable from zero in all three types of districts. Therefore, if house-
holds prefer consumption smoothing, but lack access to saving devices, political cycles in 
the release of government funds can be welfare reducing compared to a scenario where 
households receive fixed payments from government schemes each year.

9 Conclusion

In this paper, I show that the central incumbent in a coalition government can use spatial 
allocation of public funds to both enhance its chances of winning upcoming state elections 
and maintain legislative support from regional parties. In particular, I document the 
existence of two types of political cycles in the release of public funds for the TSC by the 
central incumbent in India during 2004–2014: the previously well-documented “Buying
Votes Cycle” and the heretofore undocumented “Patronage Cycle”. The “Buying Votes Cycle” only exists in swing districts for the two national parties, causes a 60% increase in the release of funds in the year prior to an election, and is consistent with the literature that finds politically motivated pre-election increases in the release of government funds, provision of infrastructure etc., in swing districts for the incumbent in a two-party setting. The “Patronage Cycle” only exists in safe districts for regional parties and in swing districts for the national opposition party and regional parties and leads to a 55-75% increase in the release of funds post-election depending on the type of political competition in a district.

I link the “Patronage Cycle” with the specific political environment in India during 2004–2014 by showing that this cycle is driven by districts where important allies of the central incumbent were politically competitive. In particular, I show that the “Patronage Cycle” is driven by the central incumbent buying support from regional parties that were giving outside support to the central incumbent and threatened to leave the coalition at several points in time (e.g., the SP, the BSP, the DMK, etc.). The existence of the “Patronage Cycle” shows that ignoring the unique features and goals of coalition governments can miss sizable manipulations and underestimate the extent of political manipulations in multi-party democracies. My results further suggest that it is important to characterize specific forms of political competition, beyond swing and safe or aligned and unaligned districts, to study political manipulations in multi-party systems.

I further show that both types political manipulations are large enough to impact household consumption, suggesting that these manipulations are not limited to one government scheme, but are indicative of a general pattern of government behavior. These politically motivated manipulations introduce volatility into the consumption patterns of households, reducing household welfare compared to funds being released without a cycle.
10 Figures

Figure 2: Release of funds for the Total Sanitation Campaign

Notes: This graph plots the yearly release of funds in India for the Total Sanitation Campaign during 1999–2000 to 2013–2014. Data Source: TSC website, Ministry of Drinking Water and Sanitation, Government of India.
Notes: This map shows the boundaries of assembly constituencies within the state of Himachal Pradesh. The twelve districts of the state have been shaded with different colors.
Figure 5: Buying Votes Cycle in the Release of Funds in Districts that are Swing for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. It has been plotted using coefficients in columns (1) of Table 5. Districts that are swing for the INC and the BJP in the state elections during 1994–2004 have been labeled Swing for INC and BJP. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure 6: Patronage Cycle in the Release of Funds in Safe Districts for Regional Parties, and Swing Districts for the BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. These graphs have been estimated using coefficients in columns (2) and (3) of Table 5, respectively. Districts where a regional party won the largest proportion of assembly constituencies in all the state elections during 1994–2004 have been labeled Safe for RP. Districts that are swing for the BJP and regional parties in the state elections during 1994–2004 have been labeled Swing for BJP & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure 7: No political cycles in the release of funds in districts that are safe for INC or BJP, and districts swing for INC and regional parties.

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. These graphs have been plotted using coefficients in columns (4), (5), and (6) of Table 5, respectively. Districts where the INC and the BJP won the largest proportion of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP, respectively. Districts that are swing for the INC and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is Year(+1) in all graphs. I have omitted the 95% confidence interval for Year(+5) in safe districts for the INC to make the axis similar to Figures 5 and 6 for comparison. The coefficient for Year(+5) is not statistically significantly different from zero. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure 8: Political Cycle in the Release of Funds During the Electoral Cycle for all Districts Pooled Together

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 2004–2014.
Figure 9: Political Cycles in the Release of Funds in Safe Districts for Regional Parties by Alliance with Central Incumbent

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. These graphs have been plotted using coefficients in columns (1) and (2) of Table 6. The left and right graphs show political cycles for districts that are safe for important allies of the central incumbent and districts that are safe for the rest of the regional parties, respectively. Districts labeled Center Allies are districts in Bihar, Tamil Nadu, Uttar Pradesh, and West Bengal where regional parties always win. Districts labeled Center Opposition are the rest of the safe districts for regional parties. The omitted category is Year(+1) in both graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure 10: Political cycles in Household Consumption in Districts with the Buying Votes Cycle and in Districts with the Patronage Cycle

Notes: Each graph plots the monthly per capita expenditure (on items with a 30 day recall) of households during an electoral cycle controlling for household characteristics, and district and time fixed effects. These graphs have been plotted using coefficients reported in columns (1) and (2) of Table 9, respectively. The left graph shows the political cycle for swing districts for the INC and the BJP. The right graph shows the political cycle for safe districts for regional parties and swing districts for the BJP and regional parties. The omitted category is Year(+1) in both graphs. Datasets used in this analysis: NSS Household Consumption Surveys ( Rounds 61, 62, 63, 64, 66, and 68); political data on state assembly elections during 1994-2014.
### 11 Tables

Table 3: Summary Statistics of Per capita Release of Funds in Different Years of the Electoral Cycle

<table>
<thead>
<tr>
<th>Year in the Electoral Cycle</th>
<th>Observations</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year(+1)</td>
<td>10104</td>
<td>1.22</td>
<td>5.99</td>
<td>0.00</td>
<td>100.70</td>
</tr>
<tr>
<td>Year(+2)</td>
<td>10089</td>
<td>1.59</td>
<td>7.20</td>
<td>0.00</td>
<td>198.11</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>9853</td>
<td>1.32</td>
<td>6.37</td>
<td>0.00</td>
<td>178.44</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>9936</td>
<td>1.17</td>
<td>6.51</td>
<td>0.00</td>
<td>161.17</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>8447</td>
<td>1.68</td>
<td>7.90</td>
<td>0.00</td>
<td>158.27</td>
</tr>
</tbody>
</table>

**Notes:** The unit of observation is a district-month. Datasets used: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 2004–2014.
Table 4: Transition Matrix for Districts Between Categories Defined Using Pre-Period Data and Current Period Data.

<table>
<thead>
<tr>
<th>Categories using pre-period election data</th>
<th>Categories using current period election data</th>
</tr>
</thead>
<tbody>
<tr>
<td>INC Safe</td>
<td>INC Safe</td>
</tr>
<tr>
<td>INC Safe</td>
<td>0.09</td>
</tr>
<tr>
<td>BJP Safe</td>
<td>0.00</td>
</tr>
<tr>
<td>RP Safe</td>
<td>0.00</td>
</tr>
<tr>
<td>INC/BJP</td>
<td>0.00</td>
</tr>
<tr>
<td>BJP/RP</td>
<td>0.00</td>
</tr>
<tr>
<td>INC/RP</td>
<td>0.09</td>
</tr>
<tr>
<td>INC/BJP/RP</td>
<td>0.00</td>
</tr>
<tr>
<td>Total</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Notes: Each cell shows the probability of a district transitioning from a category defined using pre-period data to a category defined using current period data. Districts safe for INC, BJP, and Regional Parties have been labelled INC Safe, BJP Safe, and RP Safe, respectively. Districts with turnover between INC and BJP, between BJP and Regional Parties, and between INC and Regional Parties have been labelled INC/BJP, BJP/RP, and INC/RP, respectively. Districts with turnover between INC, BJP, and Regional Parties have been labelled INC/BJP/RP.
Table 5: Political Cycles in Districts with Different Political Competition

<table>
<thead>
<tr>
<th>District Categories</th>
<th>Swing for INC &amp; BJP (1)</th>
<th>Safe for RP (2)</th>
<th>Swing for BJP &amp; RP (3)</th>
<th>Safe for INC (4)</th>
<th>Safe for BJP (5)</th>
<th>Swing for INC &amp; RP (6)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year(+2)</td>
<td>-0.195</td>
<td>0.763***</td>
<td>1.067***</td>
<td>-0.050</td>
<td>0.428**</td>
<td>0.229</td>
</tr>
<tr>
<td></td>
<td>(0.247)</td>
<td>(0.213)</td>
<td>(0.260)</td>
<td>(0.384)</td>
<td>(0.191)</td>
<td>(0.175)</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>-0.300</td>
<td>0.309*</td>
<td>0.370</td>
<td>0.423</td>
<td>0.160</td>
<td>0.143</td>
</tr>
<tr>
<td></td>
<td>(0.209)</td>
<td>(0.168)</td>
<td>(0.316)</td>
<td>(0.429)</td>
<td>(0.206)</td>
<td>(0.163)</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>0.080</td>
<td>-0.156</td>
<td>-0.672**</td>
<td>-0.751</td>
<td>-0.018</td>
<td>0.025</td>
</tr>
<tr>
<td></td>
<td>(0.260)</td>
<td>(0.143)</td>
<td>(0.254)</td>
<td>(0.452)</td>
<td>(0.303)</td>
<td>(0.212)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>1.015***</td>
<td>-0.078</td>
<td>0.303</td>
<td>0.901</td>
<td>0.577**</td>
<td>0.233</td>
</tr>
<tr>
<td></td>
<td>(0.245)</td>
<td>(0.142)</td>
<td>(0.327)</td>
<td>(0.828)</td>
<td>(0.247)</td>
<td>(0.212)</td>
</tr>
</tbody>
</table>

Observations: 9,941 13,308 7,004 2,512 5,368 10,296
R-squared: 0.204 0.160 0.146 0.127 0.173 0.110
District and Time FE: Y Y Y Y Y Y
Mean: 1.686 1.390 1.425 1.641 1.305 1.055
Clusters: 87 118 62 22 47 90

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure for the TSC in a district. Each column reports the results for estimating model (3) in one of six categories of districts. Column (1) reports the estimated political cycle for swing districts for the INC and the BJP. Columns (2) and (3) report the estimated political cycles for safe districts for regional parties, and swing districts for the BJP and regional parties, respectively. Columns (4)-(6) report the estimated political cycles for safe districts for the INC and the BJP, and swing districts for the INC and regional parties, respectively. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time (year-month) fixed effects. Robust standard errors clustered at district level are reported in the parentheses. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014. *** p<0.01, ** p<0.05, * p<0.1
Table 6: Patronage Cycle in Districts where Allies and Opposition of the Central Incumbent Win

<table>
<thead>
<tr>
<th>Year</th>
<th>Safe for RP</th>
<th>Swing for BJP &amp; RP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Allies</td>
<td>Opposition</td>
</tr>
<tr>
<td>(+2)</td>
<td>1.152***</td>
<td>-0.237</td>
</tr>
<tr>
<td></td>
<td>(0.335)</td>
<td>(0.210)</td>
</tr>
<tr>
<td>(+3)</td>
<td>0.306</td>
<td>-0.077</td>
</tr>
<tr>
<td></td>
<td>(0.266)</td>
<td>(0.219)</td>
</tr>
<tr>
<td>(+4)</td>
<td>0.166</td>
<td>0.019</td>
</tr>
<tr>
<td></td>
<td>(0.225)</td>
<td>(0.248)</td>
</tr>
<tr>
<td>(+5)</td>
<td>0.318</td>
<td>-0.764***</td>
</tr>
<tr>
<td></td>
<td>(0.195)</td>
<td>(0.225)</td>
</tr>
</tbody>
</table>

Observations: 9,037  4,271  4,593  2,411
R-squared: 0.189  0.215  0.242  0.167
District and Time FE: Y  Y  Y  Y
Mean: 1.530  1.095  1.405  1.465
Clusters: 81  37  41  21

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure under TSC in a district. The sample for columns (1) and (2) are safe districts for regional parties. The sample for columns (3) and (4) are swing districts for the BJP and regional parties. Columns (1) and (3) report the estimation of model (3) in Bihar, Tamil Nadu, Uttar Pradesh, and West Bengal. Columns (2) and (4) report the estimation of model (3) in the remaining states. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time (year-month) fixed effects. Robust standard errors clustered at district level are reported in the parentheses. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014; political data on state assembly elections during 1994–2014. *** p<0.01, ** p<0.05, * p<0.1
Table 7: The Patronage Cycle Across Demographic Groups

<table>
<thead>
<tr>
<th></th>
<th>Safe for RP</th>
<th></th>
<th></th>
<th></th>
<th>Swing for INC &amp; BJP</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High SC (1)</td>
<td>Low SC (2)</td>
<td>High Mus (3)</td>
<td>Low Mus (4)</td>
<td>High SC (5)</td>
<td>Low SC (6)</td>
<td>High Mus (7)</td>
<td>Low Mus (8)</td>
</tr>
<tr>
<td>Year(+2)</td>
<td>1.084***</td>
<td>0.291</td>
<td>1.172***</td>
<td>0.072</td>
<td>-0.231</td>
<td>-0.296</td>
<td>0.371</td>
<td>-0.400</td>
</tr>
<tr>
<td></td>
<td>(0.340)</td>
<td>(0.225)</td>
<td>(0.279)</td>
<td>(0.328)</td>
<td>(0.519)</td>
<td>(0.231)</td>
<td>(0.496)</td>
<td>(0.283)</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>0.511*</td>
<td>0.096</td>
<td>0.409**</td>
<td>0.353</td>
<td>-0.081</td>
<td>-0.502**</td>
<td>-0.288</td>
<td>-0.313</td>
</tr>
<tr>
<td></td>
<td>(0.260)</td>
<td>(0.220)</td>
<td>(0.199)</td>
<td>(0.313)</td>
<td>(0.365)</td>
<td>(0.243)</td>
<td>(0.304)</td>
<td>(0.284)</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>0.084</td>
<td>-0.378*</td>
<td>-0.047</td>
<td>-0.346</td>
<td>0.332</td>
<td>-0.065</td>
<td>-0.276</td>
<td>0.395</td>
</tr>
<tr>
<td></td>
<td>(0.185)</td>
<td>(0.202)</td>
<td>(0.186)</td>
<td>(0.251)</td>
<td>(0.358)</td>
<td>(0.375)</td>
<td>(0.291)</td>
<td>(0.442)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>0.138</td>
<td>-0.471**</td>
<td>-0.068</td>
<td>-0.200</td>
<td>0.750*</td>
<td>1.251***</td>
<td>0.598</td>
<td>1.062***</td>
</tr>
<tr>
<td></td>
<td>(0.222)</td>
<td>(0.191)</td>
<td>(0.178)</td>
<td>(0.299)</td>
<td>(0.370)</td>
<td>(0.330)</td>
<td>(0.561)</td>
<td>(0.270)</td>
</tr>
</tbody>
</table>

Observations | 8,187 | 5,121 | 8,597 | 4,711 | 3,313 | 6,628 | 2,516 | 7,425 |
R-squared      | 0.166 | 0.214 | 0.157 | 0.232 | 0.217 | 0.216 | 0.149 | 0.257 |
District and Time FE | Y | Y | Y | Y | Y | Y | Y | Y |
Mean           | 1.527 | 1.172 | 1.320 | 1.519 | 1.712 | 1.672 | 1.192 | 1.853 |
Clusters       | 72    | 46    | 77    | 41    | 29    | 58    | 22    | 65    |

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure for the TSC in a district. The sample for columns (1)–(4) are safe districts for regional parties. The sample for columns (5)-(8) are swing districts for the INC and the BJP. The sample for columns labeled High (Low) SC are districts where the proportion of SC population is above (below) the median. The sample for columns labeled High (Low) Muslim are districts where the proportion of Muslim population is above (below) the median. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time (year-month) fixed effects. Robust standard errors clustered at district level are reported in the parentheses. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014. *** p<0.01, ** p<0.05, * p<0.1
Table 8: Timing of the Peak in the Patronage Cycle

<table>
<thead>
<tr>
<th></th>
<th>Safe for RP</th>
<th></th>
<th>Swing for BJP &amp; RP</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td>Fiscal</td>
<td>0.577**</td>
<td>0.951***</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.223)</td>
<td>(0.322)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Year(+2)</td>
<td>0.763***</td>
<td>0.352</td>
<td>1.067***</td>
<td>0.354</td>
</tr>
<tr>
<td></td>
<td>(0.213)</td>
<td>(0.258)</td>
<td>(0.260)</td>
<td>(0.326)</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>0.309*</td>
<td>0.268</td>
<td>0.370</td>
<td>0.189</td>
</tr>
<tr>
<td></td>
<td>(0.168)</td>
<td>(0.166)</td>
<td>(0.316)</td>
<td>(0.279)</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>-0.156</td>
<td>-0.043</td>
<td>-0.672**</td>
<td>-0.498*</td>
</tr>
<tr>
<td></td>
<td>(0.143)</td>
<td>(0.152)</td>
<td>(0.254)</td>
<td>(0.258)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>-0.078</td>
<td>0.007</td>
<td>0.303</td>
<td>0.367</td>
</tr>
<tr>
<td></td>
<td>(0.142)</td>
<td>(0.147)</td>
<td>(0.327)</td>
<td>(0.317)</td>
</tr>
</tbody>
</table>

| Observations   | 13,308      | 13,308        | 7,004             | 7,004         |
| R-squared      | 0.160       | 0.161         | 0.146             | 0.146         |
| District and Time FE | Y | Y | Y | Y |
| Mean           | 1.390       | 1.390         | 1.425             | 1.425         |
| Clusters       | 118         | 118           | 62                | 62            |

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure under TSC in a district. The sample for columns (1) and (2) are safe districts for regional parties. The sample for columns (3) and (4) are swing districts for the BJP and regional parties. Columns (1) and (3) report the estimation of model (4) without including the Fiscal dummy. Columns (2) and (4) report the estimation of model (4) including the Fiscal dummy. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time fixed effects. Robust standard errors clustered at district level are reported in the parentheses. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014. *** p<0.01, ** p<0.05, * p<0.1
Table 9: Buying Votes and Patronage Cycles in Household Consumption Expenditure

<table>
<thead>
<tr>
<th></th>
<th>BV Cycle</th>
<th>Patronage Cycle</th>
<th>No Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year(+2)</td>
<td>-32.731*</td>
<td>-8.812</td>
<td>-14.865</td>
</tr>
<tr>
<td></td>
<td>(19.224)</td>
<td>(11.476)</td>
<td>(12.169)</td>
</tr>
<tr>
<td>Year(+3)</td>
<td>-54.189**</td>
<td>36.909***</td>
<td>-13.987</td>
</tr>
<tr>
<td></td>
<td>(22.690)</td>
<td>(11.449)</td>
<td>(13.820)</td>
</tr>
<tr>
<td>Year(+4)</td>
<td>-28.179</td>
<td>-4.126</td>
<td>-24.181</td>
</tr>
<tr>
<td></td>
<td>(24.998)</td>
<td>(11.554)</td>
<td>(17.817)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>53.729**</td>
<td>-20.693**</td>
<td>3.866</td>
</tr>
<tr>
<td></td>
<td>(22.497)</td>
<td>(9.972)</td>
<td>(15.041)</td>
</tr>
<tr>
<td>Observations</td>
<td>32,353</td>
<td>97,625</td>
<td>71,212</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.333</td>
<td>0.289</td>
<td>0.294</td>
</tr>
<tr>
<td>District and Survey FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mean</td>
<td>853.2</td>
<td>861.5</td>
<td>988.1</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>789.7</td>
<td>766.2</td>
<td>971.8</td>
</tr>
<tr>
<td>Clusters</td>
<td>87</td>
<td>180</td>
<td>157</td>
</tr>
</tbody>
</table>

Notes: The unit of observation is a household. The dependent variable is the monthly per capita consumption expenditure of a household on items with a 30-day recall period. Columns (1), (2), and (3) report the estimation results of specification (5) in districts with the “Buying Votes Cycle” (swing districts for the INC and the BJP), districts with the “Patronage Cycle” (safe districts for regional parties and swing districts for the BJP and regional parties), and districts with the no political cycles (safe districts for the INC, safe districts for the BJP, and swing districts for the INC and regional parties). The omitted category is Year(+1). All regressions include district and time fixed effects. Standard errors are clustered by district. All regressions control for household characteristics like religion; caste group; quantity of land possessed; age, sex, and education of household head; proportion of household members who are women; proportion of household members who are under 15; and an indicator variable for whether or not the household had a ceremony in the last 30 days. Datasets used in this analysis: NSS Consumption Survey Rounds 61 (2004-05), 62 (2005-06), 63 (2006-07), 64 (2007-08), 66 (2009-10), and 68 (2011-12) and political data on state assembly elections during 1994-2014. *** p<0.01, ** p<0.05, * p<0.1
References


A Mathematical Appendix

A.1 Assumptions and Proofs

I place the following assumptions on the probabilities of the model.

**Assumption 1.** The probabilities of the model satisfy:

1. Probabilities \( p^y_j(\cdot), q^k_j(\cdot), \) and \( s(\cdot, \cdot) \) are continuously differentiable in their elements for all \( j, k, y \).

2. Probabilities \( p^I_j(\cdot) \) and \( q^Z_j(\cdot) \) are strictly increasing in their elements for all \( j \). Probability \( s(m_i, n_i) \) is increasing in \( m_i \), and decreasing in \( n_i \) for all \( i \).

3. \( \max_m p^{H}_{1Z}(m) < \min_m p^{H}_{10}(m) \).

4. \( -\delta W \cdot \frac{\partial s(m_i, n_i)}{\partial n_i} > \frac{dq^Z_{1Z}(n_i)}{dn_i} \forall n_i \) and \( i \in D_{1Z} \).

I discuss the above assumptions in detail below. The probability of party \( I \) winning in district \( i \) is strictly increasing in the funds released in district \( i \) pre-election, \( m_i \). These funds can be used to sway the election result towards the central incumbent using several tactics. For example, direct cash transfers to voters, construction of public work projects in a district, mobilizing the local leaders in the district etc. Party \( I \)’s probability of receiving support from party \( Z \) in district \( i \) is strictly increasing in the amount of funds offered to district \( i, n_i \). Release of additional funds in districts after party \( Z \) has won there, helps party \( Z \) keeps its electoral promises and indicates its ability to extract resources from the central incumbent to its voters. The probability of party \( I \) winning the second election in district \( i \) is strictly decreasing if it lost the first election and bought support from the winning party in district \( i \) because if party \( I \) releases funds in a district after another party has won there, then some benefits of these additional funds accrue to the winning party, enhancing its chances of winning the next election while decreasing party \( I \)’s chances of winning the next election.
Party $I$ is better off spending additional funds in districts where it directly competes with party $O$ compared to districts where it directly competes with party $Z$. The latter districts have some loyal supporters of party $Z$ who can’t be wooed by party $I$ by giving them benefits. These voters support party $Z$ based on similarities in demographic characteristics, for example, language, religion, caste etc. and it is not easy for party $I$ to sway their votes. For example, in Tamil Nadu the two major regional parties the DMK and the AIADMK, are both linguistic based parties. It would be very hard for the national parties to sway the votes of people who are voting along linguistic lines just by giving them some benefits pre-election. Therefore, while ‘buying votes’ pre-election increases party $I$’s chances of winning in the district, these funds can be better used in other districts (for example, where parties $I$ and $O$ compete) where party $I$ has better chances of winning.

In districts with turnover between parties $I$ and $Z$, while buying support from party $Z$ increases party $I$’s utility in Period 2, it reduces the probability of party $I$ winning the next election because some benefits of these additional funds released in a district where party $Z$ has won, accrue to party $Z$ and not to party $I$. I assume that the benefits from spending an additional unit of funds on buying support from party $Z$ are always less than the cost of these funds in terms of reducing party $I$’s probability of winning the next election in the district.

Proof of Proposition 1:

1. Let $i \in D_{IO}$. In these districts $p^I_{IO}(m_i) > p^I_{IO}(0)$ and $s(m_i, n_i) > s(0, n_i) \forall m_i > 0$. Therefore, $m_i \geq 0$. If party $I$ wins, it does not need to buy support from party $O$ in this district, thus $n_i = 0$. If party $I$ loses, party $O$ will never accept party $I$’s offer to buy support, therefore again $n_i = 0$.

2. Let $i \in D_Z$. In these districts $p^I_Z(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_Z$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\exists i \in D_Z$, such that $m_i > 0$. However, $q^Z_Z(n_i) > q^Z_Z(0)$ $\forall n_i > 0$, therefore $n_i \geq 0$. 

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Let $i \in D_{OZ}$. In these districts $p^I_{OZ}(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_{OZ}$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\forall i \in D_{OZ}$, such that $m_i > 0$. If party $O$ wins in district $i$, it will never accept party $I$’s offer to buy support, therefore $n_i = 0$. If party $Z$ wins, $q^\exists_{OZ}(n_i) > q^\exists_{OZ}(0) \forall n_i > 0$, therefore $n_i \geq 0$.

3. Let $i \in D_I$. In these districts $p^I_{I}(0) = 1$ and $s(0, n_i) = 1$. Suppose $\exists i \in D_I$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\exists i \in D_I$, such that $m_i > 0$. Since party $I$ always wins in these districts, it does not need to buy support from the winning party post-election. Therefore, $n_i = 0$.

Let $i \in D_O$. In these districts $p^I_{O}(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_O$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\exists i \in D_O$, such that $m_i > 0$. Party $O$ never accepts party $I$’s offer to buy support, therefore $n_i = 0$.

Let $i \in D_{IZ}$. Party $I$’s expected utility from district $i$ is given by: $p^I_{IZ}(m_i)u + \delta[1 - p^I_{IZ}(m_i)]q^Z_{IZ}(n_i)v + \delta^2 s(m_i, n_i)W$. If there is an interior solution, the expected utility is maximized at $n_i^*$ if $\left[1 - p^I_{IZ}(m_i)\right] \frac{dq^Z_{IZ}(n_i^*)}{dn_i} v = -\delta W \frac{\partial s(m_i, n_i^*)}{\partial n_i}$. By assumption 1, $\left[1 - p^I_{IZ}(m_i)\right] \frac{dq^Z_{IZ}(n_i^*)}{dn_i} v < -\delta W \frac{\partial s(m_i, n_i^*)}{\partial n_i}$. Therefore party $I$ will choose $n_i = 0$, because the cost of spending an additional unit of funds in district $i$ is greater than the benefit.

Given that $n_i = 0$, the expected utility of party $I$ from district $i$ is $p^I_{IZ}(m_i)u + \delta^2 W s(m_i, 0)$. Suppose party $I$ decides to spend $m_i^*$ funds in district $i$ and $m_j^*$ funds in district $j$ where $j \in D_{IO}$. Now if it moves $\mu$ funds from district $i$ to district $j$, its expected utility in district $i$ will be $p^I_{IO}(m_i^* - \mu)u + \delta^2 W s(m_i^* - \mu, 0)$ and its expected utility in district $j$ will be $p^I_{IO}(m_j^* + \mu)u + \delta^2 W s(m_j^* + \mu, 0)$. By assumption 1, party $I$ is now better off. Therefore, it will choose $m_i = 0$. 

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A.2 Extension 1: Adding a Second Regional Party

Suppose now there is a second regional party, \( Z_1 \), that is not an ally of the central incumbent. The timing of the model is the same as before, except now both parties \( O \) and \( Z_1 \) will never give support to party \( I \).

I divide districts into ten groups based on their level of political competition and the identity of the winning party within a level of political competitiveness. Districts that are safe for parties \( I \), \( O \), \( Z \), and \( Z_1 \) are denoted by \( D_I, D_O, D_Z, \) and \( D_{Z_1} \), respectively. Districts that are swing for parties, \( I \) and \( O \) and \( Z \), \( O \) and \( Z_1 \), \( Z \) and \( Z_1 \), \( I \) and \( Z \), and \( I \) and \( Z_1 \), are labelled \( D_{IO}, D_{OZ}, D_{OZ_1}, D_{ZZ_1}, D_{IZ} \) and \( D_{IZ_1} \), respectively. Denote by \( \mathcal{D}_1 \) all the districts in these ten categories.\(^{65}\) Let \( \mathcal{J}_1 \equiv \{I, O, Z, Z_1, IO, OZ, OZ_1, ZZ_1, IZ, IZ_1\} \).

The central incumbent again maximizes its expected utility (1) subject to its budget constraint. The solution to this problem is summarized in the following Proposition:

**Proposition 2.** Under Assumption 1, the central incumbent’s maximization problem has a solution such that:

1. In swing districts for parties \( I \) and \( O \), \( m_i \geq 0 \) and \( n_i = 0 \).

2. In safe districts for party \( Z \) and in swing districts for parties \( O \) and \( Z \) and parties \( Z \) and \( Z_1 \), \( m_i = 0 \) and \( n_i \geq 0 \).

3. In safe districts for parties \( I \), \( O \), and \( Z_1 \) and in swing districts for parties \( I \) and \( Z \) and parties \( O \) and \( Z_1 \), \( m_i = n_i = 0 \).

4. In swing districts for parties \( I \) and \( Z_1 \), \( n_i = 0 \) and it is ambiguous if party \( I \) buys votes pre-election.

The central incumbent’s actions in all districts where party \( Z_1 \) never wins are the same as before. For districts that exhibit the “Patronage Cycle”, the above proposition gives two additional predictions that I test in 7.1:

\(^{65}\)I again assume that there are no districts where all three political parties can win elections.
Predictions. If the total budget $M$ is large enough, actions predicted in Proposition 2 occur in the optimal solution and there are two additional testable empirical predictions about the shapes of political cycles observed in different types of districts:

$P_4$: Among safe districts for regional parties, districts that are safe for party $Z_1$ show no cycle in the release of funds while the remaining districts exhibit the “Patronage Cycle”.

$P_5$: Among swing districts for party $O$ and regional parties, only swing districts for parties $O$ and $Z$ exhibit the “Patronage Cycle” and the remaining districts exhibit no political cycle in the release of funds.

Intuitively, the central incumbent only buys support from regional party $Z$ and not from party $Z_1$, because party $Z_1$ never gives support to party $I$. Therefore, the “Patronage Cycle” is driven by districts where party $Z$ is competitive. The actions of the central incumbent in swing districts for parties $I$ and $Z_1$ are ambiguous because the central incumbent will only choose to buy votes in these districts if buying vote in these districts increases party $I$’s utility more than buying votes in swing districts for parties $I$ and $O$.

Proof of Proposition 2:

1. Let $i \in D_{ZZ_1}$. In these districts $p_{ZZ_1}^I(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_{ZZ_1}$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\nexists i \in D_{ZZ_1}$, such that $m_i > 0$. If party $Z_1$ wins in district $i$, it will never accept party $I$’s offer to buy support, therefore $n_i = 0$. If party $Z$ wins, $q_{ZZ_1}^Z(n_i) > q_{ZZ_1}^Z(0) \forall n_i > 0$, therefore $n_i \geq 0$.

2. Let $i \in D_{Z_1}$. In these districts $p_{Z_1}^I(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_{Z_1}$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\nexists i \in D_{Z_1}$, such that $m_i > 0$. Party $Z_1$ never accepts party $I$’s offer to buy support, therefore $n_i = 0$.

Let $i \in D_{OZ_1}$. In these districts $p_{OZ_1}^I(m_i) = 0$ and $s(m_i, n_i) = 0 \forall m_i$. Suppose $\exists i \in D_{OZ_1}$, such that $m_i > 0$, then party $I$ can increase its expected utility by allocating
this $m_i$ to buy votes in $i' \in D_{IO}$. Thus, $\# i \in D_{OZ_1}$, such that $m_i > 0$. Parties $O$ and $Z_1$ never accepts party $I$'s offer to buy support, therefore $n_i = 0$.

Let $i \in D_{IZ_1}$. Party $Z_1$ never accepts party $I$'s offer to buy support, therefore $n_i = 0$. Given that $n_i = 0$, the expected utility of party $I$ from district $i$ is $P_{IZ_1}(m_i)u + \delta^2 Ws(m_i, 0)$. Party $I$ decides to spend $m_i^* > 0$ funds in district $i$ if it is better off spending these funds in district $i$ compared to spending these funds in district $j$ where $j \in D_{IO}$. Otherwise, it will choose $m_i = 0$.

Proof of Proposition 2 in districts $D_I$, $D_O$, $D_Z$, $D_{IO}$, $D_{OZ}$, and $D_{IZ}$ is the same as Proposition 1.
B Construction of the Political Variables

As an example, Figure B.1 shows the geographical and political divisions for one hypothetical state in India. The state is divided into three districts: District₁, District₂, and District₃. Each district is further divided into assembly constituencies and elections are held in these assembly constituencies. There are two assembly constituencies in District₁, AC₁¹ and AC₂¹, one assembly constituency in District₂, AC₁², and four assembly constituencies in District₃, AC₁³ to AC₄³. If party I wins in the single constituency in District₂ and party O wins in three constituencies in District₃, I define party I as the winner in District₂ and party O as the winner in District₃. If parties I and O win in one constituency each in District₁, I define District₁ as a swing district for parties I and O.

<table>
<thead>
<tr>
<th></th>
<th>AC₁¹</th>
<th>AC₂¹</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>District₁</td>
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<tr>
<td></td>
<td></td>
<td>AC₁²</td>
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<tr>
<td>District₂</td>
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<tr>
<td></td>
<td>AC₁³</td>
<td>AC₂³</td>
<td>AC₃³</td>
</tr>
<tr>
<td>District₃</td>
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</tbody>
</table>

Figure B.1: Administrative and Political divisions within a state
C Robustness

C.1 Estimating Political Cycles in District Categories Defined using Contemporaneous Election Data

Because I use pre-period election data to categorize districts into six categories, I show that the shapes of political cycles observed in Section 6.1 are not being driven by how districts transition between categories from the pre-period and to the contemporaneous period. I use election data from 2003–2014 to divide districts into the six categories defined in Section 5.2.\textsuperscript{66} I then test hypotheses (P1)-(P3) by estimating specification (3) separately in the six categories of districts defined using contemporaneous election data. The results for these estimations are reported in Figures C.1, C.2, and C.3, respectively. The shapes of political cycles estimated using this alternate definition of categorizing districts are very similar to those reported in Figures 5, 6, and 7, respectively.

There are two differences between the cycles reported in this Section and those reported in Section 6.1. First, the cycle in safe districts for the BJP (in Figure C.3) now does not have any peaks in the release of funds and is consistent with hypothesis (P3). Second, there is no pre-election increase in the release of funds in swing districts for the BJP and regional parties (in Figure 6). These results suggest that these peaks are being driven by districts which change definition from the pre-period to the contemporaneous period. The political cycle in the release of funds in safe districts for the INC looks noisy because there are only 8 districts in this category when I use election data from 2003–2014 to classify districts into various categories.

Magnitudes of the peaks in both the “Buying Votes Cycle” and the “Patronage Cycle” are now even larger than those reported in Section 6.1. The “Buying Votes Cycle” now shows an increase of 111% in the release of funds over the mean per capita monthly release of funds in swing districts for the INC and the BJP. The “Patronage Cycle” now shows a 62% and 107% increase in the release of funds over the mean per capita monthly release

\textsuperscript{66}I use electoral data beginning in 2003 and not 2004 to ensure that I have data on at least three state elections in every state to classify districts.
of funds in safe districts for regional parties and swing districts for the BJP and regional parties, respectively. Both types of cycles show larger peaks when using current data suggesting that the central incumbent only considers recent elections to determine the type of political competition in a district.

Figure C.1: Buying Votes Cycle in the Release of Funds in Swing Districts for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts that are swing for the INC and the BJP in the state elections during 2003–2014 have been labeled Swing for INC and BJP. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.2: Patronage Cycle in the Release of Funds in Safe Districts for Regional Parties and Swing Districts for the BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where a regional party won the largest proportion of assembly constituencies in all the state elections during 2003–2014 have been labeled Safe for RP. Districts that are swing for the BJP and regional parties in the state elections during 2003–2014 have been labeled Swing for BJP & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 2003–2014.
Figure C.3: No Political Cycles in the Release of Funds in Safe Districts for the INC and the BJP and Swing Districts for the INC and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where the INC and the BJP won the largest proportion of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP respectively. Districts that are swing for the INC and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
C.2 Results using an alternate definition of winning in a district

I test if my results are robust to a stricter definition of classifying a district “Safe” for a political party. Using this new definition, I classify a district as “Safe” for a political party if that party wins at least 60% of the assembly constituencies (and not just the largest proportion) in a district in every election during 1994–2004. The new definition leads to several districts that were previously classified as “Safe”, as now being classified as swing districts based on the identities of political parties that win the first and second largest proportion of assembly constituencies in the district.

I test hypotheses (P1)-(P3) by estimating specification (3) in the six types of districts using this new definition of “Safe” districts and show that the political cycles have the same shape as Figures 5, 6, and 7. The only difference is that safe districts for the BJP now show no peaks in the release of funds and is consistent with hypothesis (P3). This result suggests that the peaks in safe districts for the BJP in Figure 7 are caused by districts that are more likely to be classified as swing using the stricter definition of “Safe” districts. The results for the estimation of the new political cycles are reported in Figures C.4, C.5 and C.6.

Safe districts for the INC and the BJP, and swing districts for the INC and regional parties have no political cycles in the release of funds. Swing districts for the INC and the BJP exhibit the “Buying Votes Cycle” with a 56% increase in the release of funds (over the mean monthly release of funds) in the year before an election. Safe districts for regional parties and swing districts for the BJP and regional parties exhibit the “Patronage Cycle” with 48% and 78% increases in the release of funds (over the mean monthly release of funds) in the second year after an election, respectively.
Figure C.4: Buying Votes Cycle in the Release of Funds in Swing Districts for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts that are swing for the INC and the BJP in the state elections during 1994–2004 have been labeled Swing for INC and BJP. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.5: Patronage Cycle in the Release of Funds in Safe Districts for Regional Parties and Swing Districts for the BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where a regional party won the largest proportion of assembly constituencies in all the state elections during 1994–2004 have been labeled Safe for RP. Districts that are swing for the BJP and regional parties in the state elections during 1994–2004 have been labeled Swing for BJP & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.6: No Political Cycles in the Release of Funds in Safe Districts for the INC and the BJP, and Swing Districts for the INC and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where the INC and the BJP won the largest proportion of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP respectively. Districts that are swing for the INC and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
C.3 Results using election data from 1994-2014 to categorize districts

I show that my results are robust to categorizing districts into the six groups described in Section 5.2 using another definition of “Safe” districts. I use election results for the entire period (pre-period and contemporaneous period) and classify a district as “Safe” only if it has been safe for a political party for the 20 year period (1994–2004).

The shapes of all cycles look the same as those in Figures 5, 6, and 7, respectively. The only difference is that the political cycle in safe districts for the BJP has no peaks and is consistent with hypothesis (P3). Swing districts for the INC and the BJP exhibit the “Buying Votes Cycle” with an increase of 105% in the release of funds (over the mean monthly release of funds) in the year before an election. Safe districts for regional parties and swing districts for the BJP and regional parties exhibit the “Patronage Cycle” with 42% and 117% increases in the release of funds (over the mean monthly release of funds) after an election, respectively. The results for estimation of specification (3) in these six types of districts are reported in Figure C.7. I do not report the political cycle for safe districts for the INC because there are only two districts in this category when I use this new definition of a “Safe” district.

C.4 Results using Half-Yearly Electoral Dummies

I show that the political cycles estimated using dummies for years since election are robust to using electoral dummies for shorter intervals, ruling out that the shapes of yearly cycles are not a result of the way I choose to aggregate the data. In this section, I estimate political cycles using dummies for half-years (6 month intervals) since an election. In particular, I estimate the following specification separately in the six types of districts defined in Section 5.2:

\[
Exp_{dt} = \alpha + \sum_{i=2}^{10} \beta_i HY_{(i)} dt + \gamma X_{dt} + \delta_d + \theta_t + \epsilon_{dt}
\]

(6)
where $HY_{(i+1)dt}$ is a dummy that takes the value 1 if district $d$ at time $t$ is in the $i^{th}$ half-year since an election. Elections occur every five years in India, therefore there are 10 half-years between two elections. $HY_{(i+1)}$ is the omitted category. All other variables are the same as defined in specification (3).

The shapes of all six cycles look very similar to the ones reported in Figures 5, 6, and 7, respectively. Swing districts for the INC and the BJP exhibit the “Buying Votes cycle” with an increase in the release of funds in the last two half-years before an election and especially in the last half-year before an election (an increase of 133% over the mean monthly release of funds). Safe districts for regional parties and swing districts for the BJP and regional parties exhibit the “Patronage cycle” with an increase in the release of funds in the third, fourth, and fifth half-years. These increases are between 39-61% in safe districts for regional parties and between 56-70% in swing districts for the BJP and regional parties. The results for testing hypotheses (P1)-(P3) using specification (6) are reported in Figures C.8, C.9, and C.10, respectively.
Figure C.7: Political Cycles in Five Types of Districts

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where the BJP and regional parties won the majority of assembly constituencies in all the state elections during 1994–2014 have been labeled Safe for BJP and Safe for RP, respectively. Districts which experienced a turnover between the INC and the BJP, the INC and regional parties, and the BJP and regional parties in the state elections during 1994–2014 have been labeled INC/BJP, INC/RP, and BJP/RP, respectively. The omitted category is Year(+1) in all graphs. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014; political data on state assembly elections during 1994–2014.
Figure C.8: Buying Votes Cycle in the Release of Funds in Swing Districts for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time fixed effects. Districts that experienced a turnover between the INC and the BJP in state elections during 1994–2004 have been labeled Swing for INC & BJP. The omitted category is HY(+1). The green line shows the weighted moving average of the coefficients using 1 as the weight for one lagged and one forward term, and using 2 as the weight for the current term. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.9: Patronage cycle in the release of funds in Safe Districts for Regional Parties and Swing Districts for BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time fixed effects. Districts where a regional party won the majority of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for RP. Districts that experienced a turnover between the BJP and regional parties in the state elections during this period have been labeled Swing for BJP & RP. The omitted category is HY(+1) in all graphs. The green line shows the weighted moving average of the coefficients using 1 as the weight for one lagged and one forward term, and using 2 as the weight for the current term. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.10: No Political Cycles in the Release of Funds in Safe Districts for the INC and the BJP, and Swing Districts for the INC and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time fixed effects. Districts where INC and BJP won the majority of assembly constituencies in all the state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP, respectively. Districts that experienced a turnover between the INC and regional parties in state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is HY(+1) in all graphs. The green line shows the weighted moving average of the coefficients using 1 as the weight for one lagged and one forward term, and using 2 as the weight for the current term. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
C.5 Results using data aggregated to Half-Years

The shapes of political cycles are not driven by estimating yearly political cycles using monthly frequency release of funds data. My preferred specification uses monthly frequency release of funds data and estimates political cycles using yearly electoral cycle dummies. Using monthly frequency data leads to better identification of political cycles as I can exploit the differences in specific timing of elections across districts. Using yearly electoral cycle dummies captures the institutional feature of the TSC where each district receives only one or two transfers in a given year; in most months a district does not receive any funds. To deal with the concern that choice of aggregation drives the shapes of political cycles, aggregating the data to half-yearly level and estimating half-yearly political cycles.

To test hypotheses (P1)-(P3), I estimate the following model separately in the six types of districts defined in Section 5.2:

\[ Exp_{dy} = \alpha + \sum_{i=2}^{10} \beta_i HY_{(+i)dy} + \gamma X_{dy} + \delta_d + \theta_y + \epsilon_{dy} \]  

where \( Exp_{dy} \) is the average per capita expenditure in district \( d \) in the half-year \( y \), \( X_{dy} \) is a vector of time varying controls: ratio of assembly constituencies reserved for SCs and ratio of assembly constituencies reserved for STs in district \( d \) at the beginning of the half-year \( y \), \( \delta_d \) and \( \theta_y \) are district and half-year fixed effects respectively, and \( HY_{(+i)dy} \) is a dummy that takes the value 1 if district \( d \) in the first month of half-year \( y \) is in the \( i^{th} \) half-year after an election. \( HY_{(+1)} \) is the omitted category. The coefficients of interest are \( \beta_i \)’s.

Swing districts for the INC and the BJP exhibit the “Buying Votes cycle” (Figure C.11) with an increase of 68% and 132% of the mean monthly release of funds in the second-last and last half-year before an election, respectively. Safe districts for regional parties and swing districts for the BJP and regional parties show the “Patronage cycle” (Figure C.12) with peaks in the third, fourth, and fifth half-years after an election. These peaks correspond to the second and third years after an election. The magnitude of the peaks in safe districts for regional parties and swing districts for the BJP and regional parties are 58-70% and between 53%-107% of the mean monthly release of funds, respectively.
Safe districts for the INC and the BJP show no political cycles in the release of funds of an electoral cycle (Figure C.13). Swing districts for the INC and regional parties show an increase in the second and third half-years since election. However, this peak is not robust to using other specifications. The shapes of all political cycles look very similar if I aggregate the data to years instead of half-years.

Figure C.11: Buying Votes Cycle in the Release of Funds in Swing Districts for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts that are swing for the INC and the BJP in the state elections during 1994–2004 have been labeled *Swing for INC and BJP*. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.12: Patronage Cycle in the Release of Funds in Safe Districts for Regional Parties and Swing Districts for the BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where a regional party won the largest proportion of assembly constituencies in all the state elections during 1994–2004 have been labeled *Safe for RP*. Districts that are swing for the BJP and regional parties in the state elections during 1994–2004 have been labeled *Swing for BJP & RP*. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.13: No Political Cycles in the Release of Funds in Safe districts for the INC and the BJP, and Swing Districts for the INC and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where the INC and the BJP won the largest proportion of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP respectively. Districts that are swing for the INC and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
C.6 Results including district time trends

My results are robust to including district-specific linear time trends. I estimate the following model separately in the six categories of districts defined in Section 6.1:

\[ Exp_{dt} = \alpha + \sum_{i=2}^{10} \beta_i Year_{(i+1)dt} + \gamma X_{dt} + \delta_d + \theta_t + \delta_d \times t + \epsilon_{dt} \]  

(8)

where \( \delta_d \times t \) is district-specific linear time trend and the rest of the variables are the same as in model (3). The results of these estimations are reported in Figures C.14, C.15, and C.16. All cycles have the same shape as the ones in Figures 5, 6, and 7. The only difference is that the political cycle in safe districts for the BJP has no peaks and is consistent with hypothesis (P3).

The magnitude of the pre-election peak in swing districts for the INC and the BJP is 56% of the average monthly release of funds. The magnitudes of the post-election peaks in safe districts for regional parties and swing districts for the BJP and regional parties are 55% and 76% of the average monthly release of funds, respectively. Safe districts for the INC and the BJP, and swing districts for the BJP and regional parties exhibit no cycle in the release of funds.
Figure C.14: Buying Votes Cycle in the Release of Funds in Swing Districts for the INC and the BJP

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, district-specific linear time trend, and district and time (year-month) fixed effects. Districts that are swing for the INC and the BJP in the state elections during 1994–2004 have been labeled *Swing for INC and BJP*. The omitted category is Year(+1). Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.15: Patronage Cycle in the Release of Funds in Safe Districts for Regional Parties and Swing Districts for the BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, district-specific linear time trends, and district and time (year-month) fixed effects. Districts where a regional party won the largest proportion of assembly constituencies in all the state elections during 1994–2004 have been labeled Safe for RP. Districts that are swing for the BJP and regional parties in the state elections during 1994–2004 have been labeled Swing for BJP & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Figure C.16: No Political Cycles in the Release of Funds in Safe districts for the INC and the BJP, and Swing Districts for the INC and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts where the INC and the BJP won the largest proportion of assembly constituencies in all state elections during 1994–2004 have been labeled Safe for INC and Safe for BJP respectively. Districts that are swing for the INC and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & RP. The omitted category is Year(+1) in all graphs. Elections occur just before the start of the cycle and at the end of the cycle. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
D Supplementary Figures and Tables

Figure D.1: Political cycle in the Release of Funds in Swing Districts for All Three Political Parties

Notes: This graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts which experienced a turnover between the INC, the BJP, and regional parties in the state elections during 1994–2004 have been labeled Swing for INC & BJP & RP. The omitted category is Year(+1) in all graphs. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
Table D.1: Political Cycles in Districts with Different Political Competition

<table>
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<tr>
<th>District Categories</th>
<th>Swing for INC &amp; BJP</th>
<th>Safe for RP</th>
<th>Swing for BJP &amp; RP</th>
<th>Safe for INC</th>
<th>Safe for BJP</th>
<th>Swing for INC &amp; RP</th>
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</thead>
<tbody>
<tr>
<td>Year(+2)</td>
<td>-0.195</td>
<td>0.763*</td>
<td>1.067***</td>
<td>-0.050</td>
<td>0.428</td>
<td>0.229</td>
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<td></td>
<td>(0.397)</td>
<td>(0.427)</td>
<td>(0.381)</td>
<td>(0.431)</td>
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<td>(0.283)</td>
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<tr>
<td>Year(+3)</td>
<td>-0.300</td>
<td>0.309</td>
<td>0.370</td>
<td>0.423</td>
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<td>0.143</td>
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<td>(0.424)</td>
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<td>(0.389)</td>
<td>(0.483)</td>
<td>(0.337)</td>
<td>(0.282)</td>
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<td>-0.672**</td>
<td>-0.751</td>
<td>-0.018</td>
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<td></td>
<td>(0.477)</td>
<td>(0.325)</td>
<td>(0.339)</td>
<td>(0.498)</td>
<td>(0.433)</td>
<td>(0.429)</td>
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<tr>
<td>Year(+5)</td>
<td>1.015*</td>
<td>-0.078</td>
<td>0.303</td>
<td>0.901</td>
<td>0.577</td>
<td>0.233</td>
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<td></td>
<td>(0.594)</td>
<td>(0.305)</td>
<td>(0.435)</td>
<td>(0.891)</td>
<td>(0.539)</td>
<td>(0.402)</td>
</tr>
</tbody>
</table>

| Observations        | 9,941               | 13,308     | 7,004             | 2,512       | 5,368       | 10,296            |
| R-squared           | 0.204               | 0.160      | 0.146             | 0.127       | 0.173       | 0.110             |
| District and Time FE| Y                   | Y          | Y                 | Y           | Y           | Y                 |
| Mean                | 1.710               | 1.347      | 1.388             | 1.631       | 1.353       | 1.040             |
| District Clusters   | 87                  | 118        | 62                | 22          | 47          | 90                |
| State-Year Clusters | 121                 | 110        | 99                | 121         | 88          | 143               |

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure for the TSC in a district. Each column reports the results for estimating model (3) in one of six categories of districts. Column (1) reports the estimated political cycle for districts that are swing for INC and BJP. Columns (2) and (3) report the estimated political cycles for districts that are safe for regional parties, and districts that are swing for BJP and regional parties, respectively. Columns (4)-(6) report the estimated political cycles for districts that are safe for INC, safe for BJP, and that are swing for INC and regional parties, respectively. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time fixed effects. Robust standard errors clustered at district and state-year levels are reported in the parentheses. Datasets used in this analysis: monthly release of funds under TSC during the years 2004-2014 and political data on state assembly elections during 1994-2014. *** p<0.01, ** p<0.05, * p<0.1
Table D.2: Timing of the Peak in the Patronage Cycle

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<th>Swing for BJP and RP</th>
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<td>(1)</td>
<td>(2)</td>
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<tr>
<td>Fiscal</td>
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<td>0.934**</td>
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<tr>
<td></td>
<td>(0.260)</td>
<td>(0.353)</td>
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<tr>
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<td>0.163</td>
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<tr>
<td></td>
<td>(0.216)</td>
<td>(0.264)</td>
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<tr>
<td>Year(+3)</td>
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<td>0.260</td>
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<td>(0.169)</td>
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<tr>
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<td>(0.143)</td>
</tr>
<tr>
<td>Year(+5)</td>
<td>-0.107</td>
<td>-0.077</td>
</tr>
<tr>
<td></td>
<td>(0.144)</td>
<td>(0.143)</td>
</tr>
<tr>
<td>Observations</td>
<td>13,072</td>
<td>13,072</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.161</td>
<td>0.162</td>
</tr>
<tr>
<td>District and Time FE</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mean</td>
<td>1.390</td>
<td>1.390</td>
</tr>
<tr>
<td>Std. Dev</td>
<td>6.513</td>
<td>6.513</td>
</tr>
<tr>
<td>Clusters</td>
<td>118</td>
<td>118</td>
</tr>
</tbody>
</table>

Notes: The unit of observation is a district-month. The dependent variable is the monthly per capita expenditure under TSC in a district. The Fiscal dummy now takes the value 1 in the first 12 months after an election. The sample for columns (1) and (2) are safe districts for regional parties. The sample for columns (3) and (4) are swing districts for the BJP and regional parties. Columns (1) and (3) report the estimation of model (4) without including the Fiscal dummy. Columns (2) and (4) report the estimation of model (4) including the Fiscal dummy. The omitted category is Year(+1) in each regression. All regressions control for the ratio of ACs in a district reserved for SCs and STs, and district and time fixed effects. Robust standard errors clustered at district level are reported in the parentheses. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014. *** p<0.01, ** p<0.05, * p<0.1
E Supplementary Analysis

E.1 Magnitude of the Patronage Cycle in Swing Districts for the BJP and Regional Parties

The magnitude of the peak in the “Patronage cycle” is much larger in swing districts for the BJP and regional parties compared to safe districts for regional parties (see 6). In this section, I argue that this difference in the magnitude of peaks is coming from the difference in the composition of regional parties in the two categories of districts.

While most of the regional parties that won in swing districts for the BJP and regional parties were allies of the central incumbent, the regional parties winning in safe districts for regional parties are a combination of allies and opponents of the central incumbent. Thus, the “Patronage cycle” observed in safe districts for regional parties is a combination of the cycles for Allies and Opponents (Figure 9) while the one observed in swing districts for the BJP and regional parties is driven by allies of the central incumbent. Because of this difference in the composition of regional parties between the two types of districts, the “Patronage cycle” in swing districts for the BJP and regional parties looks similar in magnitude to the one observed in safe districts for regional parties where allies of the central incumbent win (Figure E.1).

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67The BSP, the SP, the NCP, and the RJD won around 76% of the districts won by regional parties in these turnover districts.
Figure E.1: Patronage cycle in the release of funds in Districts Safe for Allies of the Central Incumbent and Swing Districts for BJP and Regional Parties

Notes: Each graph plots the average monthly release of funds in a district during an electoral cycle controlling for time-varying district characteristics, and district and time (year-month) fixed effects. Districts in Bihar, Jharkhand, Tamil Nadu, UP, and West Bengal where a regional party won the majority of assembly constituencies in all the state elections during this period have been labeled Allies of Center. Districts which experienced a turnover between the BJP and regional parties in the state elections during this period have been labeled Swing for BJP & RP. The graph on the right is the same one as in Figure 6 and the graph on the left is the same one as in Figure 9. The omitted category is Year(+1) in all graphs. Datasets used in this analysis: monthly release of funds for the TSC during 2004–2014 and political data on state assembly elections during 1994–2014.
E.2 Using IHDS household surveys

Using IHDS-2 (2011-12) Survey, I test if the probability of households in districts with the “Buying Votes Cycle” receiving funds under the TSC is higher than the probability of households in districts with the “Patronage Cycle” receiving funds under the TSC. I restrict the sample to only the three types of districts that have either the “Buying Votes Cycle” or the “Patronage Cycle” and estimate the following regression:

\[ y_{hds} = \alpha + \beta \text{INC/BJP}_d + \theta X_{hds} + \delta_s + \epsilon_{hds} \]  

(9)

where \( y_{hds} \) is an indicator variable for household \( h \) in district \( d \) and state \( s \) receiving government funds to build a toilet, \( \text{INC/BJP}_d \) is a dummy for district \( d \) being a swing district for the INC and the BJP, \( X_{hds} \) includes household level socio-economic controls, \(^68\) \( \delta_s \) are state fixed effects.

Households in districts with the “Buying Votes Cycle” are 10.1 percentage points more likely to say they received funds to build a toilet compared to households in districts with the “Patronage Cycle” (see Column (1) in Table E.1). In column (2), I restrict the sample to only households that did not have a toilet in the first round of the survey, and still households in districts with the “Buying Votes Cycle” are 9.1 percentage points more likely to say they received funds to build a toilet compared to households in districts with the “Patronage Cycle”.

In the TSC administrative data on allocation of funds, swing districts for the INC and the BJP receive the most funds on average and from household surveys I find that households in these districts are also most likely to say that they received government funds to build toilets. Additionally, among districts with the “Buying Votes Cycle” and the “Patronage Cycle” households in the former districts are more likely to receive funds to build toilets, also suggesting that funds in swing districts for the INC and the BJP are

\(^68\) \( X_{hds} \) includes controls for caste, religion, household assets, household size, percentage of household members who are adults, BPL status, size of land owned, per capita income, whether the household knows anyone in the panchayat, main income source, percentage of female household members, and sex of household head.
more likely to actually reach households and not just go to local politicians.

Table E.1: Results for Cross-Sectional Allocation of Funds Across Households in Safe Districts for Regional Parties and Swing Districts for the INC and the BJP

<table>
<thead>
<tr>
<th></th>
<th>All households</th>
<th>Households with no toilet in Round 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Swing for INC &amp; BJP</td>
<td>0.101***</td>
<td>0.092***</td>
</tr>
<tr>
<td></td>
<td>(0.021)</td>
<td>(0.020)</td>
</tr>
<tr>
<td>BPL</td>
<td>0.012</td>
<td>0.010</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Panchayat</td>
<td>0.014*</td>
<td>0.016*</td>
</tr>
<tr>
<td></td>
<td>(0.007)</td>
<td>(0.008)</td>
</tr>
<tr>
<td>Observations</td>
<td>14,248</td>
<td>11,027</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.048</td>
<td>0.054</td>
</tr>
<tr>
<td>State FE</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Mean</td>
<td>0.0713</td>
<td>0.0714</td>
</tr>
</tbody>
</table>

Notes: The unit of observation is a household. The dependent variable is an indicator for whether or not the household received funds from the government to build a latrine. Column (1) reports the results of estimation of specification (9) for all households. Columns (2) reports the results of estimation of specification (9) only for households that reported not having a latrine in the previous round of the IHDS survey. The omitted category in both regressions is districts safe for regional parties. Both regressions include controls for caste, religion, household assets, household size, percentage of household members who are adults, BPL status, size of land owned, per capita income, whether the household knows anyone in the panchayat, main income source, percentage of female household members, and sex of household head. Standard errors are clustered by district. Datasets used in this analysis: IHDS (2011-12) and political data on state assembly elections during 1994-2003. *** p<0.01, ** p<0.05, * p<0.1