The Political Economy of Bureaucratic Effectiveness:

Evidence from Local Rural Development Officials in India[1]

Aditya Dasgupta[2] and Devesh Kapur[3]

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Abstract:

Government development programs often founder because of a lack of effectiveness on the part of local implementing bureaucracy. What determines local bureaucratic effectiveness? Public choice arguments emphasize incentives and monitoring, while theories of state capacity highlight the importance of organizational autonomy from excess political interference. Drawing on a nationwide survey of the capacity and time usage of local rural development officials in India, this paper provides evidence for a different pathology: local bureaucracies are chronically under-resourced relative to their responsibilities because politicians make these decisions (inefficiently). We provide quantitative evidence that: i) inadequate personnel and resources force rural development officers to multi-task excessively; ii) this inability to specialize has an adverse impact on the performance of development programs. Factors affecting the electoral incentives of politicians to invest in local state capacity, including political alignment and fragmentation, account for much of the variation in local bureaucratic resources and therefore behavior and effectiveness.

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[2] Assistant Professor of Political Science, University of California, Merced: adasgupta3@ucmerced.edu.
[3] Professor of Political Science, University of Pennsylvania: dkapur@sas.upenn.edu.

1. Introduction

Especially in developing countries, government development programs often founder because of a lack of effectiveness on the part of local implementing bureaucracy (e.g. Pritchett, 2009; Lipsky, 2010). What explains this ineffectiveness? Existing literature rooted in the public choice school attributes bureaucratic under-performance to weak career incentives and inadequate monitoring (e.g. Tullock, 1965). Theories of state capacity, by contrast, blame an absence of organizational autonomy from excess political interference (e.g. Evans, 2012; Kohli, 2004). While these are important factors, this paper highlights a distinct pathology, familiar to bureaucrats but surprisingly under-theorized by social scientists: local bureaucracies are chronically under-resourced relative to their responsibilities, because politicians and ruling parties make these decisions (inefficiently).

We highlight the adverse consequences under-resourcing can have for bureaucratic behavior and therefore effectiveness. To cope with staff and physical resource shortages, local officials must spread their finite time thinly across a variety of tasks which they would otherwise delegate. Excessive multi-tasking tends to crowd out the managerial responsibilities of local officials. In contexts where implementing development programs often requires significant office-based planning, management, and form-filing (Gupta, 2012; Mathur, 2015), this crowding out can slow down the flow of official funds and harm the performance of development programs. We suggest that perverse electoral incentives and administrative inertia underlie the tendency toward inefficient under-provision of local bureaucratic resources relative to responsibilities. Politicians and ruling parties are inattentive to investing in local state capacity because the electoral returns

to these investments are diffuse and uncertain. By contrast, they possess strong incentives to announce and inaugurate new and ambitious rural development programs, as well as paperwork and monitoring requirements which facilitate the claiming of credit for service delivery.

Our argument contradicts the popular image of bureaucracies as bloated, inefficient organizations with over-sized budgets, a narrative supported by public choice scholarship (e.g. Niskanen, 1971). There are two reasons that existing work has tended to neglect the problem of under-resourced local bureaucracies, however. First, existing work has focused on developed countries, which tend to have much larger public sectors than do developing countries (Besley and Persson, 2014). On average 8 percent of the population is employed in the public sector in high income countries, while the equivalent figure is just 1 percent for low income countries (World Bank, 2015). Secondly, existing scholarship focuses on the dynamics of well-financed national planning agencies located in capital cities, ignoring the significant staffing and resource shortages that typically exist at the level of frontline service delivery in localities and rural areas. Yet it is precisely in localities and rural areas that state capacity constraints typically bind (O'Donnell, 1993). No matter how carefully development programs are designed by national bureaucracies, ultimately their performance on the ground hinges on how effectively they are implemented locally.

The argument is applied to the context of Block Development Officers (BDOs), the local officials responsible for the implementation of rural development programs in India. A nationwide survey and time-usage analysis is conducted with BDOs across 426 rural development blocks, which cumulatively contain nearly 70 million residents. BDOs epitomize

the general dilemma we describe. They are typically over-burdened with responsibility for administering an ever-growing list of complex programs and tasks, yet possess relatively few personnel and resources to do their jobs. BDOs also vary significantly in the amount of resources with which they are provided to fulfill their obligations, providing an opportunity to test whether this variation affects bureaucratic behavior and performance. Empirically, we examine how differences in personnel strength affect the time allocation and organizational behavior of BDOs as well as the performance of two major rural development programs, the National Rural Employment Guarantee Act (a rural workfare program) and Swacch Bharat (a program to eliminate open defection). Statistically, in our preferred specifications we control for district fixed effects, limiting our comparison to physically proximate blocks.

The results suggest that resource shortages force rural development officers to multi-task excessively, increasing time spent on "client-facing" activities like handling individual requests from citizens and politicians and crowding out time spent on managerial activities. We find that this inability to specialize has a large, detrimental impact on the performance of NREGA, a program with burdensome procedural requirements (e.g. Mathur, 2015). The impact on the performance of Swacch Bharat, a program with less onerous requirements, is smaller. By contrast, we show that variables measuring the strength of career incentives and organizational autonomy from excess political interference have surprisingly little explanatory power with regard to both programs. Examining the determinants of local bureaucratic resources, we find that investments in local state capacity tend to be lower in opposition-controlled constituencies, in more politically fractionalized party systems, as well as in areas that have simply grown in

population without commensurate investments in staffing – highlighting how perverse electoral incentives and administrative inertia jointly contribute to the problem.

The results offer a new explanation for why local bureaucracies are often so ineffective when it comes to the implementation of government programs. We argue that local bureaucracies tend to be chronically under-resourced relative to their responsibilities because politicians, who lack the electoral incentives to invest in state capacity, take these decisions (inefficiently). Our argument provides an alternative explanation for bureaucratic under-performance than do prevailing public choice arguments emphasizing bureaucratic shirking or rent-seeking. Instead, we see local bureaucratic under-performance as a symptom of wider political pathologies which prevent rational investments in local state capacity.

The remainder of the paper is structured as follows. We first develop the theoretical argument in relation to existing arguments before applying it to the context of rural India. We then introduce the empirical strategy, report results and conclude.

2. Theory

What determines local bureaucratic effectiveness? Prevailing explanations in economics, rooted in the public choice school, emphasize career incentives and monitoring. Incentive-based theories originating in the public choice school attribute bureaucratic under-performance to weak career incentives (e.g. Tullock, 1965). Because bureaucratic positions are filled on the basis of nepotistic or corrupt criteria, and because shirking is encouraged by protected civil service

positions, bureaucrats tend to be ineffective. Reforms based on these arguments, including the so-called "new public management", recommend reforms based on intensive monitoring of local bureaucrats (see e.g. Muralidharan and Sundhararaman, 2011; Duflo et al, 2012), as well as private-sector-style hiring-and-firing and high-powered incentives for promotion linked to measurable outcomes.

Alternatively, theories from political science stress the importance of bureaucratic autonomy from excess political interference. Classical theories of bureaucracy highlight a contrast between modern, rule-based bureaucracies with a professional civil service that is hired and promoted on the basis of meritocratic criteria as distinct from the pre-modern 'patrimonial' model of public administration in which public sector employees serve at the will of their political masters (Weber, 1914; Kohli, 2004). Where political control over bureaucracy is excessive, bureaucratic morale is undermined and developmental goals are sidelined in favor of advancing the interests of powerful social and political special interest groups (e.g. Migdal, 1988; Evans, 2012). Reforms based on these arguments, which often highlight the success of highly autonomous developmental bureaucracies in East Asia, recommend the creation of civil service laws which protect bureaucrats from arbitrary firing or re-posting and the creation of rule-based, meritocratic structures for career advancement.

Both incentives and insulation against excess political interference are surely important components of bureaucratic effectiveness. However, we argue, especially at the local level, reforms to address these issues may not be particularly effective if a more fundamental constraint is not addressed: the chronic under-resourcing of local bureaucracies relative to their

responsibilities. Local implementing bureaucracies are unique in two important regards. First, they are tasked with the front-line implementation of government programs as opposed to policy formulation. Second, they undertake their jobs given a set of resources that is usually assigned by higher levels of government, a process over which local bureaucrats typically possess little influence. Because other actors, especially politicians, control the resources and responsibilities of local implementing bureaucrats, we argue that local bureaucracies tend to be chronically over-burdened; they are politically mandated to perform a massive multiplicity of tasks, including administering an ever-growing list of programs, planning and budgeting, implementing and monitoring in the field, addressing individual complaints from citizens, as well as accommodating directives from politicians. Simultaneously, they are often given few personnel and physical resources to carry out their responsibilities. We first discuss the consequences of under-resourcing before discussing its political causes.

How does under-resourcing and over-burdening local implementing bureaucracies impact their effectiveness? We divide the consequences of bureaucratic under-resourcing into direct effects and indirect organizational and behavioral effects. Local implementing bureaucracies are typically comprised by different types of employees, ranging from managerial officials, to technical specialists like engineers and data entry operators, to frontline staff who interface directly with citizens and local politicians. Directly, fewer personnel and resources mean that bureaucracies possess less human and physical capital to apply to the production of public services. For example, fewer frontline staff and computers mean that lines tend to be longer and citizens are served more slowly, while fewer engineers and vehicles mean that fewer infrastructure projects can be planned at a time.

The indirect behavioral effects are arguably just as important, however, in terms of inhibiting local bureaucrats' ability to divide and specialize in distinct tasks. Large-scale organizations are premised upon the economies of scale associated with organizational differentiation and specialization. Officials and executives specialize in coordinating the activities of lower level employees and staff, who themselves specialize in different types of tasks. However, a shortage of staff and resources tends to undermine this division of labor. The result is that the productivity advantages associated with intra-organizational differentiation and specialization, a fundamental insight dating back at least to Adam Smith and Max Weber, are under-provided. For example, a shortage of vehicles and computers means that routine field visits and data entry cannot be easily divided between multiple workers. A shortage of frontline staff means that instead of specializing in managerial tasks and delegating "client-facing" activities like registering and addressing individualized citizen complaints, local officials must pitch in on these tasks. This kind of multi-tasking tends to crowd out time dedicated to managerial tasks by officials, at potentially large cost to overall organizational effectiveness. Excessive multi-tasking by officials is especially detrimental in contexts where implementing development programs requires significant office-based planning, management, and form-filing.

The general dilemma we describe is epitomized by rural development officials known as Block Development Officers (BDOs), state-level civil service appointees and the local executives of Block Development Offices, administrative units which are responsible for the local implementation of state and national rural development programs in India. A typical rural development block is comprised of roughly 150,000 residents, though this can vary significantly

across states as well as blocks within states. BDOs are responsible for the implementation of dozens of different rural development programs, ranging from national "flagship" programs like the National Rural Employment Guarantee Act (NREGA), a major workfare programs which is meant to guarantee every rural household up to 100 days of public works employment annually, and Swachh Bharat, a major sanitation program designed to provide toilets and eliminate open defecation, to a variety of smaller-scale state-level rural development programs. We think of the office of the BDO, like local implementing bureaucracy more generally, as the "eye of the needle" through which rural development programs must pass if they are to be implemented effectively.

Despite their tremendous responsibilities, BDOs are given relatively scant resources to do their jobs on average. Our survey of 426 BDOs across 25 states,[4] covering a population of roughly 70 million rural residents, indicates that on average BDOs report possessing just 24.5 full-time employees per 100,000 rural residents and just 0.8 official, 4-wheel vehicles per 100,000 rural residents (in practice, to deal with a shortage of vehicles, BDOs often use their personal vehicles to conduct official business). Particularly strikingly, on average across blocks nearly 48 percent of all sanctioned positions for full-time employees were reported to be vacant, a result of budget constraints, political conflict surrounding hiring decisions, as well as significant red tape in the hiring process. Over 44 percent of the BDOs in our sample reported that they had incurred personal expenses for their official work over the previous 6 months, for items ranging from petrol to "protocol duty" (the provision of food and refreshments for official visits and functions).

[4] The survey was conducted in collaboration with the Lal Bahadur Shastri National Academy for Administration.

BDOs perceive themselves to be over-worked and under-resourced, with a large number of competing tasks vying for their finite effort. On a Likert scale from 1 (lowest) to 5 (highest), 68 percent of the BDOs in our sample rated the "adequacy of resources in [their] current Block Development Office relative to the work they need to complete" a 3 or lower. In focus groups, when asked to describe a comparable profession to theirs, several BDOs described their role as similar to that of a firefighter. For example, the following quotations were recorded from one focus group with three BDOs: "Few words which can describe the job of the BDO are: dynamic, diverse and overburdened.... it is a combination of soldier and fire fighter. BDO guards the block on behalf of the collector [the highest district-level bureaucrat from the Indian Administrative Services] and also has to do a lot of fire-fighting every day, especially during grievance hour [the period during which citizens and politicians visit the office with complaints]."

The overall shortage of resources relative to responsibilities that BDOs face means that they have to multi-task to an extreme degree. To assess the behavior of BDOs, survey enumerators contacted each BDO by phone on one day every week for three successive weeks to complete a time-use diary for the preceding work day.[5] In Figure 1, we display patterns of time-utilization by BDOs over the course of a typical work day. The patterns reveal that on average BDOs divide their time across a wide range of activities and interactions with a range of stakeholders, with notable tradeoffs between multiple tasks. For example, the left-hand-side plot reveals that while BDOs are able to dedicate their mornings to planning, management, and form filing activities

[5] This analysis took note of where the BDO was located, with whom he or she was interacting physically, and what types of tasks he or she was working on a half-hourly basis over the course of the work day.

based in the office, these activities are swiftly "crowded out" by handling daily individualized complaints and requests from citizens as well as politicians. Similarly, the right-hand-side plot reveals that while BDOs have time to spend on their own or with their staff in the morning, over the course of the day their time is increasingly taken up by constituents and other stakeholders, usually with particularistic complaints and requests.

FIGURE 1 ABOUT HERE

There are clear organizational inefficiencies in the current system. As executives for administrative units containing on average 150,000 residents, BDOs appear to dedicate too much time to client-facing activities and too little to managerial activities. While engaging in client-facing activities is important from an informational standpoint and being sufficiently "embedded" in the community (Evans, 2012), being unable to spend enough time in the office on managerial and form-filing activities is particularly costly in a context where BDOs often have to file dozens of reports and forms in a day in order to "clear" the distribution of benefits under a variety of rural development programs (see e.g. Mathur, 2015).[6] Yet BDOs are necessitated to multi-task in this way due to a shortage of staff and resources, which makes dividing responsibilities and tasks difficult. A shortage of frontline staff means that instead of specializing in managerial tasks and delegating micro-transactions like registering citizen complaints and requests to their staff, BDOs must pitch in on these tasks, essentially playing the role of a "jack of all trades" and "master of none". A shortage of engineers and technical specialists means that BDOs often engage in data entry and field visits themselves. We argue that this excess multi-

[6] In our survey, nearly 19 percent of BDOs reported that they had filed 20 or more forms in the previous working day.

tasking crowds out managerial activities and harms the overall effectiveness of BDOs, particularly when it comes to rural development programs that are intensive in their procedural requirements. There is scope to test such a claim, as BDOs vary greatly in the amount of personnel and resources with which they are provided, as displayed in Figure 2, which shows the distribution of active full-time employees per 100,000 residents across the blocks in our sample.

FIGURE 2 ABOUT HERE

If the performance of government programs hinges on their local implementation, why do politicians under-invest in local state capacity? We argue that politicians are inattentive to investing in local state capacity because the electoral returns to these investments are diffuse and uncertain. By contrast, politicians possess strong electoral incentives to continually announce and inaugurate new and ambitious rural development programs, as well as paperwork and monitoring requirements which facilitate the claiming of credit for service delivery. These combined forces result in the gradual accumulation of new bureaucratic responsibilities without corresponding investments in capacity. We highlight two dynamics that tend to worsen this problem. The first is perverse electoral incentives. Ruling parties possess weaker incentives to invest in state capacity in opposition-controlled areas, where the "credit" may be claimed by political opponents, as well as in more politically fragmented and fractionalized areas, where political time horizons tend to be shorter. The second is administrative inertia. Investing in local state capacity and bureaucratic reform requires significant political collective action, which is often simply under-provided.

Alternative explanations for under-performance by BDOs are certainly possible. For example, public choice arguments emphasizing an absence of career incentives could play a role, as BDOs often report that they feel that they lack opportunities for promotion, let alone opportunities for promotion linked to effort or performance. To measure perceptions of opportunities for career advancement linked to effort, we asked BDOs:

> "If a BDO works hard, is there a chance of promotion to a higher position over the next 10 years? If so, what is the likely next post?"

BDOs were given the following choice set of responses: Very Likely (10 out of 10 times), Somewhat Likely (7-9 out of 10 times), Possibly (4-6 out of 10 times), Unlikely (1-3 out of 10 times), No chance (0 out of 10 times). Figure 3 displays the distribution of responses. Over 35 percent of BDOs were extremely pessimistic, reporting that there was either no chance of promotion or that it was unlikely. However, nearly 65 percent of BDOs felt that promotion was at least possible. To operationalize a variable capturing the strength of career incentives, we assign a BDO's response to the median probability corresponding to his or her response (for example a "Very Likely" response is coded as 1.0 while a "Somewhat Likely" response is coded as an 0.8 probability). The reason we utilize this individualized measure, rather than say objective civil service rules for promotion (see e.g. Bertrand et al, 2015), is that chances of promotion linked to effort are often determined by informal organizational culture as well as objective rules. Additionally, individual traits affect perceived chances for promotion, including age and past experiences. For example, results suggest that BDOs who obtained their position through promotion as opposed to direct exam-based recruitment report a 0.08 (standard error

0.04) higher probability of promotion linked to effort, while for each additional year in government service BDOs tend report a 0.003 (standard error 0.0019) *lower* probability of promotion linked to performance, plausibly due to jadedness.

FIGURE 3 ABOUT HERE

Another possible explanation for under-performance by BDOs is that they are subject to excessive political interference, a variable highlighted by political science theories of state capacity (e.g. Migdal, 1988; Evans, 2012). An absence of organizational autonomy from political dictates could subvert the developmental objective of local bureaucrats and instead convert them into agents of locally powerful social groups, politicians, and businesses. The major tool for control over bureaucrats that local politicians possess is not the threat of firing, since BDOs are protected by civil service laws, but by the threat of transferring uncompliant BDOs to undesirable or "punishment" postings in another locality (see e.g. Iyer and Mani, 2012). To measure the degree of autonomy that BDOs possess relative to local politicians, we asked BDOs "who would prevail in a hypothetical dispute about where to allocate a project" with respect to different types of local politicians: a village-level elected leader, a block-level elected leader, a district-level elected leader, a local legislator belonging to the state-level opposition party, and a local legislator belonging to the state-level ruling party. The share of respondents indicating that a BDO is likely to prevail with respect to each of these types of politicians is displayed in Figure 4. Clearly, higher-level politicians wield greater power vis-à-vis BDOs, though partisanship and connections to the ruling party also matter. To operationalize the measure of autonomy, we

create a variable ranging between 0 and 1 representing the share of politicians over whom the BDO expects to prevail over in a project allocation dispute.

FIGURE 4 ABOUT HERE

A final alternative explanation for local bureaucratic under-performance is rigid and hierarchical organizational norms which prevent flexible adaptation to unpredictable challenges and crowd out initiative-taking behavior on the part of BDOs. Growing evidence, based on the "management as technology" approach (see e.g. Bloom et al, 2013), suggests that rigid and hierarchical organizational norms can be detrimental to the performance of mid-level managers and officials. Rasul and Roggers (Forthcoming) provide evidence from Nigeria that bureaucratic agencies which provide greater flexibility and discretion to their mid-level officials tend to be more effective in terms of project completion rates.[7] Mangla (2015) and Aiyar and Bhattacharya (2016), ethnographically examining the performance of local education officials in India, provides evidence that organizational flexibility is key to effective performance. BDOs often report that they feel highlight constrained in their roles, and are often limited to carrying out orders dictated from district-level superior officials. To measure the degree of organizational flexibility in local block offices, we provided BDOs with the following vignette and asked them about their likely response:

[7] Rasul and Roggers term this flexibility "autonomy" though we prefer to use the term "flexibility" since a large prior literature on bureaucracy uses the term autonomy with respect to outside societal pressure groups and politicians as opposed to the degree of autonomy/flexibility for mid-level officials within bureaucracy,

> "Suppose a project for a NREGA road has been officially sanctioned, but early monsoon rainfalls have made it impossible to build, and village officials have come to your office to ask what to do. In this scenario, what is your first course of action?"

BDOs were given the following choice set of responses: Seek the Advice of Superiors; Take Action Myself to Re-allocate Funds to a New Project; Cancel the Project; Delay Until Further Notice; Unsure. Figure 5 displays the distribution of responses. Consistent with generally hierarchical organizational norms in local administration, relatively few BDOs indicated that they would unilaterally reallocate the funds to a new project, despite the potential social desirability of such a response. Technically, program rules prohibit BDOs from reallocating project funds, though in practice, given the logistical issues that invariably arise around planned projects, BDOs need to be able to bend rules in order to implement programs like NREGA effectively. Overwhelmingly, BDOs tend to report that they would seek the advice of a superior. While such behavior exhibits rule compliance, it also reflects an inability to adapt to unpredictable challenges in ways that previous literature has highlighted as important. To operationalize the measure of organizational flexibility, we utilize an indicator variable which takes a value of 1 if BDOs report reallocating project themselves and a value of zero otherwise.

FIGURE 5 ABOUT HERE

In the following sections, we test how these different variables affect the behavior and effectiveness of BDOs. We first investigate impacts on the quantity of services provided under a major rural development program. We then investigate behavioral channels by examining the

impact of the variables described above on the reported time allocation of BDOs to different types of activities and physical interactions with different types of individuals over the course of the work day.

3. Effects on the Performance of Rural Development Programs

To estimate the impact of these different variables on bureaucratic effectiveness, we estimate a regression analysis of the basic form:

$$Y_i = \beta_1 RESOURCES_i + \beta_2 INCENTIVES_i + \beta_3 AUTONOMY_i + \beta_4 FLEXIBILITY + \varepsilon_i$$

where Y_i is our outcome-based measure of bureaucratic effectiveness, measured for two programs, NREGA, a rural workfare program, and Swachh Bharat, a sanitation program designed to eliminate open defecation. These are the two national flagship programs that BDOs overwhelmingly report spending the most time implementing. By focusing on national programs, we are able to establish common metrics for performance across BDOs nationally. The performance of NREGA is measured in terms of the total days of NREGA employment provided per rural capita in each block in 2016-17. The performance of Swachh Bharat is measured in terms of the total toilets provided per 100,000 rural residents in 2016-17.

Previous research demonstrates that "rationing" or an under-provision of benefits relative to demand is a rampant problem in the implementation of rural development programs in India (e.g. Dreze and Khera, 2009), largely due to an absence of sufficient bureaucratic capacity to absorb

funds, implement projects, and disburse benefits on a timely basis. This makes our outcome variables good measures of bureaucratic effectiveness. To control for background characteristics which directly impact socioeconomic demand for the programs, in all specifications we also control for total block rural population as well as the share of disadvantaged minorities (scheduled caste and scheduled tribe) in the rural population. To control for the individual traits of BDOs as distinct from systemic local state capacity, in all specifications we control for the age, gender, highest degree level, and years in service of the BDO. Additionally, we also control for district fixed effects in our preferred specifications, meaning that our comparisons in those cases are restricted to spatially very proximate blocks within the same district.

NREGA and Swachh Bharat differ in important regards. NREGA was the flagship program of the previous Congress-party led national government while Swachh Bharat is the flagship program of the currently ruling party at the national level, the BJP. NREGA is a safety net program, designed to provide up to 100 days of employment annually to any household that requests it. Swachh Bharat is a sanitation program that focuses on open defecation in villages, largely through the provision of toilets. NREGA is considerably more complex to administer than is Swachh Bharat, for two reasons. First, because NREGA provides large-scale employment through public works programs and is intended to be demand-based, it is highly complex to administer, involving a process of gauging demand for employment on a village-wise basis, developing and planning a "shelf" of public works projects specific to each village based on this demand, and then executing the projects, monitoring the progress of works, and disbursing wage payments on an individualized basis. Swachh Bharat, by contrast, primarily provides a single type of benefit, toilets, on the relatively straightforward basis of applications from individuals.

Secondly, NREGA is subject to extensive monitoring systems designed to curtail corruption and promote transparency, which have, perhaps inadvertently, generated a significant amount of paperwork, data entry, and red tape that BDOs must complete on a daily basis in order to maintain the flow of funds and disburse employment.

The analysis includes variables representing distinct dimensions of local state capacity. The variable $RESOURCES_i$ is the measure of active full-time staff per 100,000 rural residents. The variable $INCENTIVES_i$ is the measure of perceived probability of promotion linked to effort. The variable $AUTONOMY_i$ is the share of politicians over whom the BDO indicates he or she is likely to prevail over in a hypothetical dispute about project allocation. The variable $FLEXIBILITY_i$ is an indicator variable corresponding to reported flexibility in response to the hypothetical scenario testing BDO's degree of adaptiveness to an unpredictable challenge. By including all the variables in the same regression, we essentially conduct a statistical "horse-race" to see which variable matters the most for local bureaucratic effectiveness. To facilitate comparison, the $RESOURCES_i$, $INCENTIVES_i$ and $AUTONOMY_i$ variables are standardized by dividing by each variable's in-sample standard deviations. The $FLEXIBILITY_i$ variable is not standardized as it a binary indicator. A concern may be that these variables are correlated with one another, making a horse-race of this kind difficult to interpret. Empirically it turns out, however, that these variables are surprisingly uncorrelated with one another. Table 1 provides a correlation matrix for the three explanatory variables.

TABLE 1 ABOUT HERE

The survey was conducted in collaboration with the Lal Bahadur Shastri National Academy of Administration (LBSNAAA) in 2016-17. LBSNAA trains new recruits into the Indian Administrative Service (IAS), a component of which includes training in an assigned district. As part of their training, IAS officer trainees were asked to complete the survey and time-use diaries with three randomly sampled BDOs in each district. While we did not control the districts to which the trainees were sent, we did control the sampling of blocks within districts. Our preferred specifications control for district fixed effects, identifying effects solely from within-district variation and therefore addressing concerns about sample selection that may arise from the nature of district selection.

What is the appropriate level of analysis for our regressions? Are the variables measuring resources, incentives, autonomy, and flexibility primarily state-specific or do they vary at a more disaggregated level? To gauge this question, we "decompose" the variance our main explanatory variables into cross-state, within-state, and within-district components. Strikingly, it appears that there is significant variation in bureaucratic resources, incentives, and autonomy even at a highly disaggregated level. For example, even after partialing out differences between states and districts, over 59 percent of the variation in resources, 46 percent of the variation in incentives, and 46 percent of the variation autonomy, and 49 percent of the variation in flexibility remains. We therefore empirically estimate three different types of regressions: by including no fixed effects and thereby looking at variation across blocks across all states in the sample, by including state fixed effects and limiting the comparison to blocks within the same states, and by including district fixed effects and limiting the comparison only to spatially proximate blocks within the same district. A district is the rough equivalent of an American county and therefore

specifications including district fixed effects identify effects from very localized variation. All regressions additionally estimate standard errors adjusted for clustering at the district level, to account for administrative commonalities within districts.

TABLE 2 ABOUT HERE

The regression results are reported in Table 3. Columns 1-3 examine impacts on NREGA employment provision. By contrast, bureaucratic resources have a consistently large and positive impact on service delivery. According to our preferred specification in column (3), which includes district fixed effects, a one-standard deviation improvement in bureaucratic resources and staffing is estimated to improve access to NREGA by 0.79 days of employment per rural resident annually – an extremely large effect, given the fact that only portion of rural adults participate in the program. Average NREGA employment across all blocks in the sample was 2.98 days/capita. This implies that that a one standard deviation improvement in bureaucratic resources, as proxied by active full-time staff per capita, resulted in a nearly 26.5 percent improvement in public service delivery. The general pattern of results is similar when controlling for state fixed effects instead of district fixed effects as well as when fixed effects are excluded altogether. All specifications report standard errors adjusted for clustering within districts.

TABLE 3 ABOUT HERE

Columns 4-6 conduct the same analysis, except now look at impact on the number of toilets built per 100,000 rural residents under Swachh Bharat. Here the effects of resources on the

performance of the program are statistically indistinguishable from zero, though positive and sizable in our preferred specification controlling for district fixed effects. A one standard-deviation improvement in resources is estimated to increase the number of toilets built by 120 per 100,000 rural residents, which amounts to an approximately 4 percent increase relative to the mean of 2,890 toilets per 100,000 residents. This estimate, though sizeable, is much smaller than the estimated impact on the performance on NREGA. As discussed this plausibly due to the fact that under-resourcing is less detrimental to the performance of BDOs when it comes to rural development programs that are not as procedurally intensive and complex to administer. However, it is possible that Swachh Bharat differs in other ways from NREGA that may account for the differential effects we find. This would an interesting avenue for further inquiry.

Looking at the other dimensions of local state capacity, the small and statistically insignificant coefficients on the autonomy and incentives variables indicate that across the board these explanations for local bureaucratic effectiveness have surprisingly little explanatory power in this setting. However, though the estimates do not reach conventional levels of statistical significance, the coefficients on the flexibility variable are consistently large and positive. Flexible organizational norms are consistently estimated to have a large, positive effect on NREGA employment provision as well as toilet-building under Swachh Bharat. Though not statistically significant, the direction of the coefficients is consistent with accumulating evidence that flexible organizational norms, which provide mid-level officials with freedom and discretion to act according to their judgment, can improve local bureaucratic effectiveness (e.g. Aiyar and Bhattacharya, 2016; Mangla, 2015; Rasul and Roggers, Forthcoming). This is not inconsistent with our argument, as local bureaucratic effectiveness is surely a multi-causal phenomenon.

4. Effects on Bureaucratic Behavior

The next step is to assess *why* bureaucratic resources have such a large impact on local bureaucratic effectiveness. We have argued that over-burdened and under-resourced bureaucrats are forced to multi-task excessively, resulting in an inability to specialize and focus, especially with regard to managerial tasks, which are crowded out by having to deal with daily micro-transactions, such as handling particularistic requests and complaints from politicians and citizens. To assess this hypothesis, we estimate similar regressions as before, but now utilize bureaucratic time allocation as the outcome variable, as measured through the time-use diaries discussed earlier. We now estimate regressions of the form:

$$TIME_i = \beta_1 RESOURCES_i + \beta_2 INCENTIVES_i + \beta_3 AUTONOMY_i + \beta_4 FLEXIBILITY + \varepsilon_i,$$

where the variable $TIME_i$ represents one of two sets of outcomes. We first examine the percentage of hours between 10 am and 5 pm allocated by BDOs to different types of activities: filing forms, managing office and staff, planning and budgeting regarding schemes, field visits, handling individual complaints and requests from citizens, handling individual requests and complaints from village politicians or local legislators. This is on the basis of time-use diaries completed by BDOs in a collaborative phone-based exercise with enumerators. To minimize concerns about social desirability bias and misreporting, we asked BDOs to be highly specific about their activities over the course of the previous working day on a half-hourly basis, making it cognitively burdensome to falsify information. As an additional check, as an alternative

approach we examine a second set of outcomes in terms of who BDOs reported interacting with physically over the course of the day, an outcome measure that is arguably less subject to measurement error or subjective perception issues. Here the outcome measures are percentage of hours between 10 am and 5 pm during which BDO was physically interacting with different types of individuals: by self only, with block-level staff, with district or other government officials, with citizens, with village politicians or local legislator.

In Table 4, we report the first set of results, where the outcome is the percentage of time dedicated over the course of the work day to different types of activities. As before, we estimate specifications with no, state, and district fixed effects. Strikingly, the results indicate that additional resources enable BDOs to divide responsibilities, delegating micro-transactions to their staff while the BDOs themselves focus on office-based planning and managerial activities. According to our preferred estimates based on district fixed effects, a one standard deviation improvement in resources is estimated to have increased the time spent on form-filing by 2.7 percentage points, time spent on office-based management of staff by 1.69 percentage points, and time spent on office-based planning and budgeting by 1.19 percentage points. By contrast, when BDOs have more resources, they spend less time on handling individualized micro-transactions with constituents. A one standard deviation improvement in resources *reduces* time spent in the field by 2.14 percentage points, time spent handling individual complaints and requests from citizens by 1.39 percentage points, and time spent handling individual complaints and requests from politicians by 1.35 percentage points. While we only conducted the time-use diaries with BDOs and not their staff, together with the prior results indicating improvements in

service delivery, we infer from these results that it is not that client-facing activities are being abandoned altogether but that they are being delegated to the BDO's staff.

TABLE 4 ABOUT HERE

Table 5 examines who BDOs report interacting with physically over the course of the work day. The results reveal consistent changes in behavior when BDOs are provided with additional personnel and staff. A one standard deviation improvement in resources, according to our preferred specification based on district fixed effects, increases time spent alone by 1.8 percentage points and time spent with staff (though this is not statistically significant) by 1.34 percentage points. A one standard deviation improvement in resources *reduces* time spent with other government officials (though this is not statistically significant) by 1.0 percentage points, time spent with citizens by 2.06 percentage points, and time spent with politicians by 1.45 percentage points. This is consistent with a general pattern of results suggesting that additional resources enable BDOs to specialize in managerial activities and delegate client-facing activities to their staff. This organizational division of labor is associated with significant improvements in bureaucratic effectiveness and service delivery.

TABLE 5 ABOUT HERE

5. Why Do Politicians Under-invest in Local State Capacity?

In some ways, the results should not be surprising. The division of labor and is a fundamental principle of organizational effectiveness that has been recognized at least since Adam Smith and that is implemented by virtually every major private sector organization (e.g. Stigler, 1951). Weber famously argued that a quintessential feature of modern bureaucracy is organizational differentiation and hierarchy, which permit bureaucrats to specialize in different types of activities. Why then are local rural development bureaucracies in India chronically under-resourced relative to their responsibilities, inhibiting their ability to divide and specialize in tasks and operate efficiently?

One answer would be that perhaps politicians are making rational cost-benefit calculations. However, this does appear to be the case. In the average block containing 150,000 residents, a one standard deviation improvement in resources corresponded to roughly 37 additional full-time employees. The preferred regression estimates suggest that this resulted in an additional 0.79 days of NREGA employment per capita or a net addition of 118,500 days of employment in the average block per year. This implies that the "value added" of a single full-time employee is roughly 3,203 additional days of employment per year under *a single program* (potentially additional resources improved the performance of other programs as well). Conservatively estimating that the daily wage under NREGA is 100 rupees (or roughly $2), this suggests that an additional employee improves total wage disbursement by approximately 320,300 rupees (or roughly ($6,406), an amount well in excess of the annual salary of a typical full-time employee. NREGA funds come almost entirely from the central government, while state-level governments

are responsible for the salaries of block-level employees. It therefore appears that on average state governments and the politicians which control them in India are failing to make rational investments in state capacity from a net revenue perspective. This is particularly striking given the absence of serious procedural barriers to improving staffing: across the blocks in our sample, on average 48 percent of officially sanctioned full-time employee posts were vacant. If all of these sanctioned but vacant positions were simply filled, our estimates suggest that the performance of NREGA nationally would improve by approximately 10 percent in terms of employment delivery.

What explains the failure of politicians to make rational investments in local state capacity? One answer is that, unlike firms, politicians are not usually driven by efficiency motives. Instead, they possess asymmetrical electoral incentives which tend to result in an accumulation of bureaucratic responsibilities without corresponding investments in capacity. The electoral returns to announcing and inaugurating brand new, ambitious rural development programs are large and clearly internalized by the politicians in control of state governments. This is partly responsible for the ever-growing list of major rural development programs in India. However, the electoral returns to investing in state capacity are far more diffuse and more difficult to internalize by incumbent politicians and ruling parties at the state level. Hiring new employees may not translate into improved program performance for several years, and the credit for these improvements may well be claimed by political opponents. More broadly, filling large-scale staffing vacancies and enacting bureaucratic reforms to ensure that staffing keeps pace with growing populations requires significant collective political action, which may be under-provided as a result.

To assess some of these hypotheses, we now turn to examine the determinants of local bureaucratic resources, as measured in terms of number of active full-time staff per 100,000 residents. We examine different political and non-political determinants of local bureaucratic resources: political alignment, political fractionalization operationalized as one minus the Herfindahl index of constituency-level candidate vote shares, remoteness as measured in terms of driving time to the district headquarters according to Google maps, and rural population size in 100,000s. As before, we examine cross-state, within-state, and within district patterns by including no, state, and district fixed effects, respectively.

TABLE 6 ABOUT HERE

Table 6 reveals that BDOs located in opposition-party controlled constituencies report fewer resources, plausibly because investments in state capacity would not be internalized by the state-level ruling party in these areas. The estimates suggest that blocks in ruling-party constituencies have on average 10 additional full-time employees per 100,000 rural residents, an effect that is consistent across the inclusion of state and district fixed effects. In what way do ruling-party politicians "internalize" the preferential investments in state capacity in their own constituencies? One potential long-term benefit is the improved performance of rural development programs that has already been established. Another more short-term benefit is that politicians may receive kickbacks for providing employment (see e.g. Wade, 1982).

To gauge the prevalence of such kick-backs, we conducted a list experiment with BDOs to estimate the extent of office-selling in local bureaucracy, randomly providing some BDOs with a list of four items and other BDOs with a list of five items, including office selling, that BDOs may have witnessed in the previous six months. The benefit of a list experiment is that it statistically protects respondent anonymity, mitigating bias in answers to sensitive questions. The difference in the average counts reported in the control and treatment and control conditions represents the estimated share of BDOs who have witnessed office-selling in the previous 6 months. The overall estimate of office selling is 23.0 percent (standard error: 10.5 percent). Estimating office-selling separately for opposition-party and ruling-party constituencies, we find that estimated office-selling is entirely concentrated in ruling-party constituencies. In ruling party constituencies, the estimate is 33.0 percent (standard error: 15.6 percent). In opposition party constituencies, the estimate is -2.4 percent (standard error: 17.2 percent). The evidence is consistent with an "efficient grease" channel in which ruling parties increase staffing in aligned constituencies, which results in increased kick-backs to co-partisan politicians but also, perhaps inadvertently, improves the performance of development programs by increasing bureaucratic resources in these areas. The results strike a middle ground between studies which find that political oversight, in this case exposure to a ruling-party politician, improves bureaucratic service delivery (e.g. Gulzar and Pasquale, 2017), and studies which find that political oversight increases rent extraction (e.g. Brierley, 2017).

Additionally, there is evidence that blocks in more fractionalized constituencies tend to receive lower investments in terms of bureaucratic resources. This is plausibly connected to the fact that politicians in these constituencies have lower re-election probabilities and shorter time horizons,

diminishing their incentives to push for improvements in local staffing that may only deliver results and therefore electoral benefits in the future (Chhibber and Nooruddin, 2004). However, this effect fades with the inclusion of state and district fixed effects, suggesting that differences in party system fragmentation across states, as opposed to more localized comparisons within districts, drive these differences in bureaucratic resources. Surprisingly, remoteness as measured in driving time to the district headquarters does not appear to have a negative impact upon bureaucratic resources. However, blocks with larger rural populations tend to have lower resources relative to the populations they serve. This suggests that resources and personnel are not allocated in proportion to the differential population sizes of blocks, suggesting a significant degree of administrative inertia or irrationality in staffing procedures.

We interpret the results to support two systemic reasons that local bureaucracies tend to be under-resources relative to their responsibilities. First, perverse electoral incentives arising from the extent to which ruling parties can expect to internalize the benefits of investments in local state capacity intensify the under-provision of resources in opposition constituencies and in fragmented party systems. Second, there appears to be systemic inertia or irrationality in how resources are allocated across blocks, with resource and personnel allocations failing to keep pace with differences in rural population sizes and/or growth. Because politicians make the decisions to allocate resources and responsibilities to local bureaucracies, on the basis of electoral and other considerations, these choices tend to be made in ways that depart from efficiency considerations, resulting in under-resources and over-burdened local bureaucracies which are unable to divide and delegate tasks and operate efficiently.

6. Conclusion

Existing public choice arguments attribute bureaucratic under-performance to weak performance incentives (e.g. Tullock, 1965), while theories of state capacity blame an absence of organizational autonomy from excess political interference (e.g. Migdal, 1988; Evans, 2012). Drawing on a nationwide survey of the capacity and time usage of local rural development officials in India, this paper provides evidence for a different pathology: local bureaucracies are chronically under-resourced relative to their responsibilities because politicians make these decisions (inefficiently).

Drawing on regressions which look at how bureaucratic resources affect the performance of two major rural development programs, we have provided evidence that: i) inadequate personnel and resources force rural development officers to multi-task excessively; ii) this inability to specialize has an adverse impact on the performance of development programs. The flip side of this coin is that additional resources have large, positive impacts on public service delivery. The implied returns to additional investments in bureaucratic resources are so large that they clearly indicate that politicians in India are failing to make rational investments in local state capacity.

We argue that the failure of politicians to make rational investments in local state capacity is driven by a combination of perverse electoral incentives and more generalized administrative inertia. Consistent with the former, we find that blocks in opposition-party constituencies and in more electorally fractionalized regions tend to receive fewer personnel and resources. Consistent with the latter, we find that blocks which are larger in terms of the rural populations they serve

do not receive commensurate resources and personnel. More generally, the results suggest that while the electoral returns to enacting new rural development programs are large and easily internalized by politicians, the electoral returns to investing in state capacity are far more diffuse and uncertain. This is partly to blame for the chronic under-resourcing and over-burdening of local bureaucracies, with negative consequences for local bureaucratic behavior and effectiveness in India and beyond.

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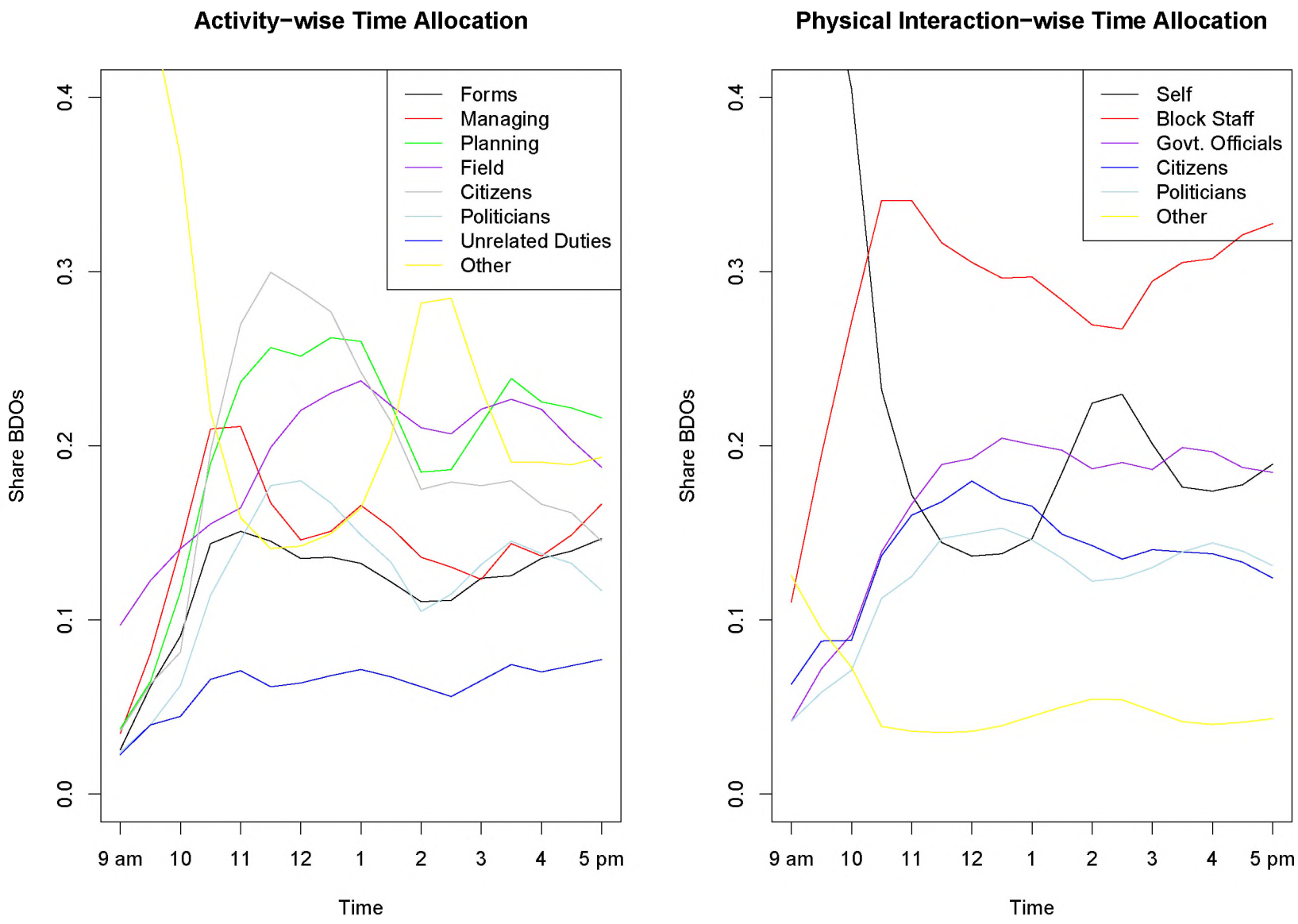
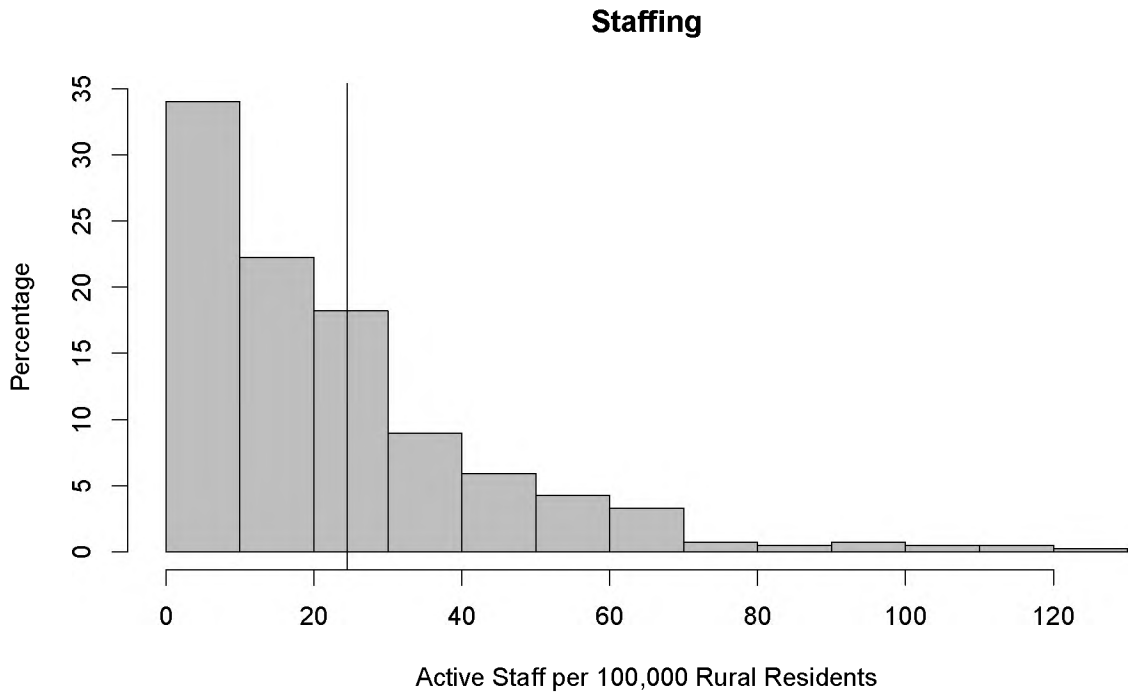
Figure 1: BDO Time-Use Diaries



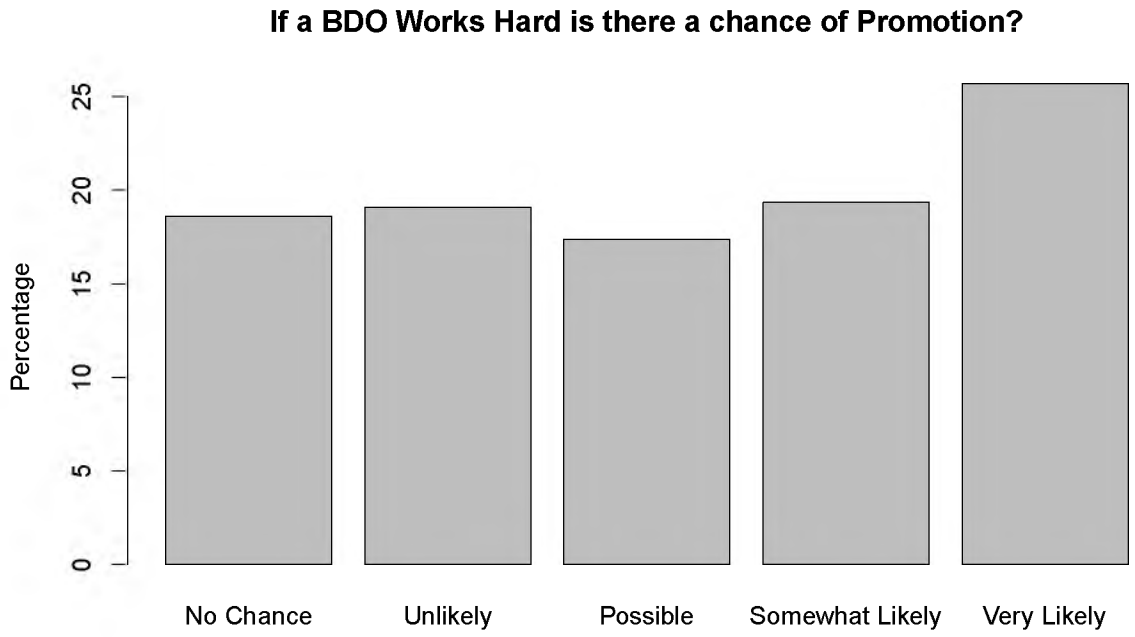
Notes: Each BDO was contacted once a week on three subsequent weeks to complete a time use diary for the preceding day. Outcome in left panel is hour-wise share of BDOs indicating engagement in different activities: filing forms, managing office and staff, planning and budgeting regarding schemes, field visits, handling individual complaints and requests from citizens, handling individual requests and complaints from village politicians or MLA, unrelated duties, or other. Outcome in left panel is hour-wise share of BDOs indicating physical interaction with different types of individuals: by self only, with block-level staff, with district or other government officials, with citizens, with village politicians or MLA, with other.

Figure 2: Measure of Resources



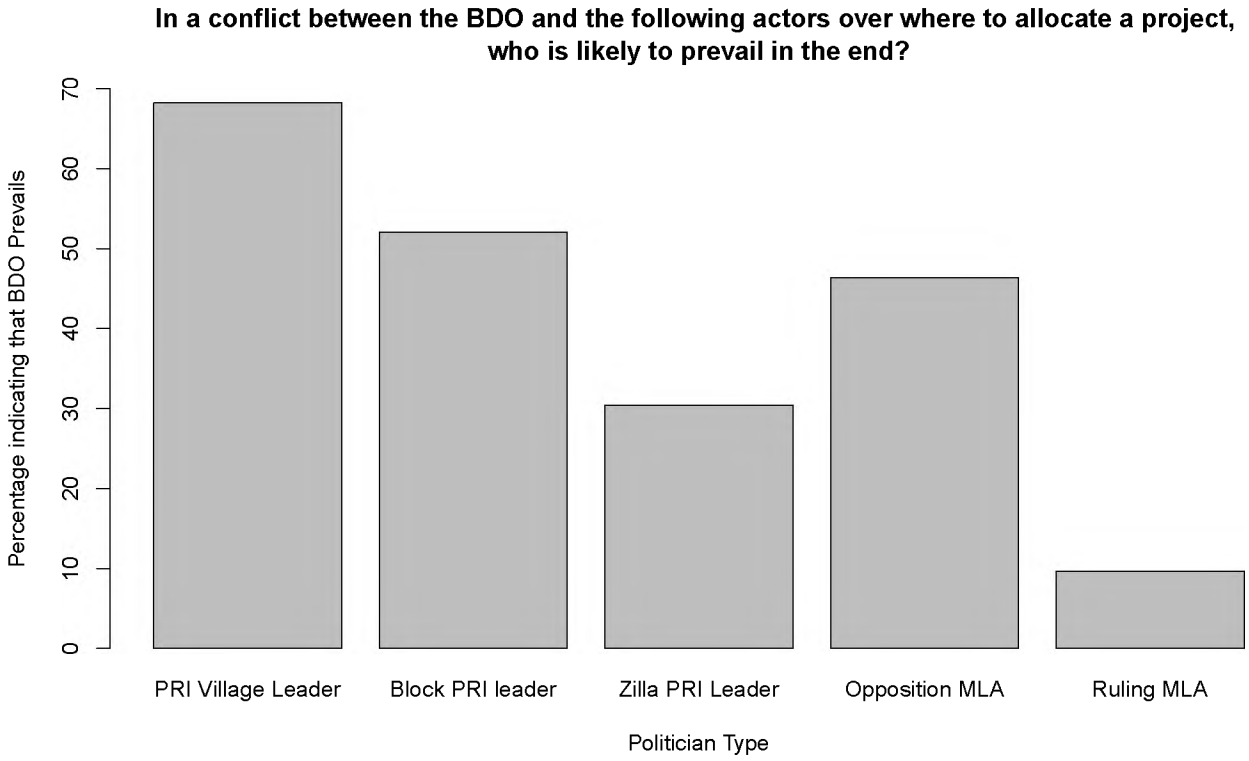
Notes: BDOs were asked to indicate the number of full-time (as opposed to contract) Block-level employees. This number was divided by rural population of the block as measured with census data.

Figure 3: Measure of Career Incentives



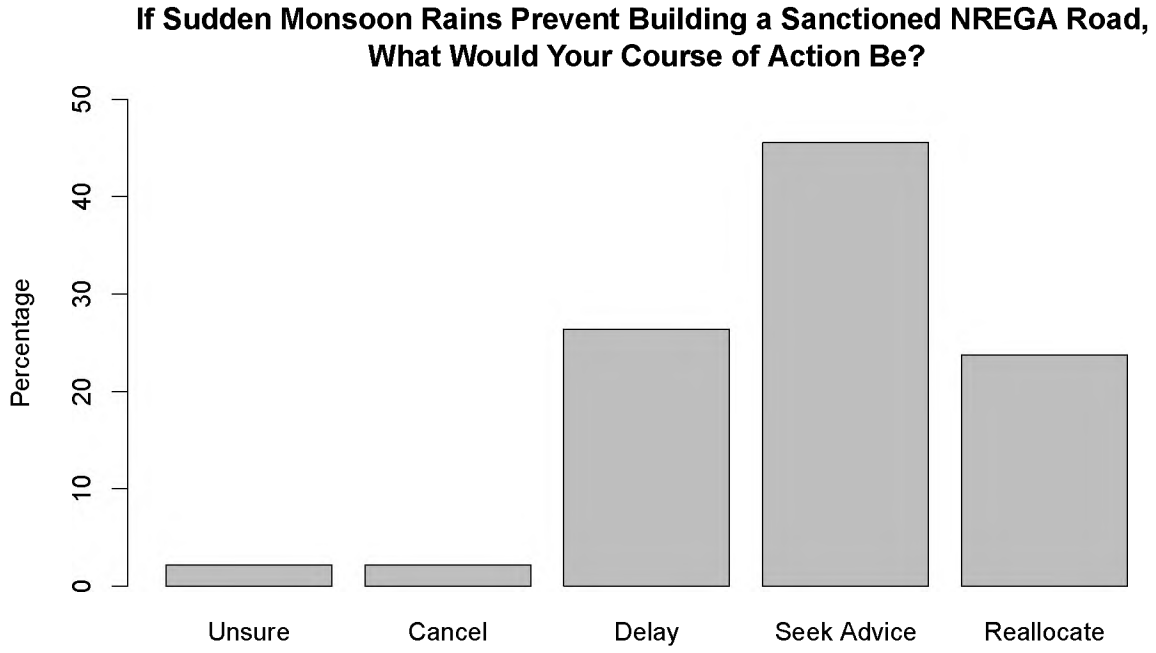
Notes: BDOs were asked: "If a BDO works hard, is there a chance of promotion to a higher position over the next 10 years? If so, what is the likely next post?". The response choice set was: Very Likely (10 out of 10 times), Somewhat Likely (7-9 out of 10 times), Possibly (4-6 out of 10 times), Unlikely (1-3 out of 10 times), No chance (0 out of 10 times).

Figure 4: Measure of Autonomy



Notes: BDOs were asked who would prevail in a hypothetical dispute about where to allocate a project with respect to 5 different types of local politicians: village-level (panchayat) elected leaders, elected leaders at the level of block councils, elected leaders at the level of district councils, and a local elected state legislator belonging either to the opposition party or to the ruling party.

Figure 5: Measure of Flexibility



Notes: BDOs were asked to indicate their likely course of action in response to a vignette describing a hypothetical scenario in which a NREGA public works project has been rendered unfeasible due to monsoon rainfalls.

Table 1: Correlation Matrix

	Resources	Incentives	Autonomy	Flexibility
Resources	1.00	-0.02	0.04	0.02
Incentives	-0.02	1.00	0.03	0.04
Autonomy	0.04	0.03	1.00	-0.02
Flexibility	0.02	0.04	-0.02	1.00
Variable Mean	24.48	0.51	0.36	0.23
Variable SD	35.90	0.39	0.27	0.42

Notes: Cells indicate correlation between different variables. Unit of analysis is rural development block. Resources is number of active full-time block staff per 100,000 rural residents. Incentives is perceived probability of promotion linked to hard work. Autonomy is share of list of politicians BDO states he or she is likely to prevail against in hypothetical project allocation dispute. Flexibility is indicator of adaptive response to hypothetical unpredictable challenge vignette.

Table 2: Variance Decomposition

	Cross-State	Within-State	Within-District
Resources	100.00	80.06	58.51
Incentives	100.00	85.25	45.62
Autonomy	100.00	93.47	46.18
Flexibility	100.00	93.78	48.55

Notes: Cells decompose variation of different measures of state capacity into cross-state, within-state, and within-district (cross-block) variation. Within-state variation is share of variance remaining after partialing out state means. Within-district variation is share of variance remaining after partialing out district means.

Table 3: Determinants of Bureaucratic Effectiveness

	NREGA Employment			Swachh Bharat Toilets		
	Cross-state	Within-state	Within-district	Cross-state	Within-state	Within-district
	(1)	(2)	(3)	(4)	(5)	(6)
Resources	1.024***	0.639**	0.793***	−72.827	75.115	120.679
	(0.118)	(0.261)	(0.217)	(115.072)	(102.971)	(106.525)
Autonomy	−0.084	−0.118	−0.175	−42.391	96.560	−179.420
	(0.172)	(0.113)	(0.143)	(154.264)	(131.120)	(251.699)
Incentives	0.037	0.009	−0.078	−25.245	51.380	59.290
	(0.206)	(0.136)	(0.237)	(137.629)	(115.297)	(215.137)
Flexibility	0.324	0.396	0.745	3.969	92.126	448.630
	(0.482)	(0.337)	(0.524)	(301.811)	(280.156)	(334.690)
Block Controls	Yes	Yes	Yes	Yes	Yes	Yes
Individual Controls	Yes	Yes	Yes	Yes	Yes	Yes
Fixed Effects	None	State	District	None	State	District
Outcome Mean	2.98	2.98	2.98	2890	2890	2890
Clusters	158	158	158	158	158	158
Observations	421	421	421	421	421	421

Notes: Unit of analysis is rural development block. Outcome is total days of NREGA employment provided per rural capita in 2016-17 or Number of Swachh Bharat toilets built per 100,000 residents in 2016-17. Resources is number of active block staff per 100,000 rural residents. Autonomy is share of list of politicians BDO states he or she is likely to prevail against in hypothetical project allocation dispute. Incentives is perceived probability of promotion as a result of hard work. Flexibility is indicator of adaptive response to hypothetical unpredictable challenge vignette. To facilitate comparison, all variables are standardized by dividing by their in-sample standard deviation, except for Flexibility variable, which is a binary indicator. Analysis estimated by OLS. Standard errors adjusted for clustering within districts. *p<0.1; **p<0.05; ***p<0.01.

Table 4: Impact on Time Allocation by Activity Type

	Forms	Managing	Planning	Field	Citizens	Politicians
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Cross-state						
Resources	2.774***	2.394***	0.877	−1.145*	−2.015***	−1.125**
	(0.852)	(0.622)	(0.742)	(0.689)	(0.709)	(0.498)
Autonomy	1.440	−0.430	−0.575	1.231	0.475	−0.199
	(0.930)	(1.218)	(1.059)	(1.064)	(1.113)	(1.220)
Incentives	0.679	−1.275	−0.499	−0.150	−0.822	0.124
	(1.093)	(1.042)	(1.148)	(0.974)	(1.173)	(1.104)
Flexibility	−2.945	−2.347	2.849	4.144*	1.610	−0.290
	(2.082)	(2.073)	(2.658)	(2.490)	(3.557)	(3.304)
Panel B: Within-state						
Resources	3.250***	2.298***	1.129**	−1.896***	−1.158*	−0.920
	(0.925)	(0.602)	(0.552)	(0.670)	(0.672)	(0.572)
Autonomy	2.116**	−0.333	−0.524	1.049	0.999	0.435
	(0.962)	(0.969)	(0.922)	(1.077)	(1.003)	(0.973)
Incentives	1.401	−1.083	0.027	0.317	0.491	1.489
	(0.992)	(1.030)	(1.083)	(0.898)	(0.973)	(1.044)
Flexibility	−2.696	−1.793	1.917	2.946	2.368	−0.935
	(2.286)	(2.007)	(2.462)	(2.170)	(2.941)	(3.179)
Panel C: Within-district						
Resources	2.658***	1.692***	1.193*	−2.135***	−1.392***	−1.351***
	(1.004)	(0.579)	(0.698)	(0.708)	(0.533)	(0.483)
Autonomy	−0.122	−0.121	0.765	−0.210	−0.223	−0.974
	(1.112)	(1.084)	(0.984)	(1.121)	(0.975)	(0.898)
Incentives	0.451	−0.484	−0.914	−0.199	−0.344	−0.508
	(0.975)	(1.024)	(1.298)	(1.451)	(0.852)	(0.877)
Flexibility	−2.652	−0.750	−1.399	0.360	−1.336	−1.941
	(1.971)	(2.200)	(2.606)	(3.045)	(2.524)	(2.504)
Outcome Mean	13.5	16.0	22.0	19.8	19.8	13.4
Clusters	145	145	145	145	145	145
Observations	998	998	998	998	998	998

Notes: Unit of analysis is BDO-day (each BDO was contacted once a week on three subsequent weeks to complete a time use diary for the preceding day). Outcome is percentage of hours between 10 am and 5 pm allocated to different types of activities: filing forms, managing office and staff, planning and budgeting regarding schemes, field visits, handling individual complaints and requests from citizens, handling individual requests and complaints from village politicians or MLA. Analysis estimated by OLS. Standard errors adjusted for clustering within districts. *p<0.1; **p<0.05; ***p<0.01

Table 5: Impact on Time Allocation by Physical Interactions

	Self	Staff	Officials	Citizens	Politicians
	(1)	(2)	(3)	(4)	(5)
Panel A: Cross-state					
Resources	2.343*	1.937**	−0.948	−1.762*	−0.472
	(1.333)	(0.856)	(0.818)	(1.050)	(0.745)
Autonomy	2.438	1.864	2.397*	2.456**	1.706
	(2.192)	(1.678)	(1.318)	(1.234)	(1.291)
Incentives	0.558	−0.889	−1.469	−0.350	0.646
	(2.123)	(1.553)	(1.337)	(1.204)	(1.124)
Flexibility	−2.421	−2.628	−4.298	−2.196	−5.503**
	(4.677)	(3.210)	(2.769)	(3.127)	(2.448)
Panel B: Within-state					
Resources	2.947**	1.531	−1.770***	−1.401	−0.848
	(1.277)	(0.936)	(0.683)	(1.004)	(0.843)
Autonomy	2.397	2.955**	2.350*	3.212***	2.708***
	(2.089)	(1.461)	(1.264)	(1.188)	(1.029)
Incentives	0.990	0.622	−1.052	0.975	2.035*
	(2.170)	(1.454)	(1.261)	(1.207)	(1.046)
Flexibility	−3.413	−2.992	−4.443*	−0.689	−4.048*
	(4.093)	(3.398)	(2.649)	(2.801)	(2.211)
Panel C: Within-district					
Resources	1.804**	1.347	−1.002	−2.060**	−1.450**
	(0.765)	(0.825)	(0.732)	(0.814)	(0.599)
Autonomy	1.465	1.620	1.973*	1.412	−1.450
	(1.367)	(1.409)	(1.179)	(1.332)	(1.253)
Incentives	−3.192*	−0.824	0.803	−0.640	2.382*
	(1.718)	(1.943)	(1.699)	(1.437)	(1.382)
Flexibility	1.998	−4.334	−1.561	−0.975	−3.474
	(3.771)	(3.494)	(3.211)	(3.658)	(2.942)
Outcome Mean	30.0	49.2	24.9	23.0	20.0
Clusters	145	145	145	145	145
Observations	998	998	998	998	998

Notes: Unit of analysis is BDO-day (each BDO was contacted once a week on three subsequent weeks to complete a time use diary for the preceding day). Outcome is percentage of hours between 10 am and 5 pm during which BDO was physically interacting with different types of individuals: by self only, with block-level staff, with district or other government officials, with citizens, with village politicians or MLA. Analysis estimated by OLS. Standard errors adjusted for clustering within districts. *p<0.1; **p<0.05; ***p<0.01.

Table 6: Determinants of Bureaucratic Personnel and Resources

	(1)	(2)	(3)	(4)
Panel A: Cross-state				
Ruling Party	9.734**			
	(4.156)			
Vote Fractionalization		−61.122*		
		(32.656)		
Driving Time			2.751	
			(2.611)	
Size				−16.412***
				(4.339)
Panel B: Within-state				
Ruling Party	7.964***			
	(2.779)			
Vote Fractionalization		−29.700**		
		(13.931)		
Driving Time			1.236	
			(2.033)	
Size				−13.195***
				(3.705)
Panel C: Within-district				
Ruling Party	10.539**			
	(4.317)			
Vote Fractionalization		−18.345		
		(20.407)		
Driving Time			0.556	
			(3.141)	
Size				−18.562**
				(8.347)
Outcome Mean	24.5	24.5	24.5	24.5
Clusters	158	158	158	158
Observations	421	421	421	421

Notes: Unit of analysis is block. Outcome is is bureaucratic resources as proxied by the number of full-time active block staff per 100,000 rural residents. Ruling party is indicator of whether “main" state assembly constituency containing the block headquarters is controlled by a state-level ruling-party legislator. Vote Fractionalization is one minus the Herfindahl index of candidate-wise vote shares at the constituency level. Driving Time is estimated time in hours required to travel from Block centroid to the District headquarters according to Google Maps. Size is block rural population in 100,000 residents. Analysis estimated by OLS. Standard errors adjusted for clustering within districts. *p<0.1; **p<0.05; ***p<0.01