# Whom are you doing a favor to?
# Political Alignment and Allocation of Public Servants[*]

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## Abstract

We critically examine the claim that political alignment, defined as the same party in power across different levels of government (state and local districts), is beneficial for the local area - a finding that the literature broadly agrees on. We argue that such welfare gains to aligned units is, at least partly, undone when one considers rent-seeking motives of local politicians. We examine the issue in a dynamic model of police assignment where the state assigns police to control rent-seeking activities of local politicians and the local politicians choose rent-seeking efforts to maximize lifetime payoffs. The model predicts that aligned districts are assigned lower quality police officers more often and aggregate rent-seeking is higher in aligned districts. We compile a unique panel dataset for the Indian state of Rajasthan to test the model's predictions; the dataset contains the complete career histories of police officers and administrative bureaucrats, and information on crime statistics. Consistent with the theory, we find that in aligned districts, "worse" police officers are allocated for longer duration, "better" ones are transferred out more frequently and, as a consequence, the crime situation is worse in aligned districts. This paper, therefore, emphasizes the need to look at a broader set of measures in determining the consequences of political alignment.

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# 1  Introduction

Decentralization in nation states has created governments at multiple tiers, from federal to state and further down to local districts and below. As a consequence, upper levels of government, such as federal and state, often need to decide how resources must be allocated to local governments for various purposes – development, administrative functions, law and order, and so forth. This is particularly the case in developing countries, where local governments lack the capacity to generate their own resources and, therefore, must rely heavily on the decisions and support of governments at higher levels. This creates an opportunity for the higher level governments to discriminate among local jurisdictions for political gains. Several papers, in fact, do find that local governments are allocated more resources if they are politically aligned with the higher level government, i.e., if the same political party controls the governments at both levels (see, for example, Solé-Ollé and Sorribas-Navarro (2008) for evidence from Spain, Arulampalam et al. (2009) and Khemani (2003) for evidence from India, Worthington and Dollery (1998) for evidence from Australia, Grossman (1994) and Levitt and Snyder (1995) for evidence from the US). All the papers in this literature on political alignment, however, share two common features: they focus on discrimination in the allocation of fiscal resources (i.e., tax revenues) and, in most cases, find that alignment leads to positive discrimination.[1]

In this paper, we ask if such positive discrimination creates differential incentives for local politicians in aligned vs. non-aligned jurisdictions to engage in rent-seeking and if the higher level government is able to mitigate such incentives. The question is important because if the equilibrium rent-seeking turns out to be different across the two types of local areas, then we may be estimating the consequences of political alignment incorrectly by ignoring the rent-seeking motives of local politicians. We answer this question by building a theoretical model that examines these issues in a dynamic framework and then testing its predictions in the context of state and district governments in India. We argue that in response to rent-seeking efforts of politicians in local districts, the state government deploys police officers, of varying abilities, across districts to keep such activities in check. However, if the incumbent politician in a politically aligned local district has differential incentives than the one in a non-aligned district, the assignment of police officers across districts should take that into account. At the same time, local district politicians must not only think of the current benefits of rent-seeking but also of how such rent-seeking may have a bearing on the reelection of the state government and, thus, on the district's future alignment status (and

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[1]Arulampalam et al. (2009) make a distinction between swing vs. non-swing jurisdictions, among the aligned ones, to show that positive discrimination occurs only for the swing jurisdictions. We discuss this point in our context later.

consequently, its future payoff).

As the preceding discussion suggests, we thus depart from the broad conceptual framework of the existing literature on political alignment in an important way. We argue that, apart from the allocation of fiscal resources, the allocation of *human resources*, e.g., police officers – our main focus – and also other administrative bureaucrats, across districts is a key means through which a higher level government can affect the welfare of local jurisdictions. It is not enough to simply look at the fiscal advantages of aligned districts at the cost of ignoring how such advantages may change the incentives of local politicians to seek rent.

Our theoretical model formalizes these ideas. We incorporate the findings of the literature by assuming that aligned districts have an exogenous reelection advantage over non-aligned districts (presumably owing to higher fiscal transfers). Importantly, we do not model aligned and non-aligned districts as providing differential benefits to the state government. The state government would ideally not want anyone to seek any rent. This permits a transparent focus on the rent-seeking behavior of district politicians and the state government's efforts to check such behavior through the assignment of police officers. However, not all police officers at the disposal of the state government are equally skilled at checking rent-seeking behavior. Some are good and others are bad, but each one must be assigned to some district. In every period, the state government assigns good and bad quality police officers in all the districts to maximize its reelection probability and the local politicians choose rent-seeking efforts to maximize their life-time payoffs. The number of districts and police officers being discrete, this is a discrete optimization problem. We show that it is possible to solve this problem tractably by looking at mixed strategies of the state government and converting it into a continuous problem. Our key finding is that even though the state government treats rent-seeking in all the districts equally, it assigns lower quality police officers to aligned districts and consequently, rent-seeking in aligned districts is higher.

We get this result primarily because of the following reason: suppose that the continuation pay-off of an aligned district is higher than that of the non-aligned district. One reason why it may be higher is that the politician in an aligned district is reelected with higher probability and therefore, has a higher effective discount factor (i.e., she cares more about future payoff). In that case, the politicians in aligned districts will prefer to get the current state government reelected (and maintain their alignment status). However, the politicians in non-aligned districts would prefer the exact opposite, i.e., they would prefer that the incumbent state government loses its reelection bid. Hence, *ceteris paribus* the politicians in non-aligned districts would have *higher* incentive to engage in rent-seeking than the aligned ones. In response to this asymmetric incentive, the state government responds by assigning the high quality police officers to non-aligned districts with a higher

probability. In equilibrium, rent-seeking efforts are equalized across all districts. However, the politicians in aligned districts enjoy higher rents because of higher marginal return on their rent-seeking efforts (thanks to bad quality police officers). This also justifies their high continuation pay-off in equilibrium, an assumption we started the argument with.

We argue that the higher level of rent-seeking in aligned districts likely undoes some of the welfare advantages of political alignment – aligned districts, even if assumed to have higher gross economic output, may have lower, or at least not as high welfare if much of that output if taken away as rents. As such, our model also sheds some light on the possible distributional consequences of alignment – if there is indeed a larger pie, who gets it? This motivates the title of our paper.

The Indian state of Rajasthan provides the context for our empirical work. We test our model's predictions by looking at how the political alignment of the state Chief Minster and the chairpersons of district councils relates to police allocation across districts. We focus on the assignment of Superintendents of Police (SPs). An SP is in-charge of the police force of a district. Not only does the SP look after the overall law and order situation in the district but also oversees the registration and investigation of various complaints and criminal offenses, many of which could potentially be related to rent-seeking behaviors.[2] Furthermore, as noted earlier, aligned districts tend to enjoy a better allocation of public funds. The key officer in a district responsible for the implementation of public works projects and the overall use of public funds is the District Magistrate (DM). Thus, the assignment pattern for SPs, as predicted by the model, should not hold for DMs. In fact, we should expect that better quality DMs should be assigned to aligned districts for the same reasons why aligned districts enjoy better fiscal transfers. We here are assuming that the allocation of a high quality DM to a district is positively correlated with the quality and efficiency of public works projects. Therefore, in our empirical analysis we contrast the patterns in SP assignment in relation to political alignment with that in DM assignment to drive home the point that it is in fact driven by political considerations of rent-seeking.

Rajasthan as the choice of the state for our study is advantageous for two reasons. Firstly, the political competition in the state is primarily between two major national parties, the Indian National Congress (INC) and the *Bharatiya Janata Party* (BJP), effectively making the political structure a two-party system. This makes the definition of political alignment clear, since we do not have to attend to the potentially time-varying allegiances of smaller regional parties. Secondly, during the period of our study, i.e., 2001-2015, the

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[2]Here by rent-seeking behavior, we understand any activity which results in redistribution of resources, either directly (such as property theft, embezzlement of funds, extortion etc) or indirectly (such as physical violence, kidnapping, or murder etc).

political control of the state changed in each of the three state assembly elections, alternating between the INC and the BJP. Thus, in our data, we have four state government tenures and three "mechanical" switches in alignment, since the district council (also known as *zila parishad* or ZP) and state assembly elections happen in different years. This gives us many switches for the same district, helping us tease out the role of alignment.

For this project, we compile a unique dataset containing local and state election results, complete career histories of administrative bureaucrats and police officers, and measures of crime across districts, spanning a period of 15 years. We find that political alignment *increases* transfers of SPs out of a district; these increased transfers, in turn, are related to an increase in the average crime rate in any district in aligned periods. This is in line with the prediction of our model that police allocations to aligned districts tend to be "worse," in some sense (see Footnote 6 in Section 2). In the case of DMs, we find that political alignment across tiers reduces the frequency of transfers, making local administration more stable.

We then go on to make a distinction between officers native to Rajasthan and those who are natives of other states but are assigned to serve in Rajasthan. The two types of officers differ in two important ways. Firstly, those who are natives of Rajasthan likely have more and better knowledge of local politics, culture, language, social relations and so on. Secondly, most candidates taking the entrance exams to join the public services show a strong preference to be assigned to their home states. And, as discussed in Section 3.3, candidates who rank high in the entrance exams are much more likely to be assigned to their most preferred state.[3] Therefore, a native of Rajasthan serving in Rajasthan is likely a "better quality" officer, both in terms of knowledge of local conditions and in terms of performance in the qualifying exams, than a native of, say, Karnataka or West Bengal serving in Rajasthan. Our second definition of quality is based on experience in the governance system before becoming an SP for the first time. Though eligibility for promotion under the civil services system follows a deterministic formula, there is a lot of variation in actual months of experience before moving up to higher ranks. We argue that spending more time in the bottom rungs of the hierarchy gives the officers better understanding of problem-solving and generally makes them more able in handling a larger police force at a higher level.

With this terminologies of quality defined, we find that, consistent with the theory, better quality SPs have shorter tenures in aligned districts while poorer quality SPs have longer tenures in aligned districts. We get this result under both definitions of quality. However, using the same definitions we get the exact opposite result for tenures of DMs,

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[3]As Iyer and Mani (2012, p. 725) note, "all else being equal, higher-ranked candidates are more likely to be assigned to their home state... the correlation between the home state dummy and the dummy for an officer being ranked in the top 20% of his cohort is 0.28, which is statistically significant at the 5% level."

i.e., "better" DMs are allocated to aligned districts for longer tenures and "worse" ones for shorter tenures (compared to their tenures in non-aligned districts). This suggests that the pattern of tenure we observe for SPs is specific to police assignment and therefore, is possibly related to the rent-seeking behavior of local politicians. On the other hand, assignment of administrative bureaucrats follows the pattern suggested by the literature. We further argue that short tenures are detrimental for efficiency since the SP gets less time to institute better processes and practices in the police force under his command. Consistent with this, we estimate, albeit imprecisely, that crime rates under a given native SP tend to be higher when he happens to be serving in an aligned district. We finally show that in districts where the reelection probabilities are close to one (i.e., same for both aligned and non-aligned ones), there is no difference in tenures of SPs across the two types of districts. This is also consistent with the model which shows that symmetric police assignment strategy is an equilibrium when the aligned and non-aligned districts are symmetric in every respect.

In addition to making a contribution to the literature on political alignment discussed above, we also position our work in the emerging literature on the functions of public servants and their interactions with politicians. Iyer and Mani (2012) show that changes in the state chief minister lead to transfers of bureaucrats across posts. Nath (2015) shows that district bureaucrats approve of development projects recommended by a politician faster when the politician is likely to be in office at the time the bureaucrat comes up for promotion. Gulzar and Pasquale (2015) show that the implementation of local public works is better when the responsible bureaucrat answers to a single politician. Khan et al. (2016) and Rasul and Rogger (2016) discuss the role of bureaucratic autonomy and other incentives (e.g., transfers) in motivating performance. While all these papers discuss how politicians might try to control bureaucrats, they do not, as we do, make distinctions among different types of public servants or focus closely on the differing welfare implications of the nature of the allocation of public servants across space.

## 2 Model

We set up a model of a two-tiered governance structure (e.g., a center and a collection of local districts) to the study the governance consequences of political alignment. The center and a local district are defined to be politically aligned if the same political party is in power in both. We model the incentives of politicians in local districts to engage in rent-seeking and the incentives of the center to assign police officers across districts to control such rent-seeking. For the most part, the existing literature on political alignment looks empirically at the allocation of fiscal revenues as a function of political alignment. The model departs

from the literature by looking at the allocation of public servants.

In the sections below, we first set up the model, then characterize the equilibria and, finally, discuss the welfare implications of the results for local districts.

## 2.1 Set up

### 2.1.1 Governance structure

Consider a setup with one central government (in our case, this would be the state government) and $D$ local district governments (*zila parishads*). We denote districts by $d \in \mathcal{D} = \{1, 2, ..., D\}$. We assume that each government unit has one politician who runs the office. There are two political parties and an infinitely large pool of politicians in each party. Time is discreet and infinite, $t \in \{1, 2, 3, ...\}$. At the beginning of every period $t$, elections are held at the center and all local districts; this determines the identity of the party in power in all $D + 1$ units of government at time $t$. We assume that politicians are infinitely lived and if a politician loses office, then she will never again run for it. We also assume that incumbent politicians, at the center and in the districts, always go up for reelection.

A district $d$ is said to be "aligned" (i.e., of type $A$) if the politician in power in $d$ belongs to the same party as the politician in power at the center. If the parties to which the politicians belong differ, then $d$ is said to be "non-aligned" (i.e., of type $N$). In particular, $\theta_{dt}$ denotes the type of any district $d$ at time $t$, i.e., $\theta_{dt} \in \{A, N\}$. We denote an alignment profile for all local districts at time $t$ by $\theta_t = (\theta_{1t}, \theta_{2t}, ..., \theta_{Dt})$ and let $\Theta$ be the set of all possible alignment profiles.

We now make two observations. First, the alignment status (or type) of a district is time dependent, since we allow for the possibility that an incumbent party may lose an election. Second, since there can only be one party at a given time in any unit of government – state or district – each district in each period is either aligned or non-aligned. Therefore, letting $\mathcal{A}_t$ denote the set of aligned districts at time $t$ and $\mathcal{N}_t$ the set of non-aligned districts at time $t$, we have:[4]

$$\mathcal{A}_t \cup \mathcal{N}_t = \mathcal{D}.$$

### 2.1.2 Flow payoffs of central and district governments

The payoff of the incumbent politician in each district comes from rent-seeking activities. However, earning rents from office requires effort. Therefore, the politician must decide how

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[4]Note that the agents in our model are the individual politicians and not the political parties. The party identity of politicians is only relevant to determine alignment status of districts. This distinction between a politician and a party is important – a party may come back to power at a later date after losing an election but an individual politician may not. This motivates the payoffs that we specify later.

much rent-seeking to engage in. Let such effort by the incumbent politician in district $d$ at time $t$ be denoted by $e_{dt}$. Thus, the flow payoff for the incumbent is:

$$u_{dt} = r_{dt}e_{dt} - \frac{e_{dt}^2}{2} \tag{1}$$

where $r_{dt}$ is the marginal return to an additional unit of rent-seeking effort. We assume that $e_{dt}, r_{dt} \in [0,1]$. Now, changes in $e_{dt}$ not just affect the district's current payoff but may also have a bearing on its future payoffs. We discuss this in more detail when we specify the lifetime payoffs of politicians. We assume that the center gets an exogenous flow rent of $R$ every period it remains in office.

### 2.1.3 Reelection of central and district governments

The incumbent politician in any district $d$ in period $t$ wins the election, and thus remains in power, with probability $\beta_t \in (0,1)$. We assume that $\beta_t \in \{\beta_A, \beta_N\} \ \forall \ t$, where $\beta_A$ is the probability of reelection of a politician in an aligned district and $\beta_N$ is the probability of reelection of a politician in a non-aligned district. We further assume that $\beta_A > \beta_N$. This assumption is motivated by the empirical finding in the literature, as discussed in Section 1, that aligned districts tend to get more financial resources than non-aligned ones. If alignment is, on average, financially beneficial for a district, then it may also improve the chances of reelection of the politician in the district.[5]

Before discussing the reelection probability of the center, we define the overall welfare of the economy. Let the income (or output) in the economy at time $t$, net of rent-seeking, be given by:

$$y_t = Y - r_0 - \sum_{d \in \mathcal{D}} r_{dt}e_{dt} \tag{2}$$

where $Y$, assumed to be time-invariant, is the gross income (or aggregate output) of the economy and $r_0 \in [0,1]$ is the per-period aggregate rent-seeking by non-politicians. We do not model non-politicians in our model and $r_0$ is assumed to be a constant. Hence, it will not be directly relevant for the ensuing equilibrium analysis but will, however, be important when we later discuss the welfare of individual districts. We assume that the gross output of the economy, $Y$, is large compared to the aggregate rents that local actors can extract. This assumption is motivated by the observation that in India, as in many other countries, much economic activity is not directly controlled by local politicians and

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[5]Note that the reelection probabilities of politicians in aligned and non-aligned districts are time-invariant. As such, we are implicitly assuming that the central government has a Markov strategy for allocating resources to districts. Going forward, we will focus on Markov Perfect Equilibria of the game; therefore, this assumption is consistent with the equilibrium notion we later employ.

governments have sufficient capacity to limit rent-extraction by non-politicians. Formally, we make the assumption:

**Assumption 1** $Y > 2(D+1)$

The probability that the incumbent politician at the center remains in power in period $t$ is given by $\pi_c(y_{t-1})$. For simplicity, we assume

$$\pi_c(y_{t-1}) = \frac{y_{t-1}}{Y}.$$

Therefore, when elections are held at the beginning of any period $t$, voters judge the center based on its performance in the previous period, where this performance is measured by income net of captured rents.

### 2.1.4 Lifetime payoffs of central and district governments

The center can assign police officers across districts to exert some measure of control over the rents that district politicians can extract. Police officers, however, vary in ability; some are more adept at checking rent-seeking effort than others. We assume, for simplicity, that there are officers of only two types of quality – good quality, denoted $a_G$, and bad quality, denoted $a_B$.[6] Let $a_{dt}$ denote the quality of the police officer (in our case, the Superintendent of Police of a district) assigned to district $d$ at time $t$. Therefore, $a_{dt} \in \{a_G, a_B\}$. We assume that

$$r_{dt} = r(a_{dt}).$$

Therefore, $r_{dt} \in \{r_H, r_L\}$, where $r_H = r(a_B)$ and $r_L = r(a_G)$, with $r_H > r_L$. Since the assignment of police officers only matters in so far as it determines the marginal returns to rent-seeking effort, we shall, instead, focus directly on the assignment of marginal rents $r_H$ and $r_L$ across districts. In every period, the center assigns marginal rents across districts to maximize its lifetime payoff.

There is a pool $D$ of police officers, exogenously given, of whom $D_H \geq 1$ are high marginal rent type, and thus of quality $a_B$, and $D_L \geq 1$ are low marginal rent type, and thus of quality $a_G$. Thus, $D_L + D_H = D$. The center's assignment rule for any period must respect this constraint. We also assume that rent-seeking by non-politicians depends linearly on the number of bad quality police officers in the economy, i.e., $r_0 = r_0 \cdot D_H$.

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[6]Note that we are not making a value judgment on the morality of police officers in India. A "bad" officer, in the context of our model, needn't necessarily be corrupt or incompetent, though it is possible he could be. He may simply be "bad" for the situation he finds himself in (e.g., ill-suited to local conditions, unaware of local social equations and so on). This, too, is important, since there is tremendous social and cultural diversity in India, and the police often has to work constructively with the local community, in addition to just mechanically enforcing the law.

Let $s_d = \mathbf{1}\{d$ has $a_B$ type officer$\}$ be an indicator for whether district $d$ is assigned a high marginal rent. We denote the center's set of pure strategies by $S = \{(s_1, s_2, ..., s_D) \in \{0,1\}^D : \sum_d s_d = D_H\}$. The set of mixed strategies is the simplex defined over the set $S$, denoted by $\Delta(S)$.[7] Let $\sigma = (\sigma_s)_{s \in S} \in \Delta(S)$ be a particular mixed strategy of the center. The optimization problem of the center can then be written as:

$$\max_{\{\sigma_t\}_{t=1}^{\infty}} R\left[1 + \sum_{t=2}^{\infty} \delta^{t-1}\mathbb{E}\left(\prod_{k=2}^{t}\pi_c(y_{k-1})\right)\right]$$

where $\delta \in (0,1)$ is the discount factor of any politician in the model.

It is clear that, for a local district, the choice of a higher level of rent-seeking effort not only changes current payoff but, by changing the probability that the incumbent party at the center will remain in power, also possibly changes future payoff. This is the case since the continuation payoff of a district may depend on its future alignment status. This is evident from a district politician's optimization problem, which can be written as:

$$\max_{\{e_{dt}\}_{t=1}^{\infty}} \mathbb{E}\left[\sum_{t=1}^{\infty} \delta^{t-1}\left(\prod_{k=1}^{t}\beta_k\right)\left(r_{dt}e_{dt} - \frac{e_{dt}^2}{2}\right)\right]$$

where $\beta_1 = 1$.

### 2.1.5 Sequence of events

The timing of events in any period $t$ is as follows:

1. Elections at both the center and the $D$ districts take place, with probabilities of winning given by $\pi_c(\cdot)$ and $\beta_d$, as discussed above.

2. The following two events occur simultaneously:

    2.1. The center decides the allocation of marginal return to rent-seeking effort for each $d$ (i.e., the center decides the allocation of police officers).

    2.2. All districts simultaneously choose level of rent-seeking effort.

3. Flow payoffs for the period are realized and the period ends.

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[7]We can think of the mixed strategies of the center as capturing the residual uncertainty of an outside researcher. In particular, even after accounting for available information, an outside researcher cannot precisely know what allocation of police officers the center will decide upon.

## 2.2   Definition of equilibrium

We focus on the Markov Perfect Equilibria of the game. In any such equilibrium, the center and any district $d$ condition their strategies in period $t$, $\sigma_t$ and $e_{dt}$, respectively, on the alignment profile of districts, $\theta_t$, determined as the outcome of the elections held at the beginning of period $t$. In particular, a Markov Perfect Equilibrium (MPE) $\{\sigma(\theta), e(\theta)\}$ specifies, as a function of the profile of alignment of districts $\theta \in \Theta$, the center's strategy $\sigma(\theta) \in \Delta(S)$, which gives the probability distribution over possible allocations of marginal rents across districts, and each district's strategy, $e(\theta) = (e_1(\theta), e_2(\theta), ..., e_D(\theta))$, which gives the choice of rent-seeking effort by the district. The assignment strategy $\sigma(\cdot)$ induces, for each district $d$, a probability, denoted by $p_d$, that the district is assigned high rent $r_H$:

$$p_d(\theta) = \sum_{\{s \in S : s_d = 1\}} \sigma_s(\theta)$$

We introduce this notation because we intend to focus on *type-symmetric* MPEs. This means that, for all districts that are of the same type, either aligned ($A$) or non-aligned ($N$), the equilibrium strategies must have the same implications:

$$p_d(\theta) = p_A(\theta) \ \text{ and } \ e_d(\theta) = e_A(\theta) \quad \forall\, d \in \mathcal{A}$$
$$p_d(\theta) = p_N(\theta) \ \text{ and } \ e_d(\theta) = e_N(\theta) \quad \forall\, d \in \mathcal{N}$$

Therefore, $p_A(\theta)$ $(p_N(\theta))$ is the probability that, given the alignment profile $\theta$, an aligned (non-aligned) district would be assigned a high rent. Likewise, $e_A(\theta)$ $(e_N(\theta))$ is the level of rent-seeking effort chosen by an aligned (non-aligned) district, for a given alignment profile $\theta$.

## 2.3   Reformulation of the problem

Focusing on type-symmetric MPE (or TSMPE) allows us to write value functions for just the two types of districts, instead of potentially writing one value function for each district, and a value function for the center. Let $V_c(\cdot)$ be the value function for the center. Let $V_A(\cdot)$ and $V_N(\cdot)$ be the value functions for aligned and non-aligned districts, respectively. Then,

$(p_A(\cdot), p_N(\cdot))$ solves:

$$V_c(\theta) = \max_{(p_A, p_N)} [R + \delta \pi_c(y(\theta)) V_c]$$

$$\text{such that } y(\theta) = Y - r_0 - \sum_{d \in \mathcal{A}(\theta)} r_A e_A(\theta) - \sum_{d \in \mathcal{N}(\theta)} r_N e_N(\theta)$$

$$r_A = p_A r_H + (1 - p_A) r_L$$

$$r_N = p_N r_H + (1 - p_N) r_L$$

$$p_A, p_N \in [0, 1]$$

$$D_H = |\mathcal{A}(\theta)| p_A + |\mathcal{N}(\theta)| p_N \tag{3}$$

where $V_c = \mathbb{E}_\theta(V_c(\theta))$ and $|T|$ is the cardinality of any set $T$. Condition (3) above specifies the relationship between the induced probabilities $p_A$ and $p_N$ and is derived as follows:

$$p_d(\theta) = \sum_{\{s \in S : s_d = 1\}} \sigma_s(\theta) = \sum_{s \in S} \sigma_s(\theta) s_d$$

$$\implies |\mathcal{A}(\theta)| p_A + |\mathcal{N}(\theta)| p_N = \sum_{d \in \mathcal{A}(\theta)} p_d(\theta) + \sum_{d \in \mathcal{N}(\theta)} p_d(\theta)$$

$$= \sum_{d \in \mathcal{D}} \sum_{s \in \mathcal{S}} \sigma_s(\theta) s_d$$

$$= \sum_{d \in \mathcal{D}} s_d \sum_{s \in \mathcal{S}} \sigma_s(\theta) = D_H$$

It is now straightforward to see that condition (3) may place some constraints on the possible values of $p_A$ and $p_N$:

$$\max\left\{0, \frac{D_H - |\mathcal{N}(\theta)|}{|\mathcal{A}(\theta)|}\right\} \leq p_A \leq \min\left\{1, \frac{D_H}{|\mathcal{A}(\theta)|}\right\} \tag{4}$$

$$\max\left\{0, \frac{D_H - |\mathcal{A}(\theta)|}{|\mathcal{N}(\theta)|}\right\} \leq p_N \leq \min\left\{1, \frac{D_H}{|\mathcal{N}(\theta)|}\right\} \tag{5}$$

Now, for any district government, $(e_A(\theta), e_N(\theta))$ solves:

$$V_A(\theta) = \max_{e_A}\left(r_A(\theta) e_A - \frac{e_A^2}{2}\right) + \delta \beta_A [\pi_c(y(\theta)) V_A + (1 - \pi_c(y(\theta))) V_N] \tag{6}$$

$$V_N(\theta) = \max_{e_N}\left(r_N(\theta) e_N - \frac{e_N^2}{2}\right) + \delta \beta_N [\pi_c(y(\theta)) V_N + (1 - \pi_c(y(\theta))) V_A] \tag{7}$$

where $V_S = \mathbb{E}_\theta V_S(\theta)$ and $r_S(\theta) = p_S(\theta) r_H + (1 - p_S(\theta)) r_L$ for $S \in \{A, N\}$ and $(p_A(\theta), p_N(\theta))$ is as defined previously.

## 2.4  Characterization of the equilibrium

In this section, we characterize the TSMPE by studying how rent assignments relate to the choices of rent-seeking efforts of aligned and non-aligned districts. Throughout this section, we focus on cases in which both aligned and non-aligned districts are present in the economy, i.e., we only consider alignment profiles that are in the set $\tilde{\Theta} \equiv \{\theta : |\mathcal{A}| > 0 \text{ and } |\mathcal{N}| > 0\}$; otherwise, the problem of assigning police officers is trivial. Now, for the purposes of the results, we define the following constant:

$$\kappa \equiv \left[ \frac{(1 - \delta) Y - \beta_A \delta}{(1 - \delta) Y + \beta_N \delta} \right] < 1$$

We use $\kappa$ to make the following assumptions:

**Assumption 2** $\frac{r_H}{r_L} \geq \max\left\{ \frac{D - D_H}{\kappa D - D_H}, \frac{(1 - \kappa) D + \kappa D_H}{\kappa D_H} \right\}$

**Assumption 3** $\left( \frac{r_H}{r_L} \right)^2 \leq \frac{1 - \delta \beta_N}{1 - \delta \beta_A}$

**Lemma 1** *Suppose Assumption 2 holds and $V_A \geq V_N$ in an equilibrium. Then, $\forall \theta \in \tilde{\Theta}$, we have $e_A(\theta) = e_N(\theta)$.*

**Proof.** See Appendix A. ∎

> We now show that, in any equilibrium in which the expected continuation value for an aligned district is (strictly) greater than that for a non-aligned district, the probability that the center will assign a high marginal rent (i.e., a bad quality police officer) to an aligned district is (strictly) larger.

**Lemma 2** *Suppose $V_A > V_N$ in equilibrium. Then, for all $\theta \in \tilde{\Theta}$, $p_A(\theta) > p_N(\theta)$.*

**Proof.** See Appendix B. ∎

We now prove the main result of our model.

**Proposition 1** *Suppose Assumptions 1-3 hold. Then, the set of TSMPE is non-empty. Further, in all TSMPE, we have: (i) $V_A > V_N$ for all $\theta \in \tilde{\Theta}$, (ii) $e_A(\theta) = e_N(\theta)$, (iii) $p_A(\theta) > p_N(\theta)$, and (iv) $r_A(\theta) e_A(\theta) > r_N(\theta) e_N(\theta)$.*

**Proof.** See Appendix C. ∎

The main result of the paper shows that under certain conditions, the state government would assign the high ability police officers (i.e., low marginal rent, $r_L$) to the non-aligned districts more frequently and the low ability police officers to aligned districts more frequently. Though the rent0seeking efforts will be equalized across all districts, the aggregate rent-seeking will be higher in aligned districts. We finally show in the following proposition that the symmetric police assignment strategy is part of an equilibrium when $\beta_A = \beta_N$.

**Proposition 2** *Suppose Assumption 2 holds and $\beta_A = \beta_N$. Then the following is an equilibrium of the game: (i) $V_A = V_N$, and for all $\theta \in \tilde{\Theta}$, (ii) $e_A(\theta) = e_N(\theta)$, (iii) $p_A(\theta) = p_N(\theta)$, (iv) $r_A(\theta)e_A(\theta) = r_N(\theta)e_N(\theta)$.*

**Proof.** Suppose $V_A = V_N$ to begin with, which implies that $e_A(\theta) = r_A(\theta)$ and $e_N(\theta) = r_N(\theta)$. Therefore, $v_A(\theta) = v_N(\theta)$ for all $\theta$ and hence, $v_A = v_N$. This shows that $V_A = V_N$ will be true in equilibrium. Now Assumption 2 ensures that $e_A(\theta) = e_N(\theta)$. Therefore we have $r_A(\theta) = r_N(\theta)$ which gives us the rest of the results. ∎

## 2.5 District welfare

The key innovation of our model is that the government at the center can use police assignments to check rent-seeking activities of politicians in local districts. We now take a look at the welfare implications of this for local districts. We take as given that the center favors aligned districts in the allocation of financial resources and public projects. This is in line with the evidence in the literature, as discussed in Section 1. In our analytical framework in this paper, we take this preferential treatment of aligned districts to mean that the center assigns better administrative bureaucrats to aligned districts for better implementation of public projects; we show evidence in support of this in our empirical work. On the other hand, however, our model suggests makes a striking prediction – for all the electoral benefits that aligned districts enjoy ($\beta_A > \beta_N$), they still receive worse police allocations. As a consequence, politicians in aligned districts engage in rent-seeking activities to a greater extent. Furthermore, it is likely that such police allocations are also conducive to higher rent-seeking by non-politicians in aligned districts: $\mathbb{E}_\theta r_{0A} > \mathbb{E}_\theta r_{0N}$. Now, suppose that $Y_A$ is the economic output of an aligned district and $Y_N$ is that of a non-aligned district, with $Y_A > Y_N > 0$. We can then write the welfare $W_T$ of a district of type $T \in \{A, N\}$ as follows:

$$W_A = Y_A - \mathbb{E}_\theta r_A e_A - \mathbb{E}_\theta r_{0A}$$

$$W_N = Y_N - \mathbb{E}_\theta r_N e_N - \mathbb{E}_\theta r_{0N}$$

Thus, even if $Y_A > Y_N$, higher rent-seeking by politicians (as per Proposition 1, (iv)) and non-politicians *may in fact* lead to $W_A < W_N$. Thus, simply focusing on the fiscal advantages of aligned districts, ignoring local incentives for rent-seeking, may lead us to overestimate the welfare benefits of political alignment for common people.

# 3    Background

## 3.1    Political structures

The setting for our study is the Indian state of Rajasthan. Each state in India is comprised of administrative units called districts. There are thirty-three such districts in Rajasthan. Each district, in turn, consists of smaller administrative units called blocks or *tehsils*. We now discuss the political institutions or entities we will focus on and how they relate to these administrative units.

1. **The *Zilla Parishad* (ZP) or District Council.** The key structure of governance in rural India is the three-tiered *Panchayati Raj* system, consisting of councils at the village, block (intermediate), and district levels in each state. This system of rural governance, in its current form, was established by the 73ʳᵈ Amendment to the Constitution of India in 1992. The ZP is the highest tier of this three-tiered structure. Members of the ZP are elected directly by the people and then elect a Chairperson from amongst themselves. In the case of Rajasthan, most members of a ZP belong to one of the two major national political parties in India, the Indian National Congress (INC) or the *Bharatiya Janata Party* (BJP). Therefore, in almost all districts and all years in the data set, the Chairperson of a ZP is from either the INC or the BJP. In some cases, the Chairperson may be listed as "independent," or having no formal political affiliation. However, even in such cases, the Chairperson likely holds office as a consequence of the political support of either the Congress or the BJP.

   The Chairperson of the ZP is also the *ex-officio* Chairperson of the District Planning Committee, an organization responsible for drafting broad plans for developing infrastructure in the district as a whole.

2. **The State Government.** The state legislature or assembly in Rajasthan has two hundred members. Each member, called a Member of the Legislative Assembly (MLA), is elected from an electoral constituency, a precisely defined geographical region. The party or coalition with a majority of seats in the legislature forms the government, headed by a Chief Minister.

In all the Rajasthan assembly elections in our data set, there is no case of a coalition government – the BJP or the Congress win a clear majority or, when a few seats short, form the government with the outside support of a few MLAs.

There are two hundred MLA constituencies but, as mentioned previously, thirty-three districts. Therefore, an administrative district often has several MLAs. Note that each MLA constituency is entirely contained within a particular administrative district.

We define political alignment to be a function of the party affiliation at a given point in time of the entities discussed above. If the Chief Minister and ZP chairperson belong to the same party, then the ZP and state government are said to be politically aligned.

## 3.2 Elections

Elections for the state assembly and all the ZPs in the state happen every five years, though the five-year cycles are frequently different in most states. In the period that our election data on Rajasthan covers, state assembly elections in Rajasthan take place in 2003, 2008 and 2013. The state assembly elections happen in December of these years, so we have coded the *next* years (i.e., 2004, 2009 and 2014) to be the years of the assembly elections, since the new Chief Minister and government only effectively take charge in January. *Panchayati Raj* elections, i.e., elections for all ZPs in the state, take place in 2000, 2005 and 2010, at the beginning of the year. See Figure 1.

The electorate for a ZP election comprises all the residents of all the village councils, the lowest tier of the three-tiered structure discussed above, of that district. The electorate for the assembly elections comprises all those with a voter ID card registered in the state of Rajasthan.

## 3.3 District public servants

We study the following key officials at the district level, focusing primarily on the Superintendents of Police.

1. **Superintendent of Police (SP).** The SP is the head of the police force of a district. SPs are officers of the Indian Police Service (IPS), one of the various All India Services, and are recruited through extremely competitive examinations and are not permitted to be members of any political party. On joining the IPS, an officer is assigned a cadre, the state in which the officer will serve. Most candidates express a preference to be assigned to their home states. However, higher ranked candidates are more likely to be

16

assigned to their most preferred state. Thus, officers of a state who are also assigned that state cadre are likely to be higher-ranked in the examinations.

According to articles 310 and 311 of the Indian Constitution, IPS officers serve at the pleasure of the President of India and can only be removed or reduced in rank after a thorough inquiry. In particular, they cannot be dismissed by state-level elected representatives or politicians. Wages of the officers are set by independent pay commissions and are a function of rank. In practice, officers are rarely ever dismissed or demoted.[8] However, the Chief Minister of the state or, more generally, the state government can transfer police officers across posts.

2. **District Collector or District Magistrate (DM).** The DM is the highest-ranked administrative bureaucrat in a district. Almost all DMs are officers of the Indian Administrative Services (IAS) (some may belong to the State Civil Services). The IAS, like the IPS, is an All India Services, officers for which are recruited and assigned cadres through the same process. Candidates for the IAS take the same written examinations as those for the IPS. The All India Service a candidate qualifies for is both a function of preference and rank in the examinations. The rank needed to qualify for the IAS is usually higher than that needed to qualify for the IPS and, as in the case of the IPS, the cadre preferences of higher ranked candidates are more likely to be honored. Just like IPS officers, IAS officers cannot be dismissed or demoted by the state government but can be transferred across posts.

The DM is responsible for a host of matters in a district, such as development works, collection of land revenues and other taxes, and so on. DMs also often hold open office hours during the day, with people from all across the district coming with complaints and suggestions. Broadly, the DM is the administrative chief of a district, keeping track of and coordinating various activities related to development and governance.

SPs and DMs play an important role in governing and administering a district. Thus, it seems entirely plausible that these officers interact closely with elected representatives at different tiers of governance. For instance, if the ZP wishes to push through a development project in a district, it may not only have to request the state government for funds but also discuss the technical feasibility of the project with the DM. Furthermore, politicians in the ZP may press the state government to transfer and replace an SP or DM that they do not like.

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[8]Prosecuting IPS officers is a tedious process. For instance, a law enforcement agency cannot press charges against an IPS officer under the Prevention of Corruption Act, 1988 without the prior prosecution sanction of the Central Government, as per Section 197 of the Code of Criminal Procedure, 1973.

# 4    Data

## 4.1    Sources

The data for this paper come from various publicly available sources. The data on ZP elections come from the website of the State Election Commission of Rajasthan. We use the ZP election results for the years 2000, 2005 and 2010. The data contain information on the party, social group (e.g. scheduled caste, scheduled tribe, other backward class or general) and sex of the elected chairperson, the reservation status (e.g., whether reserved for any social group or open to all) of the post of the chairperson and the number of ZP members elected from each political party and social group.

The data on the state assembly elections come from the website of the Election Commission of India. We use the assembly election results for 1998, 2003, 2008 and 2013. We have information on the number of MLA constituencies in each administrative district, the political party of the candidate elected from each such MLA constituency, the number of MLA constituencies in each district reserved for different social groups or left unreserved in a given election year, and so on. Note that each MLA constituency is entirely contained within a particular administrative district.

The data on the officials discussed in Section 3.3 is sourced from the civil list of the Department of Personnel of the Government of Rajasthan. We have the complete career histories (title and duration of each posting) of all officers who ever served as DM in any district of Rajasthan over the period 2005-2015. We also have the complete career histories of all IPS officers who served as SPs in any district of Rajasthan over the period 2001-2013.

We use data on crime rates for the period 2001-2013, taken from the National Crime Records Bureau of India. For each year in the data and each district, we have the number of crimes recorded by the police under various heads, such as robbery, burglary, grievous hurt, and so on. To compute crime rates, we use district population totals from the 2001 and 2011 Census of India, calculating the figures for non-census years by linear interpolation. Lastly, we also use data on night lights from the National Oceanic and Atmospheric Administration (NOAA), to control for overall economic activity.

## 4.2    Descriptive Statistics

In Table 1, we report means and standard deviations of several variables of interest. A little more than half of the district-year observations are aligned in our sample. We also find that "DM Change," an indicator for whether a DM was changed in a given district-year, has a mean in the data set of 0.55. This means that there is a 0.55 probability that the DM

in a given district in a given year is transferred. The corresponding variable for SPs, "SP Change," has a much higher mean of 0.81. This already indicates that assignment patterns may be different across the two types of public servants. The average age at which an officer serving as a SP joins the IPS is 31 years, while this average for DMs is 27 years. For the period under study, the average number of postings of an SP is 3.2 while that of a DM is 2.7. Related to this, the average tenure of a DM is 16.3 months while that of an SP is 13.5 months. These summary statistics for frequency of transfers, tenure length and number of postings are thus consistent, and broadly paint the picture that SPs are shuffled across posts more often than DMs. Figure 3 shows that average tenure of officers as SPs (or DMs) is positively correlated with their average tenures in all positions. This indicates that there are some officers who are potentially more efficient in their governance, and therefore, tend to stay longer in whatever position they are assigned in. However, the scatter plot makes it very clear that there is enormous variation around the fitted line, and hence, ability is only one factor determining the tenure of an officer.

# 5  Empirical Methodology

We first test if the transfer rate of SPs is different across aligned and non-aligned districts. We do this to check if on average the aligned districts have more or less stable tenures for SPs. Since more stable or longer tenures help law enforcers to institute better enforcement measures and practices, systematic differences in transfer rates between the two types of districts should correspond with similar differences in the law and order situation. We therefore run the following specifications:

$$SP_{dt} = \delta_s alignment_{dt} + \beta_s X_{dt} + \phi_d + \psi_t + \epsilon_{dt} \tag{8}$$

$$C_{dt} = \delta_c alignment_{dt} + \beta_c X_{dt} + \phi_d + \psi_t + \epsilon_{dt} \tag{9}$$

where $SP_{dt}$ is a dummy that denotes whether a Superintendent of Police is changed in district $d$ in year $t$, $C_{dt}$ measures crime per capita, $alignment_{dt}$ is a dummy indicating whether the ruling party in the *Zilla Parishad* (ZP) is aligned with the Chief Minister's party, i.e., whether the district and state governments are ruled by the same political party, $X_{dt}$ is a vector of time varying district characteristics, such as population and economic activity (as captured by per capita luminosity), $\phi_d$ and $\psi_t$ are district and time fixed effects to control for time invariant district characteristics and state specific yearly shocks that may affect outcomes in all districts. In the case of crime, we also check if different categories of crime are heterogeneously related to political alignment.

We wish to emphasize here that we look at patterns in crime rates across districts not to point out that these crimes are being committed by the local politicians. Our motivation for looking at the crime statistics is twofold. Firstly, we use proximate measures of quality of public servants and therefore, one can argue that it may be extremely noisy. We claim that if our measures of quality of police officers have any merit then we should get similar patterns for crime rates as well, since for SPs, that is one important and objective parameter to judge them against. Also, as we argue in the model, better officers can check rent-seeking by not just politicians, but by non-politicians as well. Hence, if we find consistent patterns for district level crime rates it would also imply that differential police assignments possibly have real welfare consequences for the districts, beyond the consequences for local politicians.

With that disclaimer in place, we go on to find out if any systematic differences in frequency of transfers or crime rates are clustered around election years, i.e., whether the transfers and crimes rates follow a political cycle, as Iyer and Mani (2012) would predict. Notice that our model would suggest otherwise; any systematic differences in transfers of SPs owing to rent-seeking considerations of local politicians would be uniform across the entire alignment tenure of the districts. To test if the relationship of alignment to our outcome variables is uniform across all the years in which the districts are aligned, we run the following specifications:

$$SP_{dt} = \delta_s alignment_{dt} + \gamma_{s1} alignment_{dt} \times State\_election\_year_t + \zeta_s X_{dt} + \phi_d + \psi_t + \epsilon_{dt}$$
(10)

$$SP_{dt} = \delta_s alignment_{dt} + \gamma_{s2} alignment_{dt} \times ZP\_election\_year_t + \zeta_s X_{dt} + \phi_d + \psi_t + \epsilon_{dt} \quad (11)$$

where $State\_election\_year_t$ and $ZP\_election\_year_t$ are indicators for whether there was a state or ZP election in year $t$. $\delta_s$, $\gamma_{s1}$ and $\gamma_{s2}$ are our coefficients of interest. We also run the same specification with measures of crime as our dependent variable. Let $\delta_c$, $\gamma_{c1}$ and $\gamma_{c2}$ be the corresponding coefficients of interest in that specification. According to our model's predictions we have the following hypothesis:

**Hypothesis 1**
$$(i) \ \delta_s, \ \delta_c \ > \ 0 \quad and \quad (ii) \ \gamma_{si}, \ \gamma_{ci} = 0, \ \ i = 1, 2.$$

We then look at SP characteristics to test if career paths are differentially related to political alignment in ways that would be consistent with our model. Firstly, note that IPS officers serving in Rajasthan who are also natives of Rajasthan are better ranked in the civil services exams than those who come to Rajasthan from other states. This is mostly due to

the way in which officers are assigned state cadres, as discussed in Section **??**. Also, officers for whom Rajasthan is a home state likely have a better understanding of the local law and order situation than officers of other states. This is our first definition of quality. In order to test if the transfers of police officers of different home states are differentially related to political alignment, we estimate the following specification:

$$SPtenure_{idt} = \lambda_{s1}alignment_{dt} + \lambda_{s2}alignment_{dt} \times Homestate_i + \zeta_s X_{dt} + \psi_i + \phi_t + \epsilon_{idt} \quad (12)$$

where $SPtenure_{idt}$ is the number of months that police officer $i$ served as SP in district $d$ during a period that intersects the year $t$ (i.e., the tenure variable has the same value for all the years in which the officer was present in that district), $Homestate_i$ is a dummy indicating whether Rajasthan is the officer's home state, and $\psi_i$ and $\phi_t$ are officer and time fixed effects, respectively. Therefore, we follow the same officer through various SP appointments across districts in Rajasthan and test if the political alignment of those districts with the state government bears any relation to the length of the officer's tenure.[9]

Our second definition of quality is the experience of the officer in the system, calculated in number of months, before becoming a SP for the first time. The IPS (or IAS) officers become eligible for promotion after spending a fixed number of months in service, i.e., the eligibility for promotion follows a deterministic formula. However, the actual promotion may vary since there may not be enough positions open for that level of appointment. Hence when we look at actual time spent in the service before becoming SP (or DM) for the first time, there is a wide variation across officers (See Figure 2). We exploit this variation to estimate the following specification:

$$SPtenure_{idt} = \lambda_{s1}alignment_{dt} + \lambda_{s2}alignment_{dt} \times Experience_i + \zeta_s X_{dt} + \psi_i + \phi_t + \epsilon_{idt} \quad (13)$$

where $Experience_i$ is the number of months an officer spends in the system before becoming a SP for the first time. Proposition **??** part (ii) of the model predicts that officers who are "better" according to these definitions would have shorter tenure and the "worse" ones will have longer tenure in aligned districts. We therefore test the following hypothesis for both specifications 12 and 13:

**Hypothesis 2**

$$(i) \ \lambda_{s1} \ > \ 0 \quad and \quad (ii) \ \lambda_{s2} \ < \ 0$$

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[9]We know the officers' home districts as well, and hence, could possibly have done the same analysis by checking their "home district" status (the assumption being that the officers are more knowledgeable about home districts than others). However, there are only 2% officer-year observations where the home districts are assigned to a SP. Therefore we are not able to test it meaningfully.

We would further like to confirm that the tenure pattern that we observe for SPs is specific to police officer assignment, since they are in charge of controlling the rent-seeking behavior of everyone. To test this we look at tenure patterns of DMs. Since DMs are in charge of implementing public projects, they are essentially responsible for ensuring efficient utilization of resources available for a district. If it is indeed the case that aligned jurisdictions are allocated greater resources, it should follow that they would also be assigned "better" administrative bureaucrats to utilize the resources better. We therefore estimate:

$$DMtenure_{idt} = \lambda_{b1} alignment_{dt} + \lambda_{b2} alignment_{dt} \times Homestate_i + \zeta_b X_{dt} + \psi_i + \phi_t + \epsilon_{idt} \quad (14)$$

$$DMtenure_{idt} = \lambda_{b1} alignment_{dt} + \lambda_{b2} alignment_{dt} \times Experience_i + \zeta_b X_{dt} + \psi_i + \phi_t + \epsilon_{idt} \quad (15)$$

where $DMtenure_{idt}$ is same variable corresponding to DMs. We then test the following hypothesis:

**Hypothesis 3**

$$(i) \ \lambda_{b1} \ < \ 0 \quad and \quad (ii) \ \lambda_{b2} \ > \ 0$$

We conclude this line of enquiry by looking at the outcome variable, i.e., crime statistics. We test if aligned districts experienced differential crime rates under police officers of different qualities. We should expect this because of the following logic: firstly, SPs whose home state is Rajasthan stays for shorter duration of time in aligned districts. Secondly, shorter duration of time spent in a district implies constrained capacities to control the law and order situation. Finally, the opposite is true for SPs who are from outside the state. Formally, we estimate:

$$C_{idt} = \lambda_{c1} alignment_{dt} + \lambda_{c2} alignment_{dt} \times Homestate_i + \zeta_c X_{dt} + \psi_i + \phi_t + \epsilon_{idt} \quad (16)$$

where $C_{idt}$ is measures of crime per capita in district $d$ during the SP tenure of officer $i$ in year $t$. We test the following hypothesis:

**Hypothesis 4**

$$(i) \ \lambda_{c1} \ < \ 0 \quad and \quad (ii) \ \lambda_{c2} \ > \ 0$$

Finally, we formally test Proposition 2. We check if the relationship of alignment to SP transfers and crime is different in districts where the reelection probabilities are close to

1 for districts of both types (i.e., in the language of the model, $\beta_A = \beta_N = 1$). Our model predicts that if reelection probabilities are same then the center could play the symmetric strategy and therefore, we may not observe any difference between police assignments across aligned and non-aligned districts. There are districts in the data in which the political party of the ZP chairperson does not change for the entire period of study. We mark such ZPs as politically "safe" and then test if the alignment relations are different across "safe" and "non-safe" ZPs by running the following regression specification:

$$SP_{dt} = \eta_{s1}alignment_{dt} + \eta_{s2}alignment_{dt} \times Safe\_ZP_d + \beta X_{dt} + \phi_d + \psi_t + \epsilon_{dt} \qquad (17)$$

Also, if our argument has merit, then the relationship between political alignment and crime should have similar patterns across "safe" and "unsafe" ZPs. We therefore further estimate the following specification:

$$C_{dt} = \eta_{c1}alignment_{dt} + \eta_{c2}alignment_{dt} \times Safe\_ZP_d + \beta X_{dt} + \phi_d + \psi_t + \epsilon_{dt} \qquad (18)$$

We test the following hypothesis:

**Hypothesis 5**

$$(i) \ \eta_{s1} > 0, \quad \eta_{s2} < 0 \quad and \quad \eta_{s1} + \eta_{s2} = 0$$
$$(ii) \ \eta_{c1} > 0, \quad \eta_{c2} < 0 \quad and \quad \eta_{c1} + \eta_{c2} = 0$$

One concern with our specification is that, right after coming to power at the state, a political party may reallocate bureaucrats before the ZP elections in order to influence the upcoming potential alignment switches. Moreover, the nature of such reallocation may differ by existing alignment patterns, since currently aligned districts may vote differently in the ZP elections than misaligned districts. We assumed away such possibilities in the model by making the reelection probabilities of district politicians exogenous. However, in Rajasthan there is only a year between the time the Chief Minster assumes office and the time that the subsequent ZP elections take place. Hence, the CM has limited ability to influence the ZP elections and the alignment status of each ZP is given for most of the tenure of the CM. Also, the point estimate for specification (8) remains essentially the same if we remove the first years of all CM tenures.

# 6 Results

Table 2 shows the results for specification (8) for the SPs in the districts. Column (1) shows that alignment between the ZP and the CM is related to increased transfers of SPs. Given the mean transfer rates of SPs, a SP in an aligned district is 10% more likely to be transferred than in a non-aligned district. Then in columns (2) and (3) we check if there is any political cycle to this increased transfer rates of SPs and we do not find any such pattern. In fact, the transfer rates during the district elections seems a lot lower, as shown in column (3) (though noisily measured). In column (2) though the coefficient $\hat{\delta}_s$ becomes statistically insignificant, its magnitude is almost identical to the one in column (1). We then look at crime rates to estimate equation (9). The results are reported in Table 3. We measure crime rate as the number of criminal cases reported per $100,000$ population in police stations in a district in a year. Column (1) of Table 3 shows that the crime rate in a district is about 3.6% higher in aligned periods than in misaligned periods. Columns (2) and (3) confirm that this uptick in crime is not concentrated in either the state or the local election years. We, therefore, validate all components of Hypothesis 1. Moreover, we look at various categories of crime to check if the overall pattern in the relationship between political alignment and crime is driven by certain specific category of crime. The results in Panel A of Table 4 show that this uptick in crime rates is spread across various crime categories, from property crime, such as robbery, burglary and theft, to violent crime, such as grievous hurt. The results for other violent crimes such as murder and kidnapping (not reported) are also in the right direction but are statistically insignificant.

We then estimate equations (12) and (13) to test Hypothesis 2. Table 5 reports the results of the specifications. Consistent with our hypothesis, we find that it is the tenure of the home-state SPs that is getting shortened in aligned districts. Also, we find that SPs who are not from Rajasthan stay longer in aligned districts than in non-aligned ones. The magnitudes of the coefficients are also quite large; an appointment in an aligned district reduces the tenure of an SP from Rajasthan by about 25% but increases the tenure of an SP from another state by about 16%. Figure 4 corroborates this as well. The left panel of the figure shows that officers with more experience have shorter tenures in their first appointment as SPs. The right panel, however, makes it clear that this relationship is true only for the officers who are from Rajasthan; there is no such relationship for the officers from other states. This is consistent with the idea that officers from outside Rajasthan are less competent (exam rank-wise) and less knowledgeable about local conditions and, therefore, are not transferred out of aligned districts, so that local politicians are better positioned to extract more rent. We therefore validate Hypothesis 2.

24

We then look at administrative bureaucrats, i.e., DMs to estimate equations (14) and (15). Table 6 reports the results. Consistent with our hypothesis, we find patterns exactly the opposite of those we find for SPs. Specifically, as seen in Table 6, DMs who are native to Rajasthan tend to serve longer periods in aligned as opposed to misaligned districts. On the other hand, DMs native to other states tend to have shorter tenures in aligned districts. Magnitudes of the coefficients are again on the higher side. DMs from Rajasthan enjoy about 12.7% longer tenures in aligned districts, while DMs who are from outside the state experience 23% fall in their tenure. The patterns are same when we look at experience in column (3), though the interaction coefficient is noisily measured. We therefore fail to reject Hypothesis 3.

We then look at crime rates and estimate equation (16). The results are reported in Table 7. Though the magnitudes are large, and all the signs are in exactly the same direction as predicted in Hypothesis 4, all the coefficients have noisy estimates. Going by the point estimates, the result in column (2) suggests that when a SP from Rajasthan lands up in an aligned district, the district experiences a 2.9% increase in overall crime rate (presumably because of his shorter tenure in such districts), compared to non-aligned districts managed by the same SP. However, for a SP from outside the state, there is a 4% fall in crime rate in an aligned district managed by him. Also, comparison of columns (4) and (6) suggests that most of this variation is coming from violent crime categories such as grievous hurt.

We finally estimate equations (17) and (18) and test Hypothesis 5. Table 8 reports the relevant results. For SP transfers, comparing columns (1) and (2), we see that the relation of alignment to SP transfers is significantly strong and positive in ZPs where probability of reelection is less than 1. Though the coefficient for the safe ZPs is negative, it is noisy. However, the large magnitude of the interaction term is consistent with our hypothesis. Looking at crime rates helps buttress this result. Comparing columns (3) and (4) in same table, we find that the relationship of alignment and crime is mostly driven by the "unsafe" ZPs. In terms of magnitude, an "unsafe" district experiences 6% more crime per capita on average in any aligned year than in any misaligned year; on the other hand, for the safe ZPs there is no difference in crime rates across the aligned and misaligned years. We therefore validate Hypothesis 5 as well.

# 7    Conclusion

In this paper, we reexamine the claim that political alignment between a state and local districts is beneficial for the local area. We contend that if asymmetric fiscal transfers to aligned districts creates asymmetry in reelection probabilities across aligned vs. non-aligned

districts, then the local politicians in those districts will also have different rent-seeking incentives. We build a model that studies such rent-seeking motives of local politicians in a dynamic framework. The model looks at the response of the state government in terms of assigning police officers to control the rent-seeking activities of local politicians. We find that the state will assign better police officers to non-aligned districts and worse one in aligned districts, more frequently. We test the predictions of the model in the context of assignment of Superintendent of Police across districts of the state of Rajasthan in India. Consistent with the theory, we find that "better" police officers, defined in terms of their native state status (proxying both local knowledge and ability) and previous experience in the system, have shorter tenures and "worse" ones have longer tenures, in aligned districts. We also find that under the same native SP, an aligned district sees a higher crime rate than a non-aligned district, while the result is the opposite for non-native SPs. This relationship is, however, noisily estimated. We also show that this tenure pattern is specific to police assignment. In fact, the assignment of administrative bureaucrats follows a pattern consistent with what the literature suggests. This suggests that differential rent-seeking incentives of local politicians may be an important factor that affects the allocation of police officers. Our research, therefore, highlights that we may be overestimating the welfare gains of political alignment if we ignore the rent-seeking motives of local politicians.

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# Figures and Tables

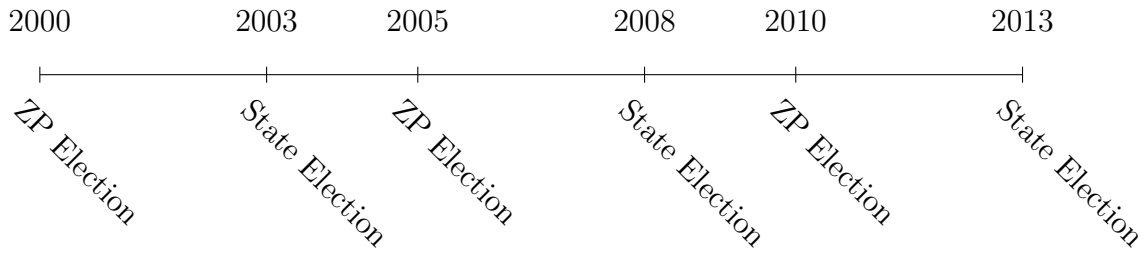**Figure 1:** Election Timeline



**Figure 2:** Distribution of months of experience before becoming SP or DM
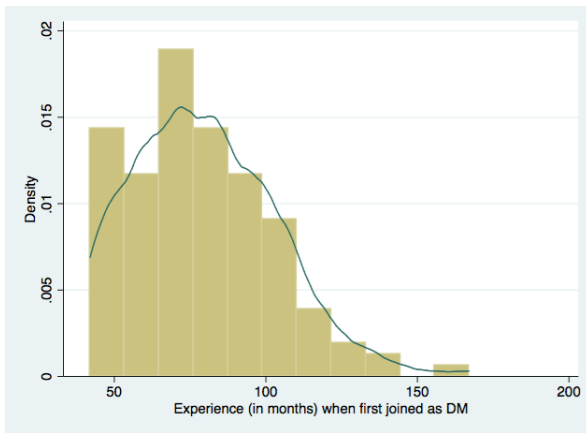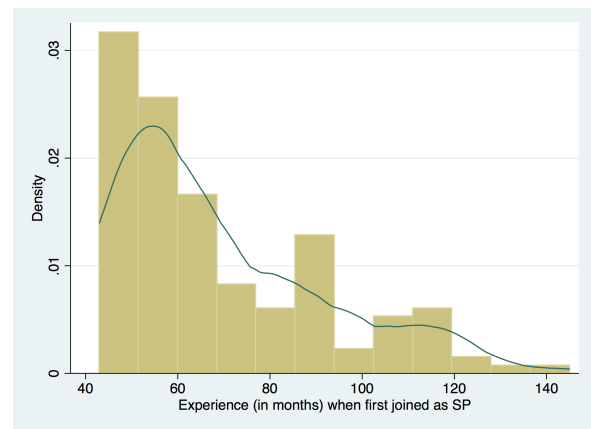


(a) For DMs      (b) For SPs

**Figure 3:** Average Tenure in All Positions Partially Predicts Tenure as DM or SP



**(a)** For SPs



**(b)** For DMs
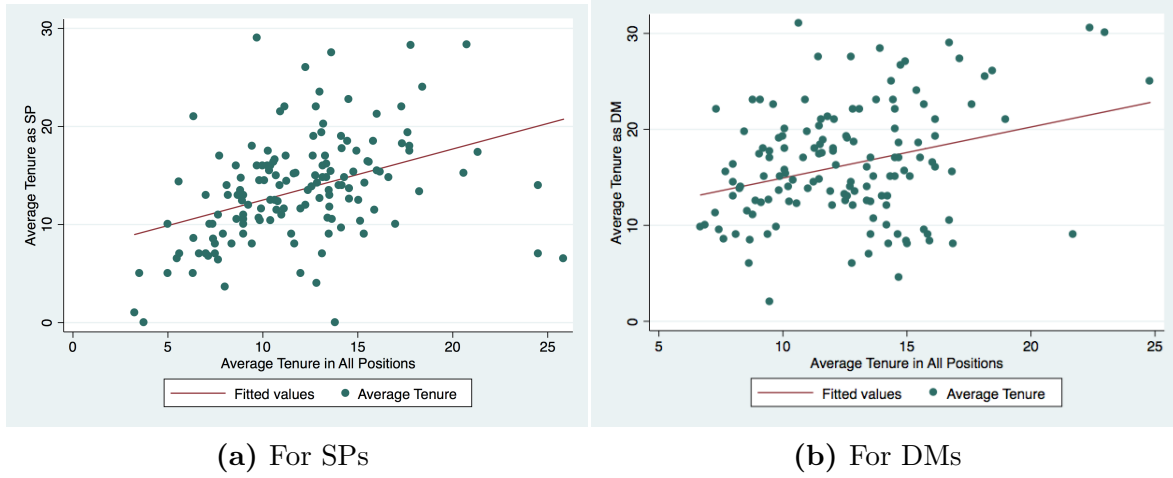
**Figure 4:** Experience before Joining as SP predicts Tenure as First SP



**(a)** For all SPs



**(b)** Rajasthan vs. Other State SPs
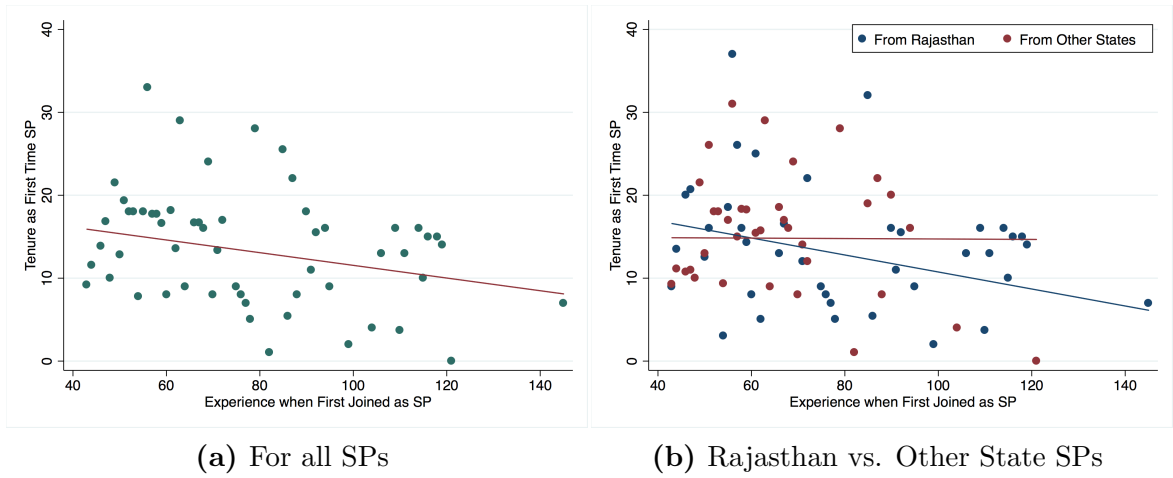
**Figure 5:** Experience before Joining as DM predicts Tenure as First DM



**(a)** For all DMs



**(b)** Rajasthan vs. Other State DMs
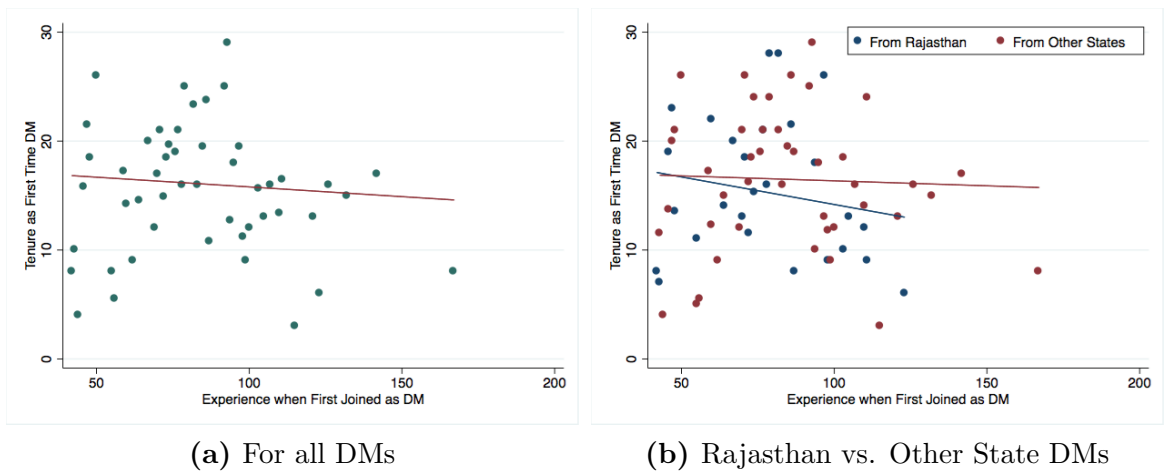
**Table 1:** Summary Statistics

|  | Mean | SD |
| --- | --- | --- |
| Aligned district | 0.55 | 0.5 |
| Safe ZP | 0.39 | 0.5 |
| SP change | 0.81 | 0.39 |
| Average SP tenure (months) | 13.48 | 5.43 |
| SP from Rajasthan | 0.48 | 0.5 |
| Experience before first SP posting (months) | 68.63 | 22.82 |
| Total number of SP postings | 3.17 | 1.86 |
| Average age when joined administration (SP) | 31.57 | 9.71 |
| Total number of crime per 100,000 population | 242.16 | 74.12 |
| DM change | 0.55 | 0.5 |
| Average DM tenure (months) | 16.3 | 5.92 |
| DM from Rajasthan | 0.39 | 0.49 |
| Experience before first DM posting (months) | 79.26 | 23.9 |
| Total number of DM postings | 2.71 | 1.62 |
| Average age when joined administration (DM) | 26.69 | 5.01 |

**Table 2:** Relationship of political alignment of government tiers and police transfers

| | SP Changed | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| ZP chairperson Aligned with CM | 0.0768* | 0.0746 | 0.0918** |
| | (0.0450) | (0.0554) | (0.0440) |
| ZP chairperson Aligned with CM * Assembly Election Year | | 0.00969 | |
| | | (0.0689) | |
| ZP chairperson Aligned with CM * ZP Election Year | | | -0.102 |
| | | | (0.114) |
| Mean (sd) of Dep. Var. | 0.81 | 0.81 | 0.81 |
| | (0.39) | (0.39) | (0.39) |
| Observations | 293 | 293 | 293 |
| R-squared | 0.227 | 0.227 | 0.229 |
| District FE | YES | YES | YES |
| Year FE | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. SP Changed is a dummy which takes value one whenever the SP of a district is changed in a year, and zero otherwise. The data covers the time period 2001-2013. Standard errors are clustered at district level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

**Table 3:** Relationship of political alignment of government tiers and crime

| | Crime per 100,000 population | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| ZP chairperson Aligned with CM | 8.715** | 12.11* | 8.108* |
| | (4.161) | (6.391) | (4.271) |
| ZP chairperson Aligned with CM * Assembly Election Year | | -15.88 | |
| | | (12.67) | |
| ZP chairperson Aligned with CM * ZP Election Year | | | 4.476 |
| | | | (5.659) |
| Mean (sd) of Dep. Var. | 242.16 | 242.16 | 242.16 |
| | (74.11) | (74.11) | (74.11) |
| Observations | 422 | 422 | 422 |
| R-squared | 0.882 | 0.884 | 0.882 |
| District FE | YES | YES | YES |
| Year FE | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. The crime data includes all IPC crimes reported in the police stations located in a district in a year. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. The data covers the time period 2001-2013. Standard errors are clustered at district level. *** p<0.01, ** p<0.05, * p<0.1.

**Table 4:** Relationship of political alignment of government tiers and types of crime

|  | Crime per 100,000 population | | | | |
|---|---|---|---|---|---|
|  | Robbery (1) | Burglary (2) | Theft (3) | Auto Theft (4) | Grievous Hurt (5) |
| *Panel A:* | | | | | |
| ZP chairperson Aligned with CM | 0.173** | 0.854** | 3.010** | 2.381** | 3.595** |
|  | (0.0735) | (0.359) | (1.422) | (1.041) | (1.642) |
| *Panel B:* | | | | | |
| ZP chairperson Aligned with CM | 0.260** | 0.996** | 4.758** | 4.082** | 4.576* |
|  | (0.122) | (0.463) | (2.226) | (1.678) | (2.398) |
| ZP chairperson Aligned with CM * Assembly Election Year | -0.408 | -0.665 | -8.187* | -7.966** | -4.591 |
|  | (0.291) | (0.757) | (4.123) | (3.285) | (4.994) |
| *Panel C:* | | | | | |
| ZP chairperson Aligned with CM | 0.205** | 0.815** | 2.984** | 2.531** | 3.515** |
|  | (0.0831) | (0.363) | (1.455) | (1.068) | (1.656) |
| ZP chairperson Aligned with CM * ZP Election Year | -0.237* | 0.288 | 0.190 | -1.108 | 0.588 |
|  | (0.140) | (0.520) | (1.380) | (1.020) | (2.761) |
| Observations | 422 | 422 | 422 | 422 | 422 |
| District FE | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. The crime data includes all IPC crimes reported in the police stations located in a district in a year. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. The data covers the time period 2001-2013. Standard errors are clustered at district level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table 5:** Relationship of political alignment and tenure of SPs: by home state and experience of officers

| | Tenure | | |
|---|---|---|---|
| | (1) | (2) | (3) |
| ZP chairperson Aligned with CM | 0.279 | 3.625** | 11.23** |
| | (1.842) | (1.814) | (4.541) |
| ZP chairperson Aligned with CM * SP From Home State | | -7.895** | |
| | | (3.299) | |
| ZP chairperson Aligned with CM * Experience before First SP Posting | | | -0.169*** |
| | | | (0.0588) |
| Mean (sd) of Dep. Var. | 17.12 | 17.12 | 17.12 |
| | (7.21) | (7.21) | (7.21) |
| Observations | 233 | 233 | 233 |
| R-squared | 0.628 | 0.665 | 0.644 |
| Officer FE | YES | YES | YES |
| Year FE | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. Tenure is the number of months a particular officer spends as a SP in a district. It takes the same value for all the years in which he or she was a SP in that district. "SP From Home State" is a dummy that takes value one if the officer's hometown is in Rajasthan. "Experience before First SP Posting" measures the number of months the officer spent in junior positions before getting his or her first SP posting. The regression controls for population and economic activities, proxied by luminosity per capita, for each district-year observation. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. Luminosity data comes from the Night Lights dataset of NOAA. The data covers the time period 2001-2013. Standard errors are clustered at officer level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table 6:** Relationship of political alignment and tenure of DMs: by home state and experience of officers

| | Tenure | | |
| --- | --- | --- | --- |
| | (1) | (2) | (3) |
| ZP President Aligned with CM | -2.719 | -4.749** | -9.743 |
| | (2.009) | (2.287) | (6.769) |
| ZP President Aligned with CM * DM From Home State | | 7.307** | |
| | | (3.066) | |
| ZP President Aligned with CM * Experience before First DM Posting | | | 0.108 |
| | | | (0.103) |
| Mean (sd) of Dep. Var. | 20.51 | 20.51 | 20.51 |
| | (7.60) | (7.60) | (7.60) |
| Observations | 179 | 179 | 179 |
| R-squared | 0.695 | 0.715 | 0.700 |
| Officer FE | YES | YES | YES |
| Year FE | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the President of the ZP belongs to the same political party as the Chief Minister of the State. Tenure is the number of months a particular officer spends as a SP in a district. It takes the same value for all the years in which he or she was a SP in that district. "SP From Home State" is a dummy that takes value one if the officer's hometown is in Rajasthan. "Experience before First SP Posting" measures the number of months the officer spent in junior positions before getting his or her first SP posting. The regression controls for population and economic activities, proxied by luminosity per capita, for each district-year observation. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. Luminosity data comes from the Night Lights dataset of NOAA. The data covers the time period 2001-2013. Standard errors are clustered at officer level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

**Table 7:** Relationship of political alignment and crime by SP's Home State

| | Crime per $100,000$ population | | | | | |
| | Total | | Robbery | | Grievous Hurt | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| ZP chairperson Aligned with CM | -2.738 | -9.890 | 0.141 | 0.0486 | 1.074 | -7.986 |
| | (16.59) | (17.30) | (0.156) | (0.178) | (7.472) | (10.10) |
| ZP chairperson Aligned with CM * SP From Home State | | 16.87 | | 0.218 | | 21.38 |
| | | (34.79) | | (0.312) | | (15.17) |
| Observations | 233 | 233 | 233 | 233 | 233 | 233 |
| R-squared | 0.565 | 0.567 | 0.561 | 0.563 | 0.567 | 0.578 |
| Officer FE | YES | YES | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. The crime data includes all IPC crimes reported in the police stations located in a district in a year. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. The data covers the time period 2001-2013. Standard errors are clustered at officer level. *** p<0.01, ** p<0.05, * p<0.1.

**Table 8:** Relationship of alignment to police appointments and crime: by political competition

|  | SP Changed | | Crime Rate | |
|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) |
| ZP chairperson Aligned with CM | 0.0768* | 0.105** | 8.715** | 15.07** |
|  | (0.0450) | (0.0504) | (4.161) | (6.206) |
| ZP chairperson Aligned with CM * Safe ZP |  | -0.0654 |  | -15.28* |
|  |  | (0.0866) |  | (8.169) |
| Mean (sd) of Dep. Var. | 0.81 | 0.81 | 242.16 | 242.16 |
|  | (0.39) | (0.39) | (74.11) | (74.11) |
| Observations | 293 | 293 | 422 | 422 |
| R-squared | 0.227 | 0.229 | 0.882 | 0.884 |
| District FE | YES | YES | YES | YES |
| Year FE | YES | YES | YES | YES |

*Notes:* The alignment variable is a dummy which takes value one if the chairperson of the ZP belongs to the same political party as the Chief Minister of the State. The variable 'Safe ZP' is a dummy which takes value one if a district never experienced a change in the political party identity of the chairperson of the Zila Parishad during the period of study, and zero otherwise. The crime data includes all IPC crimes reported in the police stations located in a district in a year. Population data comes from the 2001 and 2011 censuses, and interpolated for the rest of the years with the assumption of equal increment in each year. The data covers the time period 2001-2013. Standard errors are clustered at district level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

# Appendix

## A  Proof of Lemma 1

We can rewrite equations (6) and (7) as follows:

$$V_A(\theta) = \max_{e_A} \left( r_A(\theta) e_A - \frac{e_A^2}{2} \right) + \delta \beta_A \left[ V_N + \pi_c(y(\theta))(V_A - V_N) \right]$$

$$V_N(\theta) = \max_{e_N} \left( r_N(\theta) e_N - \frac{e_N^2}{2} \right) + \delta \beta_N \left[ V_N + (1 - \pi_c(y(\theta)))(V_A - V_N) \right]$$

For given, feasible values of $V_A$ and $V_N$, such that $V_A \geq V_N$,

$$e_A(\theta) = r_A(\theta) \left[ 1 - \frac{\delta \beta_A}{Y}(V_A - V_N) \right] \tag{19}$$

$$e_N(\theta) = r_N(\theta) \left[ 1 + \frac{\delta \beta_N}{Y}(V_A - V_N) \right] \tag{20}$$

Therefore, we can write $y(\theta)$ as:

$$y(\theta) = Y - r_0 - H(\theta)$$

where

$$H(\theta) = |\mathcal{A}(\theta)| \, r_A(\theta)^2 \left[ 1 - \frac{\delta \beta_A}{Y}(V_A - V_N) \right] +$$

$$|\mathcal{N}(\theta)| \, r_N(\theta)^2 \left[ 1 + \frac{\delta \beta_N}{Y}(V_A - V_N) \right]$$

The center chooses $p_A$ and $p_N$ to maximize $y(\theta)$. Furthermore, condition (3) must be satisfied. Therefore, we can substitute $p_N = \frac{D_H - |\mathcal{A}(\theta)| p_A}{|\mathcal{N}(\theta)|}$. Taking the derivative of $y(\theta)$ with respect to $p_A$ and setting it equal to 0 yields:

$$e_A(\theta) = e_N(\theta) \tag{21}$$

The result in (21) may be written out as:

$$\left[ 1 - \frac{\delta \beta_A}{Y}(V_A - V_N) \right] r_A(\theta) = \left[ 1 + \frac{\delta \beta_N}{Y}(V_A - V_N) \right] r_N(\theta)$$

$$\implies \frac{r_A(\theta)}{r_N(\theta)} = \frac{\left[ 1 + \frac{\delta \beta_N}{Y}(V_A - V_N) \right]}{\left[ 1 - \frac{\delta \beta_A}{Y}(V_A - V_N) \right]} \tag{22}$$

As such, we need to make sure that the values of $p_A$ and $p_N$ that allow the equality in (22) to hold are indeed feasible. Note that the ratio $\frac{r_A}{r_N}$ is continuous in $p_A$. Furthermore, the domain of $\frac{r_A}{r_N}$, thought of as a function of $p_A$, is a connected subset of $[0, 1]$. Therefore,

if we can show there exists a value of $p_A$ such that the ratio is less than the constant on the right-hand side of (22) and a value of $p_A$ such that the ratio is greater than this constant, then, by the Intermediate Value Theorem, there must exist a value of $p_A$ such that the equality in (22) is satisfied. We proceed now to show a sufficient condition:

$$\min \frac{r_A(\theta)}{r_N(\theta)} \leq \frac{\left[1 + \frac{\delta\beta_N}{Y}(V_A - V_N)\right]}{\left[1 - \frac{\delta\beta_A}{Y}(V_A - V_N)\right]} \leq \max \frac{r_A(\theta)}{r_N(\theta)} \tag{23}$$

Now, the center can always choose $r_A(\theta) = r_N(\theta)$ by choosing $p_A = p_N = \frac{D_H}{D}$. Given $V_A \geq V_N$, as assumed in the statement of this lemma, the constant on the right-hand side of (22) is $\geq 1$. Therefore,

$$\min \frac{r_A(\theta)}{r_N(\theta)} \leq 1 \leq \frac{\left[1 + \frac{\delta\beta_N}{Y}(V_A - V_N)\right]}{\left[1 - \frac{\delta\beta_A}{Y}(V_A - V_N)\right]}.$$

Now suppose $\theta \in \left\{\theta' \in \tilde{\Theta} : |\mathcal{A}(\theta)| \geq D_H\right\}$. Then,

$$\begin{aligned}
\max \frac{r_A(\theta)}{r_N(\theta)} &= \frac{r_L + \max\ p_A(r_H - r_L)}{r_L + \min\ p_N(r_H - r_L)} \\
&= \frac{r_L + \frac{D_H}{|\mathcal{A}(\theta)|}(r_H - r_L)}{r_L} \qquad\qquad \text{(due to (4) and (5))} \\
&= \frac{(|\mathcal{A}(\theta)| - D_H)r_L + D_H r_H}{|\mathcal{A}(\theta)|r_L} \\
&\geq \frac{(D - D_H)r_L + D_H r_H}{Dr_L} \\
&= \left(\frac{D - D_H}{D}\right) + \left(\frac{D_H}{D} \cdot \frac{r_H}{r_L}\right) \\
&\geq \frac{1}{\kappa} \qquad\qquad\qquad\qquad\qquad \text{(due to Assumption 2)}
\end{aligned}$$

Therefore,

$$\begin{aligned}
\max \frac{r_A(\theta)}{r_N(\theta)} &\geq \left[\frac{(1-\delta)Y + \beta_N\delta}{(1-\delta)Y - \beta_A\delta}\right] \\
&= \left[\frac{1 + \frac{\delta\beta_N}{Y}\left(\frac{1}{1-\delta}\right)}{1 - \frac{\delta\beta_A}{Y}\left(\frac{1}{1-\delta}\right)}\right] \\
&\geq \left[\frac{1 + \frac{\delta\beta_N}{Y}(V_A - V_N)}{1 - \frac{\delta\beta_A}{Y}(V_A - V_N)}\right]
\end{aligned}$$

since

$$\frac{1}{1-\delta} \geq V_S \geq 0 \ \text{ for } S \in \{A, N\}.$$

Similarly, it can be shown that for any $\theta \in \left\{ \theta' \in \tilde{\Theta} : |\mathcal{A}(\theta)| < D_H \right\}$:

$$\max \frac{r_A(\theta)}{r_N(\theta)} \geq \frac{1}{\kappa}$$

using the implication of Assumption 2 that $\frac{r_H}{r_L} \geq \frac{(D-D_H)}{(\kappa D - D_H)}$.

Thus, we have shown that (23) holds $\forall \ \theta \in \tilde{\Theta}$. Thus, it is indeed feasible for the center to choose $(p_A(\theta), p_N(\theta))$ such that $e_A(\theta) = e_N(\theta)$. $\square$

# B  Proof of Lemma 2

As in the proof of Lemma 1, for given, feasible values of $V_A$ and $V_N$, such that $V_A > V_N$, we have that:

$$e_A(\theta) = r_A(\theta) - r_A(\theta) \frac{\delta \beta_A}{Y} (V_A - V_N) \tag{24}$$

$$e_N(\theta) = r_N(\theta) + r_N(\theta) \frac{\delta \beta_N}{Y} (V_A - V_N) \tag{25}$$

Now, consider the expressions on the right-hand side of (24) and (25). Since it is assumed in the statement of this lemma that $V_A > V_N$, we have that $V_A - V_N > 0$. Furthermore, $\frac{\delta \beta_S}{Y} > 0$ for $S \in \{A, N\}$. Lastly, since $r_A(\theta)$ and $r_N(\theta)$ are simply convex combinations of $r_H$ and $r_L$, we have that $r_A(\theta), r_N(\theta) \in [0, 1]$. Therefore, suppose $r_A(\theta) \leq r_N(\theta)$. Then:

$$r_A(\theta) \leq r_N(\theta)$$
$$\implies r_A(\theta) - \left[ r_A(\theta) \frac{\delta \beta_A}{Y} (V_A - V_N) \right] < r_N(\theta) + \left[ r_N(\theta) \frac{\delta \beta_N}{Y} (V_A - V_N) \right] \tag{26}$$

The reason (26) holds is as follows. Note that both $r_A(\theta)$ and $r_N(\theta)$ cannot be equal to 0. Firstly, $r_H, r_L \in [0, 1]$ with $r_H > r_L$. Therefore, $r_H > 0$. Furthermore, $p_A(\theta) = p_N(\theta) = 0$ is not possible, due to (4), (5) and the assumption that $D_H, D_L \geq 1$. As such, if $r_A(\theta) \leq r_N(\theta)$, then (26) holds and contradicts the result of Lemma 1. Thus, if $V_A > V_N$ in equilibrium, then it must be the case that:

$$r_A(\theta) > r_N(\theta)$$
$$\implies p_A(\theta) r_H + (1 - p_A(\theta)) r_L > p_N(\theta) r_H + (1 - p_N(\theta)) r_L$$
$$\implies r_H (p_A(\theta) - p_N(\theta)) > r_L (p_A(\theta) - p_N(\theta))$$
$$\implies p_A(\theta) > p_N(\theta)$$

$\square$

# C Proof of Proposition 1

We prove this proposition in three steps. First, we show that there exists a TSMPE with $V_A \geq V_N$. Second, we show that $V_A = V_N$ is not possible in equilibrium. Finally, we show that there is no equilibrium with $V_A < V_N$.

For the first part of the proof, consider an allocation of continuation payoffs such that $V_A \geq V_N$. Let $v_A(\theta)$ and $v_N(\theta)$ denote the flow payoffs to districts of type $A$ and $N$, respectively. By Lemma 1, if $V_A \geq V_N$, then $e_A(\theta) = e_N(\theta)$ for all $\theta$. Thus, $r_A(\theta) \geq r_N(\theta) \implies r_A(\theta) e_A(\theta) \geq r_N(\theta) e_N(\theta)$. So, we have that:

$$v_A \geq v_N$$

where $v_A = \mathbb{E}_\theta v_A(\theta)$ and $v_N = \mathbb{E}_\theta v_N(\theta)$. Now, given continuation payoffs $V_A$ and $V_N$, define $V_A' = \mathbb{E}_\theta V_A(\theta)$ and $V_N' = \mathbb{E}_\theta V_N(\theta)$. Then,

$$V_A' = v_A + \delta\beta_A \left[ V_N + \frac{Y - r_0 - |\mathcal{A}| \mathbb{E}_\theta r_A(\theta) e_A(\theta) - |\mathcal{N}| \mathbb{E}_\theta r_N(\theta) e_N(\theta)}{Y} (V_A - V_N) \right]$$

$$V_N' = v_N + \delta\beta_N \left[ V_N + \frac{r_0 + |\mathcal{A}| \mathbb{E}_\theta r_A(\theta) e_A(\theta) + |\mathcal{N}| \mathbb{E}_\theta r_N(\theta) e_N(\theta)}{Y} (V_A - V_N) \right]$$

Since, $Y > 2(D+1)$(Assumption 1) and $\beta_A > \beta_N$, $V_A \geq V_N \implies V_A' \geq V_N'$. Therefore, the expression for $V_A'$ and $V_N'$ above define a continuous function $f : M \to M$ with $M = \{(x_1, x_2) \in \mathbb{R}^2 : x_1 \geq x_2\}$. $M$ is a compact and convex set. Therefore, by the Brouwer fixed point theorem, $\exists x_0 \in M$ such that $f(x_0) = x_0$. Thus, there exists a TSMPE with $V_A \geq V_N$.

We now show that it *cannot* be the case that $V_A = V_N$ in equilibrium. If $V_A = V_N$, then by (19) and (20), $e_A(\theta) = r_A(\theta)$ and $e_N(\theta) = r_N(\theta)$. Thus, the optimal decision of the center would be to set $r_A(\theta) = r_N(\theta)$, with $p_A(\theta) = p_N(\theta) = \frac{D_H}{D}$. Thus, $v_A = v_N$. But then $V_A' > V_N'$ due to the fact that $\beta_A > \beta_N$. This is a contradiction. Therefore, in any equilibrium in which $V_A \geq V_N$, we must have that $V_A > V_N$.

Finally, we show that there is no equilibrium with $V_A < V_N$. First, note that:

$$\max_{p_A(\cdot)} \frac{v_N}{v_A} = \max_{p_A(\cdot)} \frac{r_N e_N - \frac{e_N^2}{2}}{r_A e_A - \frac{e_A^2}{2}}$$

$$= \left( \frac{r_H}{r_L} \right)^2$$

$$\implies \left( \frac{1 - \delta\beta_A}{1 - \delta\beta_N} \right) \max_{p_A(\cdot)} \frac{v_N}{v_A} = \left( \frac{1 - \delta\beta_A}{1 - \delta\beta_N} \right) \left( \frac{r_H}{r_L} \right)^2$$

$$\leq 1 \qquad \text{(by Assumption 3)}$$

$$\implies \frac{v_N}{1 - \delta\beta_N} \leq \frac{v_A}{1 - \delta\beta_A} \qquad (27)$$

Furthermore, note that since $V_A < V_N$, the highest possible expected lifetime payoff of a non-aligned district is to receive $v_N$ in every period. On the other hand, the lowest possible

expected lifetime payoff of an aligned district is to receive $v_A$ in every period. Therefore:

$$V_A' \geq \frac{v_A}{1 - \delta\beta_A} \quad \text{and} \quad V_N' \leq \frac{v_N}{1 - \delta\beta_N} \tag{28}$$

Putting (27) and (28) together, we get:

$$V_N' \leq \frac{v_N}{1 - \delta\beta_N} \leq \frac{v_A}{1 - \delta\beta_A} \leq V_A'$$

Therefore, we have shown that $V_A' \geq V_N'$, so long as $\beta_A$ is sufficiently larger than $\beta_N$, relative to the ratio $\frac{r_H}{r_L}$, as in Assumption 3. But this is a contradiction, since $V_A < V_N$. Therefore, it is not possible to have an equilibrium with $V_A < V_N$. Thus, in any $TSMPE$, we must have $V_A > V_N$. This completes the proof of part (i) of this proposition. Parts (ii) and (iii) follow, respectively, from Lemmas 1 and 2. Part (iv) follows from the fact that $p_A(\theta) > p_N(\theta) \implies r_A(\theta) > r_N(\theta)$. $\square$