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Three Essays on Citizen-State Interactions and Bureaucratic Responsiveness

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Three Essays on Citizen-State Interactions and Bureaucratic Responsiveness

by

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Abstract

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Doctor of Philosophy in Political Science

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This dissertation seeks to understand the differences in the responsiveness of local bureaucracy towards citizens' claims. Since the state has a monopoly on service provision, citizens have to engage with a bureaucrat to access their entitlements. However, within the territory of a state, in some places, citizens experience an attentive state quick to address their demands, while in other parts, the same state can be unresponsive and apathetic. What explains these spatial disparities in state responsiveness? The dominant explanations for variation in the quality of citizen-state interactions examine how political processes, community characteristics, and the quality of social institutions influence bureaucratic responsiveness towards citizens' claims. The three essays in this dissertation focus on the state and its role in producing local differences in the quality of citizen-state interactions.

The first essay looks at a policy decision taken by the state to modernize its interface with citizens by outsourcing the citizen applications to digital intermediaries. The digital intermediaries formally sanctioned by the bureaucracy were tasked with assisting citizens in filing online applications. The digital intermediaries replaced the informal intermediaries who lacked formal sanction of the state and helped citizens with approvals of paper-based applications. The essay shows that the expansion of the network of state-managed intermediaries overtime does not improve bureaucratic responsiveness. I argue that intermediaries selected by the state to modernize the citizen application process, unlike informal intermediaries, have limited incentives to compete in the market for citizen applications. The essay sheds light on citizens' reliance on informal intermediaries in settings with limited bureaucratic accountability. It explores how formalization of the citizen-state interface and disruption of informal mediation arrangements can limit the effectiveness of the state's attempts to modernize its interface with citizens.

The second essay delves into how the preferences of bureaucrats over being relocated across

different jurisdictions create differences in state presence and impacts state responsiveness. Relocating bureaucrats allows the state to allocate personnel resources across its territory. I show that the strong preferences of bureaucrats over relocation result in attempts to circumvent organizational directives placing bureaucrats in locations that do not align with their preferences. The lobbying efforts by bureaucrats increase the duration for which positions at the local level lie vacant, and higher vacancies reduce state responsiveness towards citizens' claims. Further, due to the over-representation of bureaucrats from more developed regions, the vacancies accumulate in jurisdictions with lower economic development. This essay examines how the preferences of bureaucrats and their representation within the bureaucracy can play a substantial role in shaping state presence and have a negative impact on citizen-state interactions.

The final essay in this dissertation focuses on top-down monitoring of agents by a centralized principal and its impact on bureaucratic responsiveness at the local level. The essay seeks to understand the circumstances under which a top-down monitoring effort can improve bureaucratic responsiveness. The limited empirical examination of the use of information technology by the state in low and middle-income countries to monitor the performance of mid-level managers points towards mixed results. If local bureaucracy shirks responsibility or is unresponsive to citizens, top-down monitoring can improve state responsiveness. However, in capacity-constrained contexts, top-down monitoring in itself may not improve bureaucratic performance. I juxtapose the bureaucracy's response to an increase in the volume of citizen claims before and after top-down monitoring is implemented. I find that top-down monitoring improves state responsiveness. Further, the gains can be observed across both high capacity and low capacity jurisdictions. The essay shows that reducing field-level discretion through top-down monitoring can improve bureaucratic performance even in low state capacity settings.

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Acknowledgments

Like the ship of Theseus, at the end of the long journey of this Ph.D., I can only vaguely recognize the person who entered the Berkeley campus. Slowly but steadily, the process of asking a question and finding the answer to it has changed how I view the world and my place in it. Many people have contributed to this transformation and made it possible for me to complete this voyage. First and foremost, I would like to thank my dissertation committee members Jennifer Bussell, Pradeep Chhibber, Ernesto Dal-Bo, Thad Dunning, and Alison Post for their invaluable feedback and guidance throughout this process. Outside the committee, the mentorship and intellectual engagement of Ruth Collier played a pivotal role in helping me understand how to formulate research questions. I am also indebted to the Center on the Politics of Development Working Group and South Asia Reading Group students for reading earlier versions of this paper. This dissertation has also benefited immensely from the feedback of my colleagues Anirvan Chowdhury, Pranav Gupta, Chris Hyun, Andrew McCall, Bhumi Purohit, Surili Sheth, and Rahul Verma. Rahul Verma, over long conversations about everything from poems of Dushyant Kumar to Indian politics, kept my ideas grounded in reality. Pranav Gupta was always gracious with his time and engaged with my research questions with an intellectual rigor that is rare to find. Many aspects of this project would have been incomplete had I not listened to Pranav's sage advice. I also thank the Political Economy Research Lunch at the Haas Business School, especially Guo Xu, for valuable comments. Inputs from Aaditya Dar, Aditya Dasgupta, Francesca R. Jensenius, Irfan Nooruddin, and Devesh Kapur were crucial in helping me formulate key parts of the argument. This project would not have been possible without the support of the Odisha government and especially the officials in the Revenue Department. Revenue Department officials spent hours of their valuable time engaging with me. Several Tehsildars were gracious enough to grant me multiple appointments and cups of chai while I asked them a volley of questions. Similarly, citizens across the districts of Odisha shared their experiences engaging with the state and helped me understand the chasm that sometimes separates lived reality from its descriptions in academic literature. While numerous people helped me navigate my fieldwork, Debi Prasad Das, Barada Behera, Deepak Nayak, and Abdul Khan were constant companions throughout the journey. I owe a great debt to my family, especially my parents, for instilling in me the intellectual curiosity and the motivation to pursue a Ph.D. Finally, I would not have completed this journey without the companionship and love of my wife. Even though it is a collective journey, all faults and errors in this document are mine alone.

Chapter 1

Introduction

Rapid urbanization, growing inequality, and frequent climate shocks have put enormous pressure on governments to meet the demand of their citizens. Public bureaucracies have a central role in solving these complex challenges and ensuring equitable and sustainable development. This dissertation project focuses on a crucial aspect of citizens' engagement with the state - bureaucratic responsiveness. Responsive bureaucracies are a hallmark of an effective state. However, the lack of bureaucratic responsiveness towards citizens' claims is widespread. Citizens across different contexts have to experience long waiting times and endure uncertainty when engaging with bureaucracies to access their entitlements. Further, the lack of bureaucratic responsiveness is more acutely experienced by citizens with limited resources and belonging to historically marginalized groups. This dissertation explores the hurdles citizens face while engaging with bureaucracies and seeks to explain the determinants of bureaucratic responsiveness towards citizens' claims.

I situate my research in India, where citizens engage with the land bureaucracy for ascertaining their place of residence, caste category, land ownership details, and income levels. Millions of citizens use legal certifications from the land bureaucracy to avail low-interest bank loans, welfare benefits, affirmative action programs, and engage in land-related market transactions. The essays in this dissertation examine how decisions and practices within the land bureaucracy impact local state responsiveness towards citizens. The dissertation interrogates the variation in bureaucratic responsiveness from three different but interrelated vantage points. The first essay explores the lack of impact of an intervention designed by the state to change how citizens interface with the bureaucracy. The intervention sought to create and expand a network of intermediaries responsible for interfacing with the state using information technology to digitize citizen applications. The essay shows that the attempt by the state to change the citizen interface and expand the intermediary network fails to achieve its goals of making the bureaucracy more responsive. The second essay looks inside the state and focuses on the preferences of individual bureaucrats over being relocated to different jurisdictions and its impact on local citizen experience in engaging with the state. The essay shows that bureaucrats lobby against organizational policies, and these lobbying efforts result in variation in local state presence and responsiveness. The final essay looks

at how a newly designed centralized/top-down monitoring by higher levels of bureaucracy based on digitized citizen transactions impacts local bureaucratic responsiveness towards citizens. The essay finds that top-down monitoring of local bureaucracy improves its ability to respond to citizens when faced with a greater volume of claims. Thus, the three essays engage with how citizens interface with bureaucrats, preferences of bureaucrats, and top-down monitoring within bureaucracy impact state responsiveness. In this introductory chapter, I outline the broad findings from the three essays and discuss how they provide a comprehensive picture of the landscape of citizen-state interactions.

1.1 Citizens, Intermediaries, and the State

The first essay in this dissertation focuses on the role of intermediaries - actors who mediate with the state on behalf of the citizens. The essay examines if market competition between intermediaries can improve the quality of citizen-state interactions by studying a public-private partnership (PPP) policy that created a network of digital intermediaries - individuals formally authorized by the state to submit online applications on behalf of citizens. I use the overtime and staggered expansion of the intermediary network to identify the relationship between greater competition among digital intermediaries for the share of citizen applications and the quality of citizen-state interactions. I find that the greater presence of intermediaries in a jurisdiction does not improve bureaucratic responsiveness towards citizens' claims. Why doesn't an increase in the presence of intermediaries positively impact the quality of citizen-state interactions? I argue that digital intermediaries selected by the state have limited incentives to compete in the market for citizen applications. To establish the incentives of digital intermediaries, I contrast their functioning against informal intermediaries, who submitted paper-based applications before the state moved citizen applications online. I show that the PPP policy by formalizing the citizen-state interface disrupts informal mediation arrangements and limits market competition. The lack of relationship between the expansion of the intermediary network and the quality of citizen-state interactions has important implications for how low and middle-income countries deploy information technology for digitizing citizen interfacing governance processes. I conclude by outlining how the formalization of the citizen-state interface can be implemented in a manner that can improve citizen experience engaging with the state.

1.2 Bureaucratic Preferences over Relocation, State Presence, and Citizen-State Interactions

The second essay examines the role of bureaucratic preferences over relocation in shaping state responsiveness towards citizens' claims. One of the essential functions of the welfare state is maintaining a uniform quality of governance across its territory. Yet, in states, especially in low and middle-income countries, there are significant differences in the quality of

local governance, with the state being more responsive to citizens' claims in some jurisdictions compared to others. The essay examines how the preferences of bureaucrats over being relocated to different jurisdictions shape the geography of state presence and impacts local state responsiveness. Based on fourteen months of qualitative fieldwork, a unique dataset on the movement of mid-level bureaucrats, and granular administrative data on citizen-state interactions, I show that bureaucrats regularly lobby to circumvent organizational directives that place them in jurisdictions further away from their homes and relocate them over long distances. The lobbying efforts by bureaucrats increase the duration for which positions at the local level lie vacant, and higher vacancies reduce state responsiveness towards citizens' claims. Further, due to the over-representation of bureaucrats from more developed regions, the vacancies are concentrated in jurisdictions with lower economic development. This essay contributes to our understanding of the causes of disparities in the quality of local governance by highlighting that the preferences of bureaucrats and their representation within the bureaucracy can play a substantial role in shaping state presence and have a negative impact on citizen-state interactions.

1.3 Top-Down Monitoring and State Responsiveness

The final essay looks at the impact of a newly designed top-down monitoring system on the quality of bureaucratic performance in low-state capacity settings. The research on bureaucratic monitoring highlights the tradeoff between delegating authority to agents and controlling their actions through top-down monitoring. More autonomy to local agents can improve their performance while also creating incentives for shirking responsibilities. Further, in contexts where bureaucrats operate with limited resources, it remains unclear whether top-down monitoring in itself can improve their functioning. The essay begins by examining the implementation of top-down monitoring of field agents by the centralized principal. The top-down monitoring involved setting performance benchmarks for bureaucrats and monitoring the state-wide performance in monthly meetings. To examine the impact, I compare the ability of more than 300 field offices to effectively respond to an increase in the volume of citizen claims before and after the top-down monitoring process is instituted. In the absence of top-down monitoring, I find that increased task volume results in the local bureaucracy becoming less responsive. Further, the delays are more acute in jurisdictions with low state capacity. However, the introduction of top-down monitoring alters the relationship between task volume and state responsiveness; bureaucracy no longer takes additional time to respond to citizens when faced with a higher volume of claims. These improvements can be seen across low and high state capacity jurisdictions. Thus, the efforts to monitor how bureaucrats engage with citizens at the local level through a centralized monitoring process improve local state responsiveness. I interpret these results as evidence for agents taking advantage of information asymmetries to shirk responsibilities and deprioritize citizen interfacing tasks. Therefore, reducing these information asymmetries and constraining the discretion of bureaucrats improve state responsiveness.

1.4 Contributions to the Literature

Several common themes run through these essays, and juxtaposing the findings contributes to the understanding of decision-making within bureaucracies and its impact on citizens' ability to access the state. First, the essays highlight the centrality of dynamics within the state in shaping the quality of citizen-state interactions. In the existing literature, the dominant frameworks explaining bureaucratic responsiveness focus on the role of political principals, citizen characteristics, and the quality of local institutions (Gulzar & Pasquale 2017; Kruks-Wisner 2018; Geddes 1994). While external influences on bureaucratic functioning are central to our understanding of the state, the dynamics within the state are an important and undertheorized source of variation in local state responsiveness.[1] As the second and third essays show, the interaction across the hierarchy of a bureaucratic organization shapes state responsiveness at the local level. Both essays delve into how bureaucrats at the local level engage with the higher levels of authority within the organization. The second essay shows that the ability of the local bureaucrats to influence the implementation of centralized decisions has a significant bearing on local state performance. Similarly, the third essay demonstrates that when the centralized principal implements top-down monitoring, she changes how bureaucrats respond to citizens. Further, the two essays highlight the divergence in rule adherence within the same bureaucracy. In the first case, the higher levels of the bureaucracy fail to adhere to organizational rules around transfers, while in the latter, the higher levels create new rules to hold the bureaucrats accountable. These two instances show that the same bureaucracy might institutionalize some rules with greater fidelity compared to others. Further, the extent to which rules are institutionalized and faithfully implemented is linked to the larger political economy of rent-seeking and distribution of power within the polity. The relocation of bureaucrats is a high-stakes process where political interference is more likely due to the gains for shaping how transfers are implemented. Politicians and bureaucrats stand to gain by currying favors and helping bureaucrats avoid locations that do not align with their preferences. In contrast, designing a monitoring system that monitors high-volume citizen services is more insulated from political pressures. A higher-level official may have the autonomy to institute new systems for monitoring some aspects of citizen-bureaucrat interactions.

The second theme running through the essays is related to the role of technology and its relationship with the social and institutional processes. The digital systems discussed in this dissertation have a clear analog or institutional complement(Bank 2016); informal norms and institutional processes play a vital role in shaping how technology is deployed as well as its impact on the functioning of the state and local state responsiveness. The first essay shows that introduction of the new technology to change how citizens interface with the state has a limited impact on state responsiveness. The lack of intended outcome is linked to how the technology interacts with informal norms shaping citizen-state interactions. The

[1] While there is ample exploration of internal processes within public bureaucracies in the Western context, the exploration is limited in the context of low and middle-income countries.

intermediaries responsible for using the new technology are different from the intermediaries who used paper-based applications, and their incentives shape the final results. Similarly, the use of the top-down monitoring system to monitor the functioning of local bureaucracy is intricately linked to management practices at the highest level of the bureaucracy. Thus, the final impact of the technology rests on how it interacts with existing institutional processes. While informational technology did not empower the citizen, it enabled the state to "see" its internal functioning in a clearer manner. The contrast between the first and the third essay also shows that the relationship between centralization and technology usage. Technology can create conditions where the state centralizes the management of the frontline bureaucracy. While the top-down monitoring might have had a positive effect, it also points towards the limited empowerment of citizens. Thus, as low and middle-income countries adopt more technological solutions for governance, the information systems may result in the functioning of bureaucracy getting more centralized.

The final theme across the essays is around factors that influence how mid-level bureaucrats exercise their discretion. Frameworks around factors influencing bureaucratic discretion can be divided into three broad categories - organizational, community level, and individual (Hyun et al. 2018; Lipsky 2010; Wilson 2019). The essays in this dissertation show how organizational and societal factors come together to shape how bureaucratic discretion is exercised. The essay on the role of intermediaries highlights that bureuactic responsiveness towards citizens is influenced by informal social processes, and this impedes efforts to formalize citizen-state interface. Similarly, the essay on transfers shows that informal rules based on societal norms can also shape decision-making within bureaucracies. The results highlight that organizational decision-making around the allocation of human resources is contingent on the regional representation of bureaucrats and their social identity, which shapes their ability to lobby against organizational decisions. Put together, the essays highlight that in low and middle-income countries, bureaucratic discretion is embedded in the social context (Pepinsky et al. 2017). Further, bureaucracies are not insulated from society the societal preferences of individual bureaucrats as well as broader societal practices and norms.

Chapter 2

Digital Intermediaries, Market Competition, and Citizen-State Interactions

2.1 Introduction

Intermediaries engaging with the state on behalf of citizens is a widespread phenomenon that has been examined across different contexts (Stokes et al. 2013; Kitschelt & Wilkinson 2007). The ubiquity of intermediaries is partly captured in the diversity of names assigned to them; in South Asia intermediaries are called *brokers*, *touters*, *pyraveekars*, or *dalals* (Manor 2000; Reddy & Haragopal 1985; Oldenburg 1986; Sud 2014), whereas in Mexico they are referred to as *coyotes*, and in Brazil citizens rely on *despachantes* to facilitate access to the state (Fredriksson 2014). The need for intermediaries stems from the complexity of bureaucratic procedures and the lack of accountability mechanisms available to citizens for directly engaging with the state. Citizens outside welfare offices request intermediaries to get their applications approved by the bureaucrat rather than engage with the state directly (Manor 2000; Reddy & Haragopal 1985; Witsoe 2013). Intermediaries know how to approach officials and can help their clients get an expeditious response from the state. In lieu of assisting citizens, the intermediaries stand to gain monetarily or politically.

The assessment of the impact of intermediaries on overall social welfare is mixed. Research on corruption documents how reliance on intermediaries results in citizens paying bribes (Bertrand et al. 2007; Fredriksson 2014; Oldenburg 1986). The dependence of citizens on intermediaries is often associated with bureaucrats using their discretion to create hurdles for those seeking to use formal channels to access their benefits.[1] For example, Bertrand et al. (2007) in their study report that an individual trying to get her driver's license approved through the formal channel without assistance from an intermediary faced additional hassles

[1] Oldenburg (1986) argues that even if bureaucrats are well-intentioned, the intermediaries would like citizens to believe that access to the state could only be mediated by intermediaries

and greater red-tapism. As a result, applicants were forced to engage with an intermediary, further entrenching the lack of bureaucratic accountability. The lack of transparency surrounding informal channels used by intermediaries makes it a challenge for the state to regulate their actions. This has prompted governments to adopt information technology-based policy solutions to digitize citizen applications and move them online[2] (Bussell 2012; Bank 2016). Along with moving citizen applications online, states also outsource the application interface to designated individuals who are licensed to operate software for submitting online applications (Kuriyan & Ray 2009).

The focus on entrenching corruption and limiting citizen agency provides a partial description of the role of intermediaries. A rich literature on intermediaries portrays them as entrepreneurial individuals who play the essential role of resolving the challenges faced by citizens in low accountability settings (Berenschot 2015; Jha et al. 2007; Krishna 2011). In places where state capacity is low and bureaucracy unresponsive, intermediaries play the crucial role of connecting citizens to the state. Intermediaries belong to the local communities and help citizens navigate the myriad rules and informational barriers created by the state. The frequent interaction intermediaries have with bureaucrats allows them to understand the intricacies of bureaucratic procedures and streamline the process of getting applications approved. Thus, outsourcing the work to intermediaries can substantially reduce the transaction costs faced by citizens (Drugov et al. 2014; Fredriksson 2014). Especially in contexts where citizens have the agency to opt across different intermediaries, the competition between intermediaries has be een shown to have a positive impact on citizen welfare (Auerbach & Thachil 2018; S. Chatterjee 2019; Fredriksson 2014).

These two diverging ideas about intermediaries raise a few questions. Can competition among intermediaries improve citizen welfare by reducing corruption and giving citizens more agency in engaging with the state? Can attempts by the state to formalize citizen interface using information technology improve the quality of citizen-state interactions? This essay seeks to answer these questions by examining a public-private partnership (PPP) policy in the state of Odisha, India. The Odisha government in 2014 created a network of digital intermediaries - individuals authorized to submit online and digitized applications on behalf of citizens for a fee. The policy aimed to change the nature of citizen-state interactions for citizens seeking essential legal certifications from the land administration by discontinuing paper-based applications and mandating online applications. Citizens submitting paper-based applications for the legal certifications relied on informal intermediaries who lacked formal authorization from the government of Odisha. The PPP policy formalized the nature of mediation between citizens and the state by giving individuals access to licensed software for submitting online applications.[3] Over the course of three years, the state more than doubled the network of digital intermediaries. I examine if the expansion of the intermediary network impacts the quality of citizen-state interactions.

[2]Online applications are easier to monitor compared to paper applications

[3]I refer to these individuals who were formally licensed by the state as digital intermediaries to contrast them against informal intermediaries who handled paper-based applications.

The state gave digital intermediaries access to a licensed software program for filing welfare applications online in lieu of a small fee. The fee structure meant that the number of applications filed was directly proportional to the income of the digital intermediary. The licensed software and the costs of setting up a service center were fixed. Therefore if a particular intermediary attracted more citizens to file applications, she would stand to make a greater profit. The market for citizen applications was significant since thousands of citizens filed applications every year. Thus, the digital intermediaries were market actors driven by profits. As the state gave more licenses, digital intermediaries within a jurisdiction had to compete against others for a shared pool of citizen applicants. Citizens were free to choose across intermediaries within a jurisdiction and could switch if they found the quality of services to be lacking. Therefore, ideally, the competition for a market of citizen applications should result in intermediaries trying to differentiate themselves by providing citizens with better quality of service to capture a greater share of the market of citizen-state transactions and maximize their profits (S. Chatterjee 2019; P. Bardhan et al. 2013; Shleifer & Vishny 1993).

I exploit the staggered rollout of digital intermediaries to implement a difference in differences design to causally identify the relationship between the number of digital intermediaries in a jurisdiction, a proxy for intermediary competition, and the quality of citizen-state interactions in a jurisdiction. I also test for parallel trends and look for heterogeneity in the average treatment effects. I fail to find any impact of the increased presence of digital intermediaries on the quality of citizen-state interactions. Why does an increase in the presence of intermediaries not help citizens? Based on six months of qualitative interviews and data on the transition from paper-based to online applications, I argue that digital intermediaries selected by the state have limited incentives to compete in the market for citizen applications. To establish the motivations of digital intermediaries, I juxtapose their functioning against informal intermediaries, who submitted paper-based applications before the state moved citizen applications online. I show that digital intermediaries selected by the state have parallel small-scale businesses which form a large part of their profits. In contrast, informal intermediaries engaged with bureaucrats on a full-time basis and earned a large share of their livelihood by connecting citizens to the state. Further, the contractual arrangements between the state and the digital intermediaries also shapes the incentives for engaging directly with the state. The formal arrangements which rests of digitization of applications reduces the requirement for intermediaries to directly engage with the state and *de-jure* limits their responsibility to filing applications remotely from a service center. Thus, digital intermediaries do not engage with the bureaucrats or help facilitate the citizens access to the state. Therefore, the addition of new licenses and expansion of the network of intermediaries did not improve the quality of citizen-state interactions.

This essay advances and contributes to two sets of research agendas. First, I contribute towards the understanding of the role of intermediaries in shaping citizen-state relations in low and middle income countries. I show that under certain conditions, creating a network of formal intermediaries responsible for interfacing with the citizen on behalf of the state may not improve the quality of citizen experience. I highlight the need to understand the

nature of informal mediation arrangements and their ability to shape attempts to formalize citizen-state relations. While informal mediation practices might result in corruption, they also provide citizens with agency in their interactions with the state. Attempts to displace informal intermediaries could create barriers for citizens trying to access the state. Second, I contribute to the research on the use of information technology and public-private partnership models for improving governance. Low and middle-income countries are digitizing paper-based applications and moving the application process online. The software systems integral to this process are often proprietary and licensed out to individuals with technical skills. While this model of outsourcing the use of technology to licensed individuals is effective in many instances, it also causes greater disruption. Creating software based on open source technology could ensure that digitization of citizen applications results in the state being more accessible. This essay suggests that newer app-based open source technologies that do not have licensing fees are likely to be more effective from the policy perspective.

The rest of the essay proceeds as follows. First, I describe the context in which the proposed intervention takes place, describing how the state creates and expands the networks of digital intermediaries. In the next section, I put forth a theoretical framework for understanding how intermediaries impact citizen-state interactions. Here I draw upon existing work on role of intermediaries with economic incentives in capturing market share and put forth implications of my framework. I end this section by outlining a testable hypothesis. In the next section, I then describe the data and empirical strategy that I rely on for testing my claims and describe my findings. In the penultimate section, I elaborate on possible theoretical mechanism that explains my findings. Finally, I conclude by suggesting possible policy alternatives that could help governments improving quality of citizen-state interactions.

2.2 Background and Context

I situate my research in India, in the district of Rayagada in the state of Odisha. The selection of the case was guided by both theoretical and empirical considerations. The state of Odisha implemented a policy in 2014 that aimed to modernize how citizens sought approvals for welfare applications from the land bureaucracy. The intervention licensed Village Level Entrepreneurs (VLEs); individuals from the local community responsible for submitting citizen applications online. The online applications were to be scrutinized by the land bureaucracy, with citizens receiving notifications when the process was completed. The policy had multiple components. First, it aimed to transition the citizen welfare applications from paper to digital by adopting a software system for online submission and approval of applications. Simultaneously, the policy sought to create a network of digital intermediaries or VLEs[4] who would operate a licensed software on a public-private-partnership business model. Thus, the intervention digitized the application while transitioning to a new business model for managing how citizens engaged with the state. This section begins by describing

[4]I will refer to VLEs as Digital Intermediaries henceforth for consistency

the functioning of the land bureaucracy and its organizational structure. I then describe the services that citizens sought from the department and how the policy intervention changed citizen-state interactions.

2.2.1 The Land Bureaucracy

The land bureaucracy is tasked with activities ranging from collecting taxes, to monitoring crop output, to issuing certifications that establish eligibility for a range of welfare services. In this essay, I focus on approval of certifications that establish eligibility of citizens for downstream welfare benefits. Every year millions of citizens seek welfare certifications from the land bureaucracy and queue up to get approval from at their local offices or *Tehsils*. The welfare certifications establish the place of residence, income, and caste identities of citizens and are required for getting getting a range of downstream welfare benefits. For example, income certifications are needed for availing low interest loan from a public bank, residence certifications are needed for admission into a government school, and caste certifications are needed for availing affirmative action benefits.

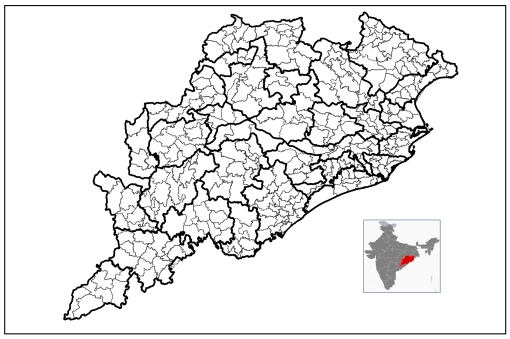


Figure 2.1: State of Odisha, India

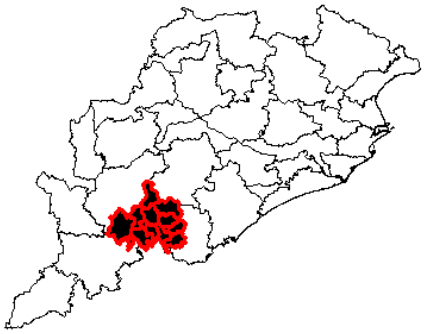


Figure 2.2: District of Rayagada in Odisha

The land administration, responsible for approving these certifications, is a multi-tiered organization with the main department located in the capital city and field operations divided across 317 bureaucratic jurisdictions called the *Tehsil*. Each tehsil is headed by an official called the Tehsildar (See Figure 3.2). The Tehsil is located within a district, which is the lowest unit of general administration in India. The certifications being sough by the citizens are only approved within the Tehsil in which citizens reside. Citizens submit necessary documents with their applications which are approved by the bureaucracy certifying the residence, income, or caste identity of the citizen.

Odisha has 30 districts and I focus on the District of Rayagada in the Southern part of the state. The district is relatively underdevelopment compared to other parts of the state. With majority rural population and low socio-economic development, Rayagada, is representative of several parts of India and Africa, where governments are introducing technology solution

to citizens with limited prior exposure to technology. The choice for the case was partially guided by the partnerships with local organizations that facilitated my qualitative fieldwork across different communities. Finally, the case was also chosen because along with the roll out of the digital intermediary network the transition from paper based applications to online applications was also staggered. This allows me empirical leverage for examining the impact of both transition from paper to online applications as well as expansion of the digital intermediary network.

2.2.2 The Intervention

In 2014 the Revenue Department of the Government of Odisha began implementing a policy that would create a network of digital intermediaries and give them access to licensed software for filing online welfare applications on behalf of citizens. The policy objectives were multi-fold, and stemmed from the need to make the state more accessible to the citizen and reduce the influence of informal intermediaries. First, the creation of the the digital intermediary network was leveraged to transition from paper based applications to digital applications filed online using a propriety software (See Figure 4.8). Before 2014 a citizen had to come to the tehsil office to process paper based applications. The paper based applications were bought from the tehsil office for a nominal charge and were filled up by the applicant with relevant forms attached to the main application form. Once the paper application was submitted the Tehsildar would forward the application to the Revenue Inspector (RI), a lower level official who was responsible for authenticating the details filled by the applicant. Once the RI approved and returned the application back to the tehsil office, the citizen could collect the approved application from the tehsil office. In reality (See Figure 2.3) the citizen either physically took the application to the RI in order to get his approval or engaged a middleman or informal intermediary get the approval. The citizen moving from one office to another was seen as costly and inefficient.

The advent of the software eliminated the paper application and replaced it with an digital application where documents were scanned an uploaded to the server. As stated before, the software platform was licensed to digital intermediaries. Once the digital intermediary filed a citizen's application, it was electronically forwarded to the tehsil office, which in turn forwarded the digital application to the RI. Once the RI approved or rejected the application, the tehsil office would communicate the decision to the digital intermediaries and the citizen would collect the application from the digital intermediaries. With the advent of the digital application the Revenue Department completely discontinue paper based applications. Over time, the department expanded the digital intermediaries network by authorizing more digital intermediaries within a jurisdiction.

Therefore, the outsourcing of the citizen application process both digitized the application while adopting a new business model for managing the application interface. The creation of the digital intermediaries network was also aimed at eliminating the role of informal intermediaries who would mediate on behalf of the citizen by approaching the bureaucracy with the paper based applications. The informal intermediaries were no longer in a position to

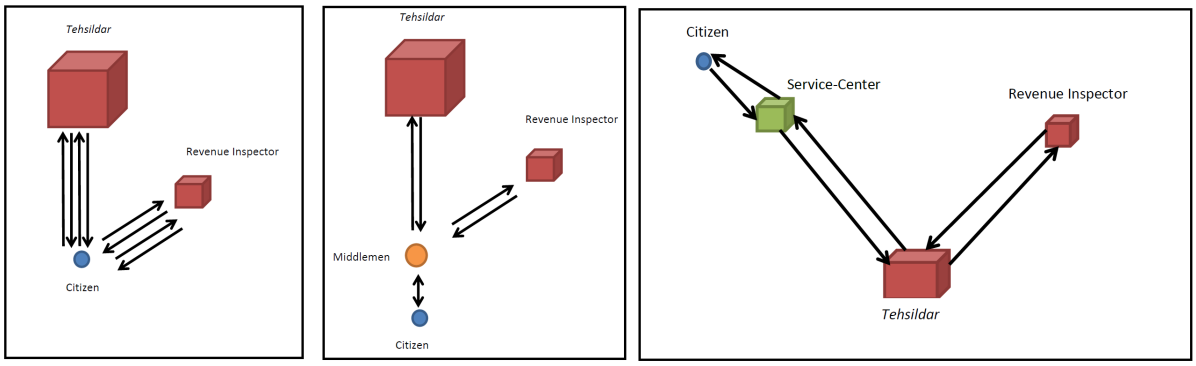


Figure 2.3: Citizen-State Interactions
This figure shows how the engagement of the citizen with the revenue department changes after introduction of the software system (represented by the box on the right hand side). Prior to the introduction the citizen would have to either physically go to the offices of the different bureaucrats (left box) or approach a middleman to get the application processed

file applications on the behalf of citizens, since only licensed VLEs had access to the software required to file an application and receive its approval. The digital intermediaries, who were formally selected by the local administration of the basis of their ability to successfully manage a business and help citizens, were suppose to substitute the role of the informal intermediaries. The public private partnership model meant that a digital intermediary would get paid for every application she filed on behalf of the citizen and therefore was therefore incentivized to provide professional services to citizens in order to attract more clients and increase the profit margins. As the number of digital intermediaries within a jurisdiction increased they were directly competing against one another for a fixed pool of applicants. How did the gradual expansion of the digital intermediaries network on the citizens' ability to get access to the state? In the next section I provide a theoretical framework for understanding the relationship between greater presence of digital intermediaries and state responsiveness.

2.3 Theory and Hypothesis

This section outlines a theoretical framework for understanding how the increase in digital intermediaries shapes the quality of citizen-state interactions. The framework outlined in this section rests on two strands of research. First, based on existing research on mediation, I discuss the motivations of intermediaries for assisting citizens in navigating the state for getting applications approved. Second, I use findings from research on how competition shapes the exchange between citizens and intermediaries in the market for citizen-state interactions. I argue that if citizens have the agency to choose between intermediaries, it creates incentives for each intermediary to take steps to improve the quality of service to maintain

control of their market share and profit margins. I combine the findings from these two strands of literature and insights from my fieldwork to put forth a theory that predicts how the expansion of the intermediaries would impact state responsiveness. I end this section by presenting a clear hypothesis.

2.3.1 Intermediaries, Citizens, and the State

The highly mediated nature of citizen-state interactions is linked the extent to which the bureaucracy adheres to rules. If bureaucrats are rule-bound and accountable, the citizen can follow due process and get a response from the state. How in low and middle income countries, the process of service delivery has limited adherence to publicly declared rules (Hammer et al. 2007; Pritchett 2009; Stokes et al. 2013). The lack of bureaucratic rule-adherence results in citizens facing two sets of challenges when they approach the state. First, citizens need to understand the rules devised by the state. In post-colonial states, the rules are often a legacy of a colonial process and therefore challenging for citizens to understand. Adherence to the administrative rules requires external help or assistance from an mediator. However, procedural awareness is only a partial hurdle faced by the citizen before filing her application.

Once a citizen files an application, she has to get the bureaucracy to approve it. Due to lack of bureaucratic accountability delay in the approval process results in multiple trips to meet bureaucrats to get the application approved. The delays in getting applications approved are driven by low state capacity and incentives for corruption. Bureaucrats in low and middle income countries operate in a low information environment with limited oversight. Due to lack of accountability delaying approval does not have negative consequences, since the citizen has limited recourse. On the other hand, an error in the form of approving a wrong application can have severe consequences for the bureaucrat, due to the sensitive nature of legal certifications. Moreover, the lack of information required to accurately adjudicate the validity of the applications results in bureaucrats relying on informal arrangements for verification of citizen identity. Bureaucrats also have pecuniary motivations and often use the complexity of procedures to create red-tapism in order to extract bribes. All these factors delay result in citizens experiencing delays in getting their applications approved (Drugov et al. 2014; Kruks-Wisner 2018; Shefter 1993).

In this context of lack of bureaucratic accountability, intermediaries create a space in the middle by facilitating citizens' access to the state. As researchers have documented extensively, intermediaries help citizens navigate the procedural complexity of engaging with the state by meditating on their behalf with the bureaucracy (Auerbach 2016; Fredriksson 2014; Witsoe 2013). In many of my field interviews, citizens reported that the intermediary would vouch for the validity of the claims in front on the bureaucrat. Intermediaries act as aggregators or one-stop-shops by fulfilling multiple needs of citizens - filing paperwork, approaching multiple officials, and getting multiple applications approved in bulk. Why do intermediaries channel the demands of citizens towards "an alien and often unresponsive state institutions"(Berenschot 2015)? Intermediaries are motivated by both political and

monetary incentives. In democracies, the a political intermediary mediates on behalf of the citizen to further patronage networks, which are often founded by helping citizens get access to the state. (P. Chatterjee 1999; Stokes et al. 2013; Kitschelt & Wilkinson 2007). Political intermediaries, therefore, are willing to mediate on behalf of citizens. Intermediaries are also market actors who help facilitate a transaction between the buyer and the seller in exchange for a monetary gain (S. Chatterjee 2019; Drugov et al. 2014; Spulber 1996; Fredriksson 2014). A vast literature on petty corruption and speed money documents how intermediaries facilitate access to the state in lieu of bribes, creating a market for corruption (Scott 1969; Bertrand et al. 2007). Research on corruption in transactions for obtaining driver's license in Delhi, India, notes that "there is no evidence of direct bribes to bureaucrats ...The extralegal payments are mainly fees to "agents", professionals who "assist" individuals in the process of obtaining their driver's licenses...multiple pieces of evidence suggest that agents institutionalize corruption" (Pg 1641, Bertrand et al. (2007)).Thus, intermediaries are indirectly passing on rents from citizens to bureaucrats. The mediated nature of bribing is also linked to the moral and social costs of paying bribes, which are especially high for citizens who rarely engage with the state (Drugov et al. 2014).[5] Both the political and the economic intermediaries develop expertise in engaging with the state. The "expertise" lie in knowing the rules and developing a rapport with the bureaucrat responsible for approving citizens' claims. Thus, intermediaries reduce these costs and facilitate the exchange between the citizen and the state in lieu of either political loyalty or monetary benefits. Thus, intermediaries allow citizens to streamline the process of engaging with the state.

Can competition between intermediaries help citizens? The next section outlines a theory for when increase in number of intermediaries impacts state responsiveness towards citizens' claims. I use a framework of market/political competition and citizen choice to argue that increase in presence of intermediaries should improve quality of state responsiveness.

2.3.2 Presence of Intermediaries and State Responsiveness

If intermediaries play an important role in citizen-state interactions, how should the increased presence of intermediaries shape the quality of state responsiveness towards citizen claims? To examine this question, I look at existing literature on the impact of citizen choice and market competition of intermediaries. Research highlights that in competitive environments where clients can choose across different intermediaries, inter-intermediary competition in welfare-maximizing (Auerbach 2016; S. Chatterjee 2019). The market dynamic results in greater citizen welfare when each digital intermediary is trying to maximize her share of a fixed pool of citizen applications. The latent demand for citizens' applications for the tehsil office is well defined and inelastic i.e there is a fixed pool of citizens who seek residence, income, and caste certifications and are rarely rejected. Most citizens I interviewed eventually get their applications, and therefore the main signal of the quality of service is the time taken to get the applications approved. In such a scenario, a higher number of digital intermediaries

[5]Based on reading Drugov et al. (2014), Pg 79

gives citizens the ability to choose any intermediary, making the market for services more competitive. The main parameter for differentiating service quality is the time taken to get applications approved. I put forth a simple model outlining how introduction of additional competition changes intermediary incentives and impact quality of citizen-state interactions.

Let us begin with a scenario where there is **one** intermediary who holds a monopoly on mediating citizens' access to the state. The citizens face a transaction cost T_1 when using this intermediary a transaction cost of T associated with approaching the bureaucrat directly. In most low state capacity settings, when citizens have a one-shot interaction with the state, a citizen directly approaching the state has to move around multiple offices, resubmit different paperwork before she finally gets her application approved. The intermediary, on the other hand, specializes in engaging with the state. Therefore, $T > T_1$ and citizens rely on the intermediary instead of approaching the bureaucrat directly. Now, if we assume that a **new** intermediary also wants to assist citizens and can get the applications approved for a transaction cost of T_2. The new intermediary can convince the citizen to use his services only he offers a lower transaction cost compared to the original intermediary i.e $T_2 < T_1$. This would attract the customer to the new intermediary in turn incentivizing the first intermediary to also reduce the transaction cost. The new equilibrium that forms has a lower average transaction cost for citizens. The model captures the dynamics between buyers and sellers in a duopoly. If we extend the model to multiple intermediaries, we will continue lowering the average transaction costs within a jurisdiction. Since transactions costs capture the quality of citizen-state interactions, adding new intermediaries improves the quality of citizen-state interactions.

The framework I have put forth makes several assumptions. First, that citizens have information regarding the availability of intermediaries and can switch across different intermediaries. Second, intermediaries are not colluding with one another to maintain a particular level of costs. Finally, the argument I put forth rests on the assumption that bureaucrats can approve applications at a faster rate when approached by multiple intermediaries and that they are not capacity constrained. If these assumptions are true, we can come up with a testable hypothesis.

Hypothesis 1 (H2): *Increase in number of intermediaries should reduce transaction costs of citizens and improve quality of citizen-state interactions.*

2.4 Empirical Strategy

This section presents a empirical strategy for testing the hypothesis presented in the previous section. I begin by describing the qualitative and quantitative data used to examine impact of intermediaries on citizen-state interactions and how I operationalize the main dependent and independent variables. I conclude the section by putting forth the research design used to causally examine the relationship between the intermediary competition the quality of state responsiveness and describing the results.

2.4.1 Data

Understanding the dynamics between citizens and the bureaucracy is complicated by the challenges of accurately measuring the quality of the citizen-state interactions. Intermediaries who engage with the state on behalf of the citizen are often taking actions that are difficult to observe . Asking citizens about intermediaries or bureaucracy might introduce social desirability bias. Therefore, I adopted a mixed methods approach for examining the relationship between citizens, intermediaries, and the state. I combine insights from six months of fieldwork in the district of Rayagada in the state of Odisha with administrative data on citizen state interactions. In this section I describe the data that I use for my analysis.

2.4.1.1 Qualitative Data: Shadowing and Field Interviews

To understand how citizens approach the *Tehsil* office to get approvals for certifications, I rely on my qualitative fieldwork across close to 4 *Tehsils* in the district of Rayagada over a period of 6 months. As part of my fieldwork I interviewed citizens, intermediaries, and bureaucrats. To elicit accurate response by building trust, I shadowed.[6] tehsil level bureaucrats over a period of 2-3 days to understand their roles and responsibilities and observe their interactions with citizens, politicians, and higher level officials. I also held focus group discussions with villagers applying for welfare certifications and interviewed randomly sampled digital intermediaries across multiple tehsils. Finally, I also interviewed informal intermediaries who were the main point of contact for citizens before the intervention introduced digital intermediaries and digitized the application process.

The qualitative fieldwork revealed a few stylized facts about the landscape of citizen-state interactions. First, the majority of the citizens approached the Tehsil office for certifications that were needed for downstream use. Thus citizens had to approach other departments after getting certifications from the Tehsil and were meeting deadlines set by other departments. This made the task of getting approval time-sensitive, as there were clear deadlines that citizens were trying to meet. Citizens, especially those with lower socioeconomic status, revealed that an extra trip to the Tehsil often resulted in a loss of income. Further, if applications were delayed, they were required to make more trips. I also understood that for bureaucrats approving the certifications was not a high priority task. Other tasks like measurement and division of land or conversion of land title took greater precedence. Mediation was thus important for getting approval from the Tehsil. Many citizens I interviewed reported that directly approaching government officials was difficult due to their busy schedules and the limited priority given by the officials to approving legal certifications.

[6]Shadowing a qualitative technique that involves sitting in the office of the bureaucrat for 3-4 days and noting down all their interactions (See (Bussell 2018; Fenno 1978)) While challenges of reactivity remain the extensive period of shadowing allows the researcher to accurately capture interaction between bureaucrats in the natural environment.

2.4.1.2 Quantitative Data: Citizen-State Interactions

To examine the relationship between number of digital intermediaries and citizen-state interactions I use two sets of quantitative data sets. First, I use an administrative data set that captures quality of citizen-state interactions. The administrative data, has information regarding the time taken to get approval for the universe of applications submitted by citizens across all the 10 Tehsils in the district of Ryagada from 2014 to 2018. The administrative dataset has measures the help me operationalize the quality of citizen-state interactions.

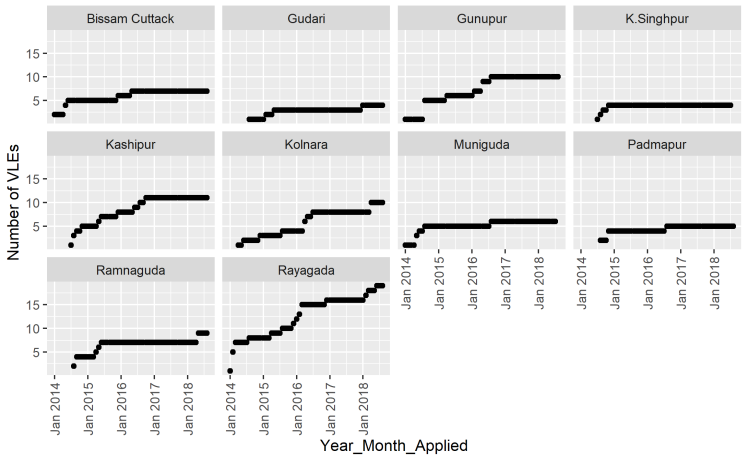


Figure 2.4: Increase in the number of digital intermediaries over time
The Figure shows the expansion of the digital intermediary network across all the Tehsils in the district of Rayagada, Odisha

- **Processing Time:** the time taken to get an application approved, which indicates the quality of citizen-state interactions. The assumption is that if a citizen is able to get her application approved faster that transaction is indicative of a higher quality of citizen-state interaction.

I separately use a data set that captures the start date and geo-location of digital intermediaries that operate across the different jurisdictions. Between the time period 2014-2018 there was a sizable expansion of the digital intermediaries network with more than 200% increase in their number (See Figure 2.4)This data set allows me to capture the staggered expansion of the digital intermediary network across time and jurisdictions.

- **No of digital intermediaries:** the number of digital intermediaries within the tehsil at a particular point in time. The number of digital intermediaries captures the extent to which citizens can choose across different intermediaries and therefore captures the level of intermediary competition.

Finally, I also create variables that capture time invariant characteristics of Tehsils. In order to do so I aggregating village level data from Census of India to the tehsil level using geo-spatial mapping (Asher et al. 2019). I also use use data on night light luminosity to measure the extent of night lights for every tehsil. The main tehsil level variables are

- **Urbanization** : this variable measure the percentage of population in the jurisdiction that lives in urban areas.
- **Night Light Luminosity**: this variable captures the different facet of urbanization in terms of economic activity by measuring the amount of night light from the area in 2013.

2.4.2 Operationalizing Independent and Dependent Variables

In this section I focus on how the measures operationalize the main variables of interest quality quality of citizen-state interactions and intermediary competition.

2.4.2.1 Processing Time

As described before, the process of getting approval from the Tehsil bureaucracy begins when a citizen submits her application to the digital intermediary. Once the digital intermediary receives the approved document with the signature of the Tehsildar, it marks the end of the citizen's interaction with the state. The quality of citizen-state interaction, therefore, is captured by what happens between these two data points. Most citizens are optimizing the time taken to get approval from the state. Therefore, I use processing time as a measure of the quality of citizen-state interactions. This measure also aligns with existing research on citizens-state interactions (Bussell 2012; Fredriksson 2014). Using time for processing requests can also be justified based on the specific context where I situate the research. In interviews and focus group discussions, citizens noted that they wanted applications to be processed quickly. Job applications or school admissions required getting caste and income certificates, and most people desired a fast response from the state. If the application took a long time to get approved, they had to make additional trips to move the process forward, incurring high opportunity costs. Thus from an individual perspective, the shorter time it takes to get an application approved, the more successful the engagement with the state. Also, from a legal perspective, the processing time acts as a measure of state accountability. The Right to Service Act in 2012 mandates that citizen applications be processed in a time-bound manner and provides an upper time limit.

2.4.2.2 Competition Among Digital Intermediaries

I use the number of digital intermediaries in a jurisdiction to measure of level of intermediary competition. The variable captures the level of competition since the PPP policy only

authorises a digital intermediary to file applications of citizens within the Tehsil.[7] This restriction results in a well-defined market for every digital intermediary. Further, individuals from a particular *Tehsil* are selected as new digital intermediaries. To become a digital intermediary, an individual had to meet well-defined guidelines, demonstrate technical expertise for filing online applications, and meet a threshold of financial capital necessary for setting up a service center[8]. The process of selection of digital intermediaries started in 2014. After creating the initial digital intermediary network starting in 2014 the state completely discontinued paper-based applications for welfare certifications. Thus, citizens could file applications through only by approaching a digital intermediary. The state then expanded the network over time. The main independent variable of interest - the number of digital intermediaries within a jurisdiction at a particular time - therefore captures these overtime changes. Citizens within a tehsil were free to choose any digital intermediary within the jurisdiction for submitting their applications. The number of digital intermediaries within a jurisdiction, therefore, captures the concept of market competition.

2.4.3 Research Design: Difference in Differences Design

To causally identify the relationship between the number of digital intermediaries in a jurisdiction and the quality of citizen-state interactions, I rely on the staggered overtime expansion of the digital intermediary network. I assume that introduction of a new intermediary is exogenous to the quality of citizen-state interactions. One way to test this assumption would be to examine if there are changes in volume or processing time just around the opening of a new digital intermediary. I do multiple density tests around the narrow window around the opening of a new digital intermediary and find no discontinuities. This aligns with the insights from the qualitative fieldwork. The applications that citizens file are time-constrained and based on the need for availing downstream benefits linked to education or employment. Thus, citizens who seek approval from the Tehsil do so based on decisions driven by downstream processes that are not related to the Tehsil bureaucracy. Further, the the process of digital intermediary license approval is bureaucratic and citizens only gain awareness about a new digital intermediary after it becomes operational. Therefore, citizens are unlikely to modify the timing of filing their applications in anticipation of a new digital intermediary opening. The bureaucrat approving the license of the digital intermediary is at a higher level than the one approving citizens' applications. Thus, the decision to approve is not contingent on the timing of a digital intermediary opening. This makes the parallel trends assumption more credible.

I use a two-way fixed effects model that controls for Tehsil level time-invariant confounders and includes time fixed effects. I test if the number of digital intermediaries per Tehsil, which is a time-variant variable, improves the quality of the citizen-state interactions proxied by the

[7]There are some exceptions, but they account of less than 1% of applications

[8]The service center would be a space with a computer, scanning/printing equipment, and an internet connection.

processing time. I also look for heterogeneous treatment effects. The staggered expansion of the digital intermediary network across 10 *Tehsils* of the Rayagada district of Odisha is captured by the main independent variable VLE_{tehsil}. The variable VLE_{tehsil} records the number of digital intermediaries present in a Tehsil at particular time. As described before the addition of new digital intermediaries in a tehsil is a decision that was taken by local administration which results in overtime expansion of the network. There is a close to doubling of digital intermediaries in a three year period. The model includes unit FEs FE_{tehsil} and Year-Quarter fixed effects $FE_{yearqtr}$.

$$Y_{it} = \alpha_{it} + \beta_{vle} * VLE_{tehsil} + \beta_{tehsil} * FE_{tehsil} + \gamma_{yearqtr} FE_{yearqtr} + \epsilon_{it}$$

2.4.3.1 Results

The results in Table 2.1 show that the number of digital intermediaries have no impact on the processing time at statistically significant levels. Further, even the not significant estimates are slightly positive[9]. The different variations of the specifications include control for overall volume of applications as well as changes log transformation of the dependent variables to account of outlying observations. Thus based on this identification strategy we fail to reject the null hypothesis that increase in number of intermediaries will have no impact on quality of citizen-state interactions. The time taking for citizens to get response from the land bureaucracy does not change when jurisdictions see an increase in number of intermediaries.

Interpreting these null results is challenging since the lack of effect could be due to

1. the study being under powered
2. inaccurate conceptualization of variables
3. incorrect assumptions about theory of change

I argue that the first two limitations do not influence the null results observed in this essay. The large N nature of the analysis (N>300,000) which includes the universe of applications reduces the possibility that the null results are due to lack of statistical power. The dependent and independent variables of interest also correctly conceptualize the variables of interest. Citizen interviews confirm that the time taken to get approvals from the Tehsil office is the main metric citizens use for gauging the quality of their interaction with the state. Further, citizens can choose across any digital intermediary within a jurisdiction and therefore the digital intermediaries are in direct competition with one another if citizens select digital intermediaries based on their quality of mediation offered by the intermediaries. In the next section I will argue that the lack of relationship between number of digital intermediaries and

[9]Based on the theory we had hypothesized that the relationship between number of digital intermediaries and Processing Time was negative

quality of citizen-state interactions is due to flaws in the assumptions make in the theory of change. I provide qualitative and quantitative evidence to explain why digital intermediaries do not act based on market incentives. To further strength the confidence in null results I also test for heterogeneous effects not captured in the average treatment effects.

2.4.3.2 Heterogeneous Treatment Effects

It is likely that while the overall results are null, they hide substantial heterogeneity. The increase in the number of intermediaries might have a differential impact geographically or across different types of applications filed by citizens. For example, it is likely that gains from the increase in competition among intermediaries are concentrated among more time-consuming applications. Citizens seeking caste certifications report spending more time engaging with the tehsil due to the higher benefits associated with those certifications. Affirmative action benefits associated with caste also make them more prone to rent-seeking and attract higher scrutiny from the bureaucrats.[10] Thus I subdivide the applications into Caste and Non-Caste samples and re-run the TWFE model. I do not see any differences in statistical significance across these sub-samples (See Figure 2.8 or Table 2.3)

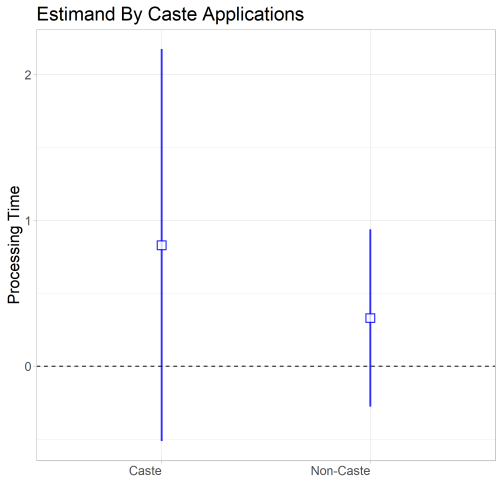


Figure 2.8: Caste/Non-Caste Applications

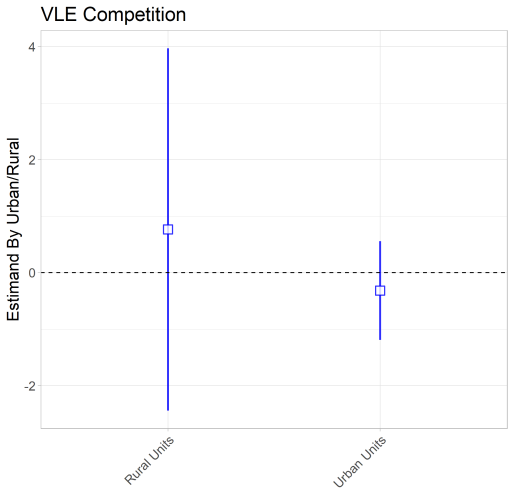


Figure 2.9: Urban/Rural Tehsils

Another possible source of heterogeneity is the extent to which the jurisdiction is urban. The nature of intermediary competition may be stronger in urban areas where citizens are more capable of using arbitrage more effectively to choose across digital intermediaries. I use Night Light Luminosity to divide the sample into Rural and Urban jurisdictions[11]. I re-run

[10] Compared to Residence and Income Certifications that are not as "high" value

[11] I have median Night Light as the cutoff

the previous analysis across urban and rural tehsils. As Table 2.2 and Figure 2.8 across these sub-samples the relationship between number of digital intermediaries in a jurisdiction and processing time remains statistically insignificant.

2.5 Explaining the Null Results: Informal and Formal Institutions

Why does expansion in the number of digital intermediaries not improve the quality of citizen-state interactions? To explain these null results, I rely on six months of qualitative research that involved focus group discussions with citizens, interviews with intermediaries, and shadowing of bureaucrats. Based on the qualitative research, I document the limitations in the assumptions regarding the role of digital intermediaries in the citizen-state interactions. I find that the digital intermediaries rarely made an effort to cultivate strong ties with the bureaucracy and mediate on behalf of the citizens. To understand the motivations of the digital intermediaries, I juxtapose them against informal intermediaries who worked closely with citizens when applications were paper-based. Informal intermediaries, many of whom I interviewed, reported having close ties with the bureaucracy and acting as a one-stop-shop for citizens. They took applications from citizens, did the running around necessary for getting approvals from concerned officers. Digital intermediaries or VLEs I interviewed, on the other hand, did not engage with the state in that manner. In interviews, they attributed their actions to their formal contract with the state and parallel businesses that heightened the opportunity costs of engaging with the state full time. In this section, I describe how formalization and selection of digital intermediaries limit their incentives to mediate on behalf of citizens. I argue that the lack of incentives to mediate explains why the increase in the number of digital intermediaries has no impact on citizen-state interactions.

2.5.1 Qualitative Research and Testing Assumptions

Qualitative research allows researchers to explain null results by focusing on the main assumptions in the causal chain linking the "treatment" with the effect (Lieberman et al. 2013). The theory of change below has the following assumptions at every step of the causal causal chain linking digital intermediary expansion to the quality of citizen state interactions were

- Digital intermediaries are willing to mediate with the state on behalf of the citizens

- The willingness of digital intermediaries to mediate with the state is based on profit motives
- The ability of citizens to choose between intermediaries results in competition among digital intermediaries
- To maintain market share the digital intermediaries improve the quality of the citizen-state interactions

To test these assumptions I met digital intermediary owners, citizens, and bureaucrats in the land department. I found that citizens could choose across different intermediaries in a jurisdiction. Citizens I interviewed were aware of the presence of multiple digital intermediaries within the jurisdiction. However, across multiple focus group discussions citizens reported that after submitting their applications to digital intermediaries, they had to put in additional effort to get an approval for the bureaucracy by following up other officials personally if there was no response. Why did the digital intermediaries not mediate with the state on behalf of the citizens? I suggest the answer is linked to formalization of brokerage and the process of selection of digital intermediaries.

Prior to the introduction of online applications, citizens had relied on informal intermediaries for filing their applications. These intermediaries would help citizens navigate the complex procedures of the revenue administration and act as one-stop-shops. They wrote the affidavits or letters petitioning the relevant bureaucrat to provide the citizen with a necessary service. They also took applications from citizens, did the running around necessary for getting approvals from concerned officers. Helping citizens navigate the state was a major part of the livelihood of informal intermediaries. Unlike the intermediaries linked to political parties or having political ambition (Stokes et al. 2013; Krishna 2011) the informal intermediaries in this context were mainly economic actors helping people in lieu of money[12]. After the intervention to modernize the revenue administration, digital intermediaries, due to their access to the licensed software, were solely responsible for filing citizen applications. Informal intermediaries could still intervene on behalf of the citizen, but without access to the digital application and the ability to check its status, their role was limited.

The divergence in incentives and norms around brokerage between the digital intermediaries and informal intermediaries is best illustrated by an example. I juxtapose my interview with Bijay – who operates his uncles's service center – with that of Rabi - an informal intermediary who helped citizens file paper based applications (See Figure 2.10). Bijay's service center is *de-jure* an extension of the government service delivery structure. His uncle negotiated with the District officials and was granted a license to operate the propriety software for filing online applications.[13] Bijay, like other digital intermediaries, was running a small busi-

[12]These observations were validated by village council presidents and local politicians who did not seem to be interested in the revenue departments functioning and were more than happy to discuss the workings of the block office. Interviews April-May and October-November 2018; (Oldenburg 1986) describes intermediaries linking citizens to the tehsil in his essay

[13]Every digital intermediary has signed a Public-Private-Partnership agreement with the government.

ness that engaged in a range of activities, from selling electronics to photocopying documents to applying for other government services online. On the other hand, Rabi was an informal actor who sat outside the Tehsil and negotiated with citizens and bureaucrats on an everyday basis. He filed the paper-based applications and charged citizens "fees"[14] for getting their application approved by the bureaucrat. Rabi reported that he would often take applications in bulk and get them approved by the officials. These differences between the two types of intermediaries I show in the next section are crucial to understanding why the increasing number of digital intermediaries did not positively impact citizen-state interactions.

Figure 2.10: Digital vs Paper Based Intermediaries
On left hand side is advocate Rabi (name changed) outside a tehsil office and on the right hand side in Bijay (name changed) inside the Citizen Service Center

2.5.2 Informal Brokerage vs Formal Intermediaries

There is a broad consensus in the social science literature that informal institutions and norms shape the implementation of formal rules (Fafchamps 2020; Helmke & Levitsky 2004). I argue that the formalization of citizen-state interactions due to the information technology intervention and the accompanying public-private partnership model displaced informal brokerage norms for accessing the state. The advent of the new technology, which improved the state's ability to record and monitor citizen-state interactions, disrupted informal mediation

[14]These transactions are informal and can be either seen as a facilitation fee or a bribe

arrangements connecting the citizens to the state. The new digital intermediaries had very different incentives. They understood their role as being limited to filing citizen applications and did not have any incentives to engage with the minutia of the bureaucratic decision-making process. In comparison, informal intermediaries used metis, "a kind of knowledge that can be acquired only by long practice at similar but rarely identical tasks, which requires constant adaptation to changing circumstances" (pg 177-178; (Scott 1999)) in their everyday work. They were embedded in the state and invested in understanding how bureaucratic discretion was exercised while approving citizen applications.

In a low-capacity environment where the bureaucrats did not assign citizen applications high priority, informal intermediaries successfully navigated the bureaucracy to get citizen applications approved. Digital intermediaries, due to the formal contract with the state, restricted their actions to scanning and uploading documents and submitting them to the server. Digital intermediaries also managed parallel businesses helping customers who wanted to buy a phone, re-charge their phone balance, or xerox papers. This setup had helped them qualify for the position of the VLE but also increased the opportunity costs of engaging with the state full time. Thus, when competition increased and citizens opted for other digital intermediaries, it did not change their incentives. From the citizen's perspective, digital intermediaries did not offer a one-stop-shop solution where the intermediary would help them from filing the application to its approval. Thus, even though they could opt across different digital intermediaries, it did not change the quality of their interactions with the state.

2.5.2.1 Transition from Paper to Digital Applications

To test these qualitative insights, I analyze data on the transition from paper to online applications in 3 Tehsils. I compare changes in the quality of citizen-state interactions when applications transitioned from paper to digital (See Figure 2.12). In all the tehsils I visited, the paper-based records were kept in great detail with clearly recorded fields for applicant name, date of submission, and date of approval. I digitized this information and calculated the processing time/volume of paper-based applications.[15]

I plot changes in processing times varied as the application process shifted from paper to digital applications. By making a pre-post comparison, I examine if the shift from paper to online applications has any impact on quality of citizen-state interactions. To understand changes in processing times before and after the bureaucratic reform was implemented, I aggregate data for each bureaucratic jurisdiction at the year-quarter time period. I then plot the mean processing time along with the standard deviation of all the applications

[15]Prior to switching to digital applications, the tehsil officials diligently kept a record of all certifications issued to individuals applicants. Their records do vary in terms of quality and level of detail, but overall the process of record-keeping followed a well-defined procedure. An applicant (or an intermediary on her behalf) would submit a paper-based application. Upon submission of the application, her name would be noted along with the date of submission. Once the paper application was signed by Tehsildar, a paper certificate would be issued to the applicant and the date of issue would be noted in the same register.

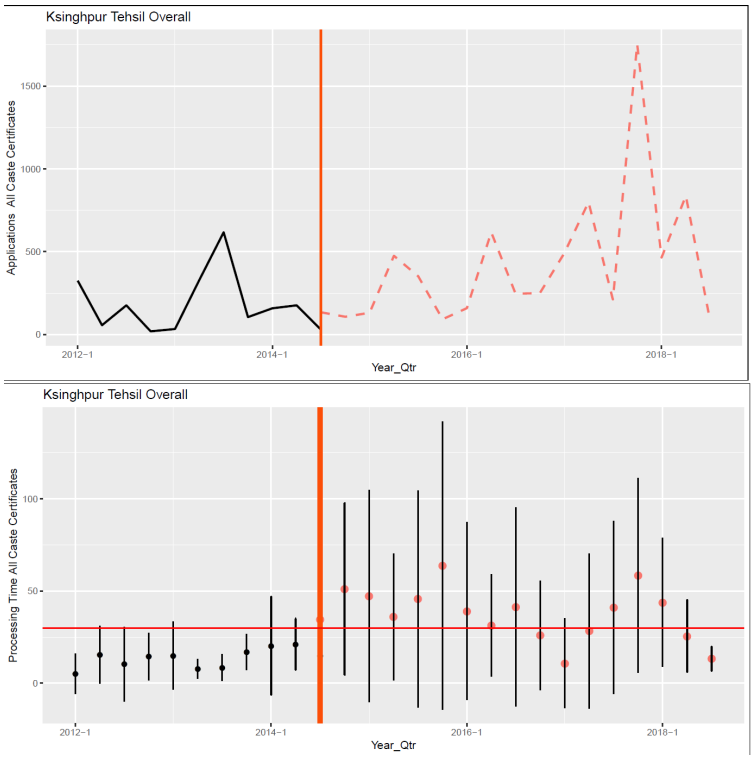


Figure 2.11: Paper to Digital Transition
Figure on top shows the time taken to process applications from 2012 Quarter 1 to 2018 Quarter 3 in the Kalyansinghpur tehsil. The vertical orange line represents the transition from paper to digital applications, which in this bureaucratic jurisdiction happened in between the 1st and 2nd Quarter of 2014.

processed within the same year-quarter time. Across all bureaucratic jurisdictions, I see a clear pattern pointing towards an increase in processing time after the online system was adapted. Along with higher mean processing times, applications filed using the digital system also display greater variability than paper-based applications.

The shift from paper to online applications changes both the nature of mediation and the technology. I argue that if the changes in processing time were mainly driven by difficulty in adopting to a new technology the disruption would subside after a few months. I see the pattern persist for more than three years and was not just a temporary shock. . Further, the implementation of the transition was staggered (See Figure 2.15 and Figure 2.14).[16] The pre-post patterns align with the qualitative insights that digital intermediaries were less likely

[16]While the officials in the capital city tried to get all jurisdictions to adopt the reform on January 1st 2014, due to logistical challenges jurisdictions were allows some leeway in when to stop accepting paper based applications. The three bureaucratic jurisdictions transitioned from paper to digital applications over the first 6 months of 2014. Muniguda switched from paper to digital applications in early 2014, followed by Kalyansinghpur, and then Kolnara. All the tehsils differ in the exact date of adoption but show similar

to mediate with the citizens on behalf of the citizens. This in turn limits the possibility that increase in number of digital intermediaries through the expansion in their network would improve quality of citizen-state interactions.

2.6 Scope Conditions, Rival Explanations, and Policy Implications

In this essay, I have argued that increasing the number of digital intermediaries does not improve the quality of citizen-state interactions measured by how long citizens have to wait to get a response from the state. To what extent can these findings be generalized to the broader context, and what are other rival explanations that may limit the power of the findings? The findings are from a region in the state of Odisha which has limited socio-economic development and is mainly rural. Many places in India where this intervention has been adopted have higher population density and are more urban. These findings may not apply to regions with high levels of economic development, even though the heterogeneous treatment effects from urban tehsils did not change the nature of the relationship. At the same time, in India, other countries in Latin America, and Africa, where information technology interventions for outsourcing the state functioning are adopted, conditions mirror those in Rayagada. In these parts, citizens are highly reliant on informal norms of mediation and are likely to be unaware of the power and potential of the new technology. Thus, the findings generalize to large parts both within and outside India.

The argument put forth also has rival explanations that can limit its scope and reach. For example, I have emphasized one channel through which information technology can improve citizen-state interactions - competition between digital intermediaries. There are several other channels that are not covered in this essay. For example, digitization of services allows citizens to view the status of their applications and demand accountability from the state, and it also allows higher levels of bureaucracy to monitor the actions of field-level agents. In Rayagada, I found citizens did not use the online system to track their applications, and the use of information technology for monitoring bureaucrats was limited. Yet, if governments took steps to leverage the monitoring potential of digital technology, that may change how digital intermediaries act or might have an independent impact on the quality of citizen-state interactions. Thus the findings should be accepted with these caveats.

Finally, caution is necessary for interpreting the role of informal mediation in citizen-state interactions. This essay and its findings do not seek to suggest that the presence of informal intermediaries is beneficial for citizens. Informal mediation arrangements often are a source of rent-seeking and corruption and can result in citizens distrusting the state. The essay argues that the replacement of informal intermediaries with formal ones may not always benefit citizens, especially if the change disrupts existing mediation arrangements. A potential policy solution could be to adopt an open-source nonlicensed software interface.

trends in terms of changes in processing time, allowing me to rule out a time specific confounders.

By eliminating the need for licensing, the interface would allow anyone with access to the internet to file an application. This might give citizens more options without making them reliant on a few licensed intermediaries.

2.7 Conclusion

The essay examines whether increasing the number of digital intermediaries improves the quality of citizen-state interactions. To do so, it studies the implementation of policy intervention that created a network of digital intermediaries who use information technology to interface with the state on behalf of citizens seeking approval for welfare applications. The intermediaries were formally selected and sanctioned by the state. The essay finds that an overtime increase in the number of digital intermediaries does not improve the quality of citizen-state interactions. Why does the increased presence of digital intermediaries have no impact on citizen-state interactions? The essay juxtaposes digital intermediaries against informal intermediaries who helped citizens navigate the bureaucracy when applications were paper-based. Based on qualitative fieldwork, the essay shows that the selection of the digital intermediaries and their formal contract with the state limits their incentives to mediate with the bureaucracy. Unlike informal intermediaries who developed strong ties with the bureaucracy to facilitate the expeditious approval of citizen applications, digital intermediaries limit their actions to filling the online applications. Their formal contract with the state and parallel business obligations shape their decision not to respond to competition in the market for citizen applications. The findings of the essay suggest disruption of informal mediation arrangements due to the introduction of new technology can limit competition in the market for citizen transactions. The essay draws attention to a large-scale phenomenon where informal mediation arrangements are formalized based on information technology interventions that are licensed out to selected individuals. These licensing arrangements end up limiting rather than increasing competition by creating entry barriers for individuals seeking to act as intermediaries on behalf of citizens. The essay suggests that in places with limited state capacity and a high prevalence of informal mediation arrangements, new information technology could benefit by adopting open-source models that leverage existing informal mediation arrangements rather than disrupt them.

2.8 Appendix

Table 2.1: Number of VLEs and Impact on State Responsiveness

	Processing Time			
	processing_time_n		processing_time_log	
	(1)	(2)	(3)	(4)
VLEs	0.532	0.442	0.004	0.003
	(0.410)	(0.404)	(0.017)	(0.017)
All_Volume		0.004**		0.00005
		(0.002)		(0.0001)
Year Quarter	Yes	Yes	Yes	Yes
Unit FE	Yes	Yes	Yes	Yes
Processing Time	Days	Days	Logged	Logged
Volume Included	No	Yes	No	Yes
Observations	334,455	334,455	334,455	334,455
R^2	0.172	0.174	0.211	0.212
Adjusted R^2	0.172	0.173	0.211	0.212
Residual Std. Error	34.771	34.744	0.824	0.824

Note: *p<0.1; **p<0.05; ***p<0.01
Standard Errors are clustered at the VLE Level

Table 2.2: Number of VLEs and Impact on State Responsiveness by Urban/Rural

	Processing Time			
	processing_time_n		processing_time_log	
	(1)	(2)	(3)	(4)
VLEs	0.764	−0.318	−0.021	−0.011
	(1.603)	(0.438)	(0.040)	(0.014)
Year Quarter	Yes	Yes	Yes	Yes
Unit FE	Yes	Yes	Yes	Yes
Processing Time	Days	Days	Logged	Logged
Urban Units	No	Yes	No	Yes
Observations	179,105	155,350	179,105	155,350
R^2	0.162	0.144	0.157	0.205
Adjusted R^2	0.162	0.143	0.157	0.204
Residual Std. Error	37.077	32.702	0.874	0.790

Note: *p<0.1; **p<0.05; ***p<0.01
Standard Errors are clustered at the VLE Level

Table 2.3: Number of VLEs and Impact on State Responsiveness by Caste/Non-Caste

	Processing Time			
	processing_time_n		processing_time_log	
	(1)	(2)	(3)	(4)
VLEs	0.331	0.831	0.004	0.006
	(0.304)	(0.672)	(0.018)	(0.017)
Year Quarter	Yes	Yes	Yes	Yes
Unit FE	Yes	Yes	Yes	Yes
Processing Time	Days	Days	Logged	Logged
Application Type	Non-Caste	Caste	Non-Caste	Caste
Observations	195,205	139,250	195,205	139,250
R^2	0.095	0.209	0.166	0.248
Adjusted R^2	0.095	0.209	0.166	0.247
Residual Std. Error	23.559	44.059	0.741	0.885

Note: *p<0.1; **p<0.05; ***p<0.01
Standard Errors are clustered at the VLE Level

Welfare Service	Duration	Description
Issuance of Caste Certificates	Longer Response Time	Caste Certificates place individuals into the following caste categories (SC/ST/OBC)
Issuance of Income Certificate	Shorter Response Time	Income Certificates validate the household income of applicants.
Issuance of Residence Certificate	Shorter Response Time	Residence Certificates validates that the applicant resides at a stated location

Table 2.4: Different Types of Welfare Certifications

Figure 2.12: Coding Paper Based Application Data
This figure shows records that I gathered from each bureaucratic jurisdiction. I took photos and then manually coded each entry to get information regarding processing times for paper based applications.

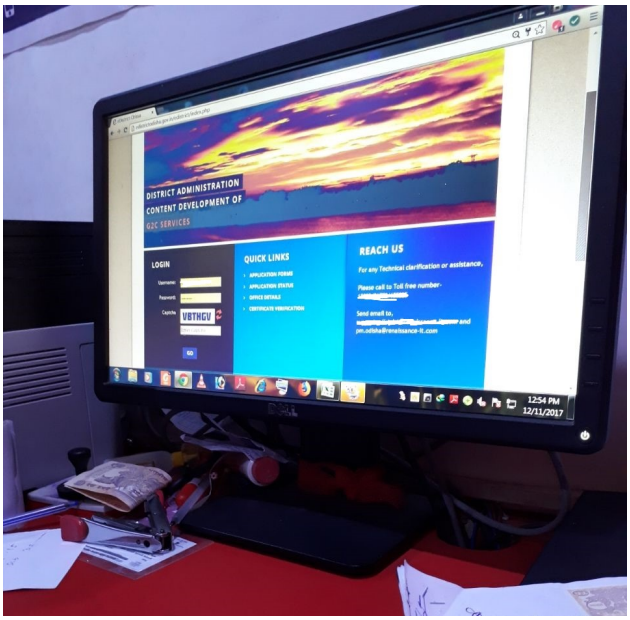


Figure 2.13: The Software System
The software system used by the digital intermediaries for online submission of the citizen applications

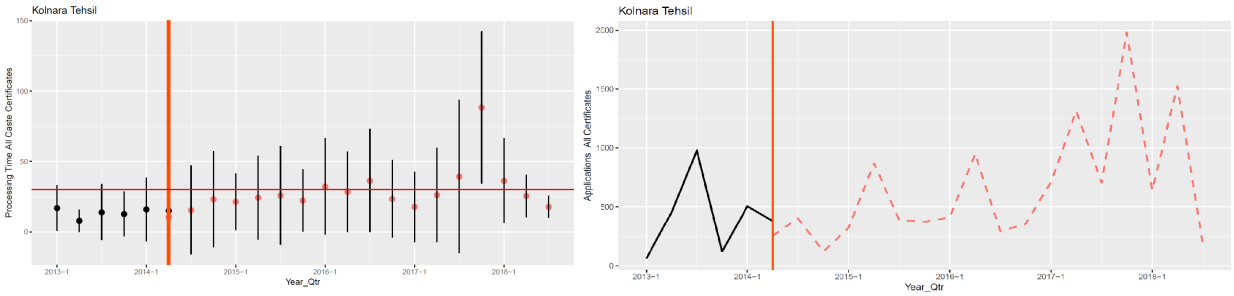


Figure 2.14: Transition From Paper to Digital Applications (Kolnara Tehsil)
Figure on top shows the time taken to process applications from 2012 Quarter 4 to 2018 Quarter 3 in the Kolnara tehsil. The vertical orange line represents the transition from paper to digital applications, which in this bureaucratic jurisdiction happened in between the 2nd Quarter of 2014.

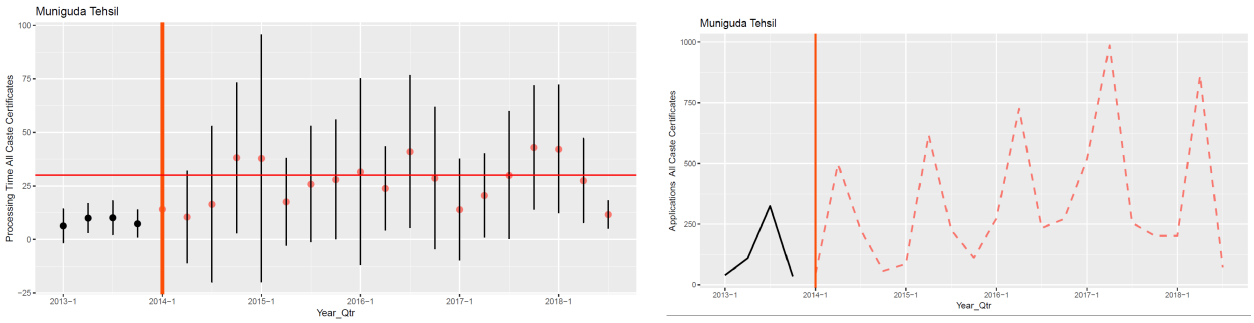


Figure 2.15: Transition From Paper to Digital Applications (Muniguda Tehsil)
Figure on top shows the time taken to process applications from 2013 Quarter 1 to 2018 Quarter 3 in the Muniguda tehsil. The vertical orange line represents the transition from paper to digital applications, which in this bureaucratic jurisdiction happened in between the 1st Quarter of 2014.

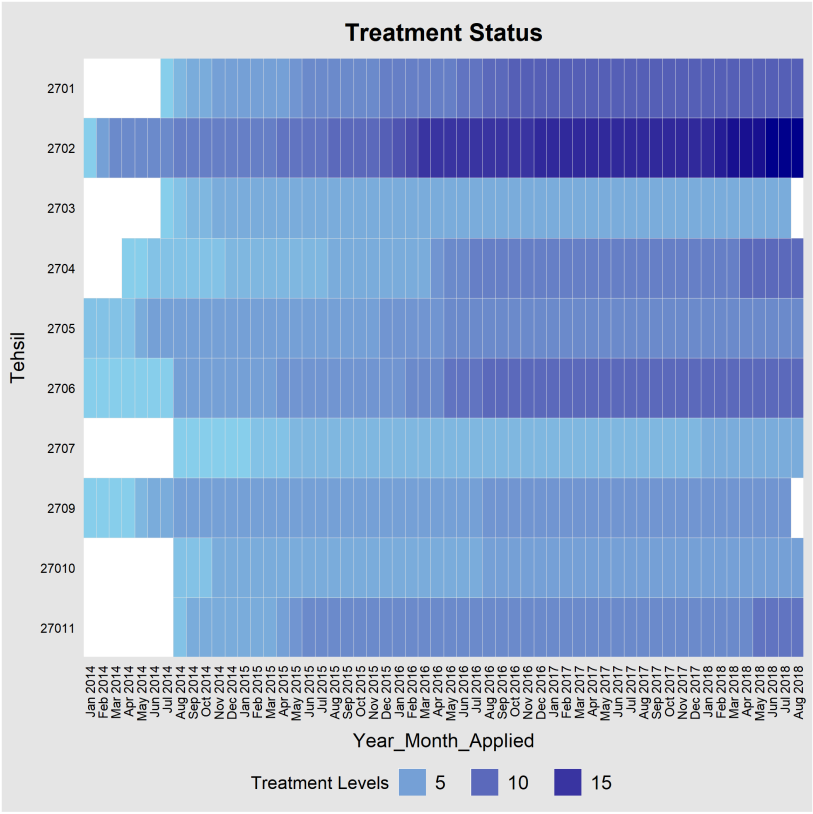


Figure 2.16: Number of digital intermediaries over time and tehsils

Chapter 3

Bureaucratic Preferences Over Relocation and Disparities in State Responsiveness

3.1 Introduction

When I met Sanjeeb[1], he had already been to the local office of the land bureaucracy twice. The first time he had waited for hours in vain for the official to get back from field visits, to enquire about the status of his application for a caste certificate. On the second occasion, he was told to follow up with another officer to see if the application had all the necessary documentation. After spending a week running from pillar to post, Sanjeeb would eventually get his caste certificate and apply for an affirmative action scholarship program. His experience dealing with the bureaucracy was not unusual. Millions of citizens like him experience delays when they engage with the state to get crucial documents and welfare services. After submitting their applications, citizens have to run around trying to figure out how to get the necessary approvals from the bureaucracy. Sometimes the official discovers that the application has an error that he had not noticed before; at other times, the bureaucrat responsible for approving the application is unavailable or busy with other tasks. Many citizens also complain that approval is often contingent on hiring an intermediary to mediate between the applicant and the state[2].

Frustrations with the bureaucracy, commonly voiced by citizens, mask the large variation in local state responsiveness towards citizens. I examine citizens' engagement with the land bureaucracy in India for getting legal certifications and find that citizens making similar claims experience vastly different levels of state responsiveness across different jurisdictions[3]

[1]Name changed due to UC Berkeley IRB requirements

[2]I choose these reasons based on fourteen months of fieldwork across four states of India and the literature on bureaucracy (Gupta 2012; Witsoe 2012)

[3]The land bureaucracy has historically been responsible for maintaining land ownership details and

(See Figure). These legal certifications are crucial as they establish critical aspects of a citizen's identity and are essential for availing a host of downstream benefits like low-interest bank loans, welfare benefits, affirmative action programs, and engaging in land-related market transactions. Over 14 months of fieldwork as I interviewed citizens and bureaucrats across different jurisdictions, I witnessed these differences in quality of citizen-state interactions first hand. While in one jurisdiction, I would see citizens crowding in front of local offices of the land bureaucracy, waiting for the officials, offices in the adjoining jurisdictions would have short lines that moved quickly. Why is the state more effective in responding to citizens in some places within its territory but not others?

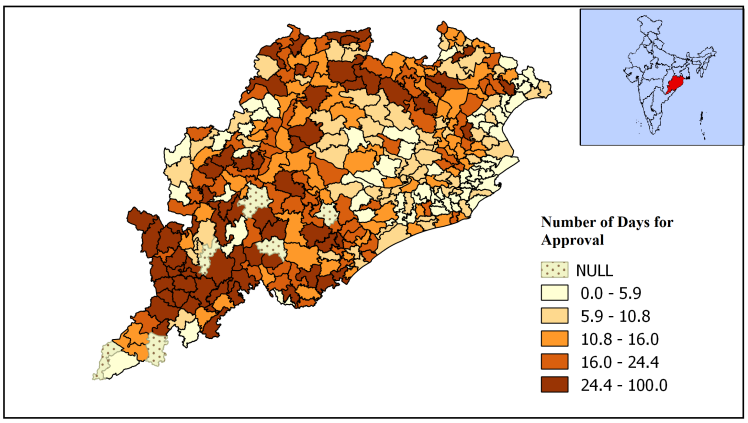


Figure 3.1: Response time for approval of caste certificates across jurisdictions

The figure shows how long citizens have to wait across different tehsils of Odisha, India for getting their caste certificate approved. The cross sectional data captures the average time taken in third quarter of 2017)

In this essay, I argue that individual preferences of bureaucrats over being relocated to different jurisdictions explain a large part of the local variation in the state's responsiveness towards citizens' claims. Modern welfare states are centralized organizations with a clear goal of ensuring uniform quality of governance across their territory (Mann 1984; Soifer 2016; Harbers 2015). One way in which states achieve this goal is by rotating of agents across different jurisdictions in a regular rule-bound fashion[4]. Regular rotation of bureaucrats allows states to distribute personnel resources in an equitable manner. However, this requires regular relocation of bureaucrats to different jurisdictions agnostic to their preferences. For bureaucrats, who need to relocate regularly across different jurisdictions, every move comes with the need to readjust to new contexts. Further, staying away from families

collecting taxes based on crop production records. This historical legacy and the consequent familiarity with local records resulted in the land bureaucracy being tasked with ascertaining certain aspects of the citizens' legal identity after India gained its independence

[4]Rotation of agents is more common across countries in Asia Edin (2003) and Africa (Brierley 2020), compared to Latin America

or in a jurisdiction with poor infrastructure imposes additional costs. Thus, bureaucrats have strong preferences over relocation, and these preferences are often at loggerheads with the organizational goals. I examine how this divergence between organizational goals individual preferences result in spatial variation in state presence and state responsiveness at the local level.

I begin by showing that bureaucrats regularly lobby against organizational orders relocating them to jurisdictions that do not align with their preferences. Using qualitative interviews conducted over fourteen months of fieldwork and a unique administrative data set on the movement of bureaucrats, I establish that bureaucrats have strong preferences over being relocated jurisdictions far away from their home locations and over large distances (Chaudhury et al. 2006; Khan et al. 2019). I then show that the regular lobbying efforts limits the ability of the state to maintain uniform presence at the local level. When bureaucrats successfully lobby against being placed in a jurisdiction, those jurisdictions remain unoccupied for a longer duration. Further, the cumulative impact of bureaucratic lobbying on state presence is linked to nature of bureaucratic representation. The greater representation of more urban and coastal regions within the bureaucracy, results in higher duration of vacancies in regions are historically underdeveloped. Finally, I show that vacancy or state absence forces results in greater waiting times experienced by citizens making claims on the land bureaucracy.

This essay contributes to the research on the functioning of the state in low and middle-income countries in three distinct ways. First, the findings of my essay further our understanding of the role of bureaucratic preferences in shaping state presence and state responsiveness. While there is extensive research on bureaucratic preferences over transfer and corruption in the transfer process, the cumulative impact of bureaucratic preferences on territoriality of the state and citizen-state interactions has remained unexplored. In interrogating the relationship between bureaucratic preferences and bureaucratic performance, the essay shifts the focus from role of political principals or quality of local institutions and engages explicitly with how dynamics within the state can produces differences in quality of local governance. The findings highlight that to comprehensively understand variation in quality of citizen-state interactions, we need to focus on dynamics within the organization of the state and interrogate the how bureaucracies function as a collective (Williams 2018; Rasul & Rogger 2018). Second, I contribute to the literature on the political economy of transfers, which has largely focused on elite bureaucracies like the Indian Administrative Service or Street Level Bureaucrats like school teaches and doctors who operate at the frontlines of the state (Chaudhury et al. 2006; Ramachandran et al. 2017; Iyer & Mani 2011; Xu et al. 2018). The middle level managers, play a distinct and important role in any organizational setup, by translating decisions by higher level decision-makers to policy on the ground (Wooldridge et al. 2008). By focusing on mid-level managers who are a crucial link between elite administrators and street-level bureaucrats this essay fills that gap in literature. Finally, the essay also contributes to the literature on urban-bias. The presence of effective states in developed regions and the neglect of the periphery is a strikingly consistent pattern observed across different contexts (Bates 2014; Harbers 2015; Lipton 1977). Why are centrally located places

better governed? There is a large body of work that examines how long terms historical processes and institutional structures adopted in recent past result in rural peripheries getting poor quality of governance[5] (Bates 2014; Krishna & Schober 2014; Lipton 1977; Varshney 1993). I add to this research by linking the process of bureaucratic rotation to cumulative state absence in historically marginalized jurisdictions. I demonstrate that that institutionalization of formal norms within bureaucracies and preferences of bureaucrats are a source of urban-bias in quality of state institutions.

The rest of the essay is organized as follows. The next second section provides the reader with a theoretical framework around how bureaucratic preferences over relocation impact the functioning of the state at the local level. The third section lays out the background and context for the research. The fourth section describes the data sources used for the empirical analysis. The fifth section, the penultimate section before the conclusion, puts forth the econometric model used to test the theory and describes the results.

3.2 Theoretical Framework: Bureaucratic Preferences over Relocation and State Responsiveness

This section presents the reader with a theoretical framework that examines how preferences of bureaucrats over being relocated shape quality of citizen-state interactions at the local level. The framework provides the reader with the inter-linkages between the policy of bureaucratic rotation, bureaucrats' lobbying efforts to change the policy based on preferences over being relocated, and the impact of their actions on state presence and the quality of citizen-state interactions at the local level. I begin by outlining how regular and rule-bound bureaucratic rotation helps organizations achieve territorial control and ensure uniformity in quality of local governance. I then examine how preferences over location of jurisdictions create incentives for bureaucrats to circumvent the organizational directives around rotation. Finally, I discuss why the cumulative impact of bureaucratic lobbying on state presence and quality of citizens engagement with the state at the local level.

3.2.1 The Policy of Bureaucratic Rotation

Adherence to clearly defined public rules is essential for effective functioning of a bureaucracy. The idea of the Weberian bureaucrat, guided at each step by rules and regulations, though stylized, highlights the importance of ensuring that exercise of bureaucratic discretion is not guided by personal preferences or pecuniary motivations but rather be grounded in a legal-rational framework. To achieve this goal, bureaucracies impose a range of procedural and legal obligations on their agents; rules around the duration of work, procedures around documentation of work in the form of reports, or implementation of welfare programs based

[5]There are exceptions to the urban-bias patterns. For example, Auerbach & Kruks-Wisner (n.d.) find that urban slum residents have limited agency compared to their rural counterparts

on programmatic guidelines. This essay focuses on rules that seek to distribute bureaucratic resources through the policy of rotation of agents across different jurisdictions.

Modern states have a clearly defined territory which they seeks to uniformly control and govern (Mann 1984; Soifer 2016; Harbers 2015). The rotating of agents is common policy[6] adopted by states to achieve territorial control and overcome agency problems that commonly limit the efficient implementation of goals. Territorial control refers to the ability of the state to act in a centralized manner and exert its power uniformly across all jurisdictions in its territory and agency problems stem from the challenge faced by principals in ensuring that agents carry out the delegated tasks in adherence to the interests of the principal (Mann 1984; Kiser 1999; Stovel & Savage 2006). Bureaucratic rotation is implemented by a centralized unit within the organization called the the cadre management authority. The cadre management authority is comprised of a set of bureaucrats within the higher echelons of the land bureaucracy and is responsible for directing field level agents to different jurisdictions over the course of their careers. The centralized decisions take the form of transfer orders that officially request that the a official relocate from one jurisdiction to another. Transfer orders, in most bureaucracies, are official government notifications that are legally binding on the agents of the state. Regular rotations ensure that officials do not stay in the same position for more than 2-3 years and are not placed close to home locations.

By ensuring that bureaucrats are rotated across the jurisdictions of the state in a rule-bound and regular manner, the state ensures equitable state presence. The regular movement of agents also limits the possibility of state capture by providing oversight and limiting the ability of bureaucrats to collude with local interests. The policy of rotation is especially critical to the success of public bureaucracies due to the challenges in hiring and firing agents, which make allocation of existing resources critical to achieving social welfare (Finan et al. 2017; Limodio 2021). Finally, bureaucratic rotation across different jurisdictions integrates the bureaucrats with the organization and creates a coherent organizational culture. A bureaucrat who is permanently placed in a jurisdiction is likely to develop allegiance towards the local context. In comparison, a bureaucrat who knows that a crucial part of his job involves being placed across different jurisdictions along with his cohort based on organizational decisions is likely to develop strong organizational affinities. For example, the elite Indian Administrative Service sees the allocation of bureaucrats to different parts of the nation as a necessary step towards creating a sense of organizational loyalty and coherent purpose (Thakur 2018). In the next section I argue that the gap between how the policy of bureaucratic rotation is envisaged and its actual implementation in practice depends on the costs bureaucrats associate with being relocated.

[6]rotation of agents is more common across countries in Asia Edin (2003) and Africa (Brierley 2020), compared to Latin America

3.2.2 Bureaucratic Preferences and Implementation of Rotation Policy

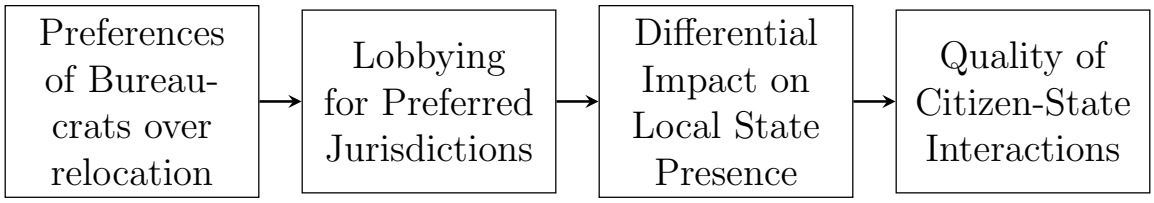
Successful implementation of the policy of rotation requires convincing bureaucrats to relocate over large parts of the state on a regular basis. This is challenging due to the costs frequent relocations impose on bureaucrats. For the agents, who need to relocate regularly across different jurisdictions, every move comes with the need to readjust to new contexts. Further, stay away from families or in an underdeveloped jurisdiction imposes additional burden. Existing literature validates this notion, and there is ample evidence showing that bureaucrats have strong preferences over the location of jurisdictions (Béteille 2009; Iyer & Mani 2011; Khan et al. 2019). In an experiment that provided financial incentives to aspirants joining a bureaucracy, Dal Bo et al. (2013) found that individuals hold strong preferences over whether the assigned location was closer to home and had high levels of economic development. Thus we can assume that bureaucrats would prefer to stay in jurisdictions with socio-cultural familiarity and higher economic development and avoid being relocated over long distances. The costs bureaucrats associate with regular rotation presents the state with a challenge.

To achieve the goal of equitable allocation of human resources and reduction in agency problems through rotation requires convincing individual bureaucrats to accept the high costs incurred from being regularly relocated. Making these high costs acceptable is an organizational task. For example, research on bureaucracies highlights the importance of selecting mission-driven agents with high intrinsic motivation and creating a strong organizational culture (Finan et al. 2017; Gailmard & Patty 2012; Wilson 2019). Motivated bureaucrats could internalize the costs of rotation, especially if they see other bureaucrats doing the same. Alternatively, the state can also devise mechanisms that directly compensates bureaucrats for the costs incurred by being placed in jurisdictions that do not align with their preferences. Organizations that can provide the right kind of incentives to their agents are more likely to achieve their goals. Many organizations also elicit preferences from agents and then match them to locations based on the rank ordering of preferences.[7] Eliciting preferences overcomes the mismatch between agent preferences and organizational goals. Other organizations offer a home posting as an incentive to those agents that serve in far-flung areas.[8] In the Mexican case, Dal Bo documents financial incentives given to agents serving in "high-risk" areas with a greater incidence of violence (Page 1207, Dal Bo et al. (2013)). Most organizations in low and middle-income countries, especially middle-level bureaucracies in South Asia, impose a centralized decision on bureaucrats without offering any compensation for relocation. Institutional arrangements shape the actions taken by bureaucrats in response to organizational

[7]Example based on the State Department of the United States. Also see the Rural Hospital Matching Problem (Roth 1984)

[8]Example drawn from the Indian Army

directives placing them in jurisdictions that deviate from their preferences.



How do costs associate with relocation shape the territorial distribution of bureaucratic resources? The answer rests on whether a bureaucrat can change organizational directives when they diverge from her preferences. Adherence to formal rules often rests on their relationship with informal norms within the society. Research shows that informal norms can both strengthen or weaken the implementation of formal rules[9] (Fafchamps 2020; Helmke & Levitsky 2004). In the context of bureaucracy, existing research, especially from low and middle-income countries, documents that individuals use informal norms to influence formal rules. For example, while discussing transfers within Ghanaian bureaucracy, Price (1975) reports that close to 85% civil servants suggest that it would be justifiable to violate legal rules if the request comes from someone in their kinship network (Page 66, Price (1975)).[10] A bureaucrat in Norway[11] may face costs of relocation, but the strength of the formal institutions and the organizational culture would limit her ability to modify organizational directives. Thus, in the context of bureaucratic rotation in low and middle income countries, it can be assumed that bureaucrats have the option of using informal norms to circumvent formal rules. If bureaucrats can influence organizational directives, they are likely to circumvent transfer orders that do not align with their preferences, thereby creating a gap between the formal rules and their de-facto implementation (Aghion & Tirole 1997).

The ability of bureaucrats to circumvent organizational rules around rotation and self-select into jurisdictions would weaken the ability of the bureaucracy to uniformly distribute its resources and increase agency problems. If rotation policy *de-jure* were agnostic to the location of jurisdictions, violation of the policy would result in greater difficulty in placing resources in less preferred jurisdictions. In these less preferred jurisdictions, there would be limited state presence. Lack of state presence, in turn, has negative consequences for local state capacity by increasing bureaucratic overload and limit the ability of the state to

[9]Helmke and Levitsky provide an overarching framework for understanding interaction between formal and informal institutions (Helmke & Levitsky 2004). They suggest that informal institutions can strengthen formal ones when outcomes converge and weaken them when outcomes diverge.

[10]The specific scenario given to respondents was "*A civil servant is officially informed that he is to be transferred from Accra to a new post in Tamale. The civil servant is from Accra, he speaks the local language, has all his friends and relatives there, and he is looking after his aged parents who are too old to move to the North with him. For all these reasons, he does not want to be transferred to Tamale. He , therefore, goes to the head of his department, who happens to be his cousin, and asks to be kept in Accra.*"

[11]Drawing on the cross national variation in Weberianness in (Evans & Rauch 1999).

be responsive to claims made by citizens (Dasgupta & Kapur 2017). Therefore, allowing bureaucrats to influence organizational rules limits the state's ability to implement public policy a uniform manner and creates disparities in its ability to respond to citizens.

3.2.3 Alternative Explanations

What are the other explanations for spatial differences in state responsiveness? First, nature of political principals can play significant role in shaping citizen-state interactions. In democracies, political representatives and political parties play the critical role of mediating between the citizens and the state (Geddes 1994; Min & Golden 2014). Individuals affiliated with political parties and elected representatives regularly influence bureaucratic decision-making on behalf of the citizen (Brierley 2020; Chandra 2007; Hassan 2020). For example, Gulzar & Pasquale (2017) show that when multiple political principals can influence bureaucratic decision-making, it negatively impacts the quality of public services. The influence of political processes on bureaucratic performance can also be conceptualized more broadly beyond the principal-agent framework. In clientelistic systems, citizens get assistance from political brokers in lieu of electoral loyalty towards a party (Auerbach 2016; P. Chatterjee 1999; Chandra 2007). The density of political networks and the nature of political competition can determine the quality of citizen-state interactions. Thus the nature of political networks at the local level can shape the experience of the citizen engaging with the bureaucracy.

Apart from political networks, nature of social institutions, broadly defined as informal rules and practices within communities, also independently shape bureaucratic performance at the local level. For example, presence of powerful local elites, who seek to use it for furthering their own interests, can result in state capture and negatively impact state effectiveness (P. K. Bardhan & Mookherjee 2000; Migdal 1988; Rosenthal 1977; Rudolph & Rudolph 1984; Lee 2019; Suryanarayan 2016). Societal capital at the local level also shapes the ability of individuals and groups to hold the state accountable (Heller 1996; Putnam et al. 1994; Singh 2015). At an individual level, knowledge and information available to a citizen, shapes their procedural awareness and expectations from the state (Sanyal & Rao 2018; Putnam et al. 1994). Citizens who are aware of their rights are more likely to hold the state accountable, while those with a limited sense of agency are likely to exit from engaging with the state (Auerbach 2016; Kruks-Wisner 2018). At a collective level, communities with greater social cohesion, more education, or fewer cross-cutting cleavages could mobilize to hold the bureaucracy accountable (Besley & Persson 2009; Habyarimana et al. 2009).

3.3 Background and Context

This section details the context in which the research is placed. I focus on the working of the land bureaucracy in the state of Odisha, India. Like all bureaucracies, the land bureaucracy in India has a hierarchical structure where higher levels delegate tasks to field-level

functionaries and monitoring their decision-making. I begin by describing the organizational structure. In the latter half of the section, I discuss the interactions between citizens and field-level bureaucrats. How the land bureaucracy engages with citizen's claims impacts a large portion of the population. As stated before, millions of citizens seek legal certifications from the state. The section ends by delineating the importance of these interactions for citizens.

3.3.1 Organizational Structure of the Land Bureaucracy

The organizational structure of the Land Bureaucracy can be divided into two levels - the **centralized level** that acts as the administrative core of the organization and operates out of the capital city, and the **field level bureaucracy** responsible for implementing the organizational goals at the local level. I situate my research in the state of Odisha[12] in the eastern part of India. The Land Bureaucracy in the state[13] divides its field operations across 314 jurisdictions. Each jurisdiction, called the *Tehsils*, is managed by an official called the *Tehsildar*. The Tehsil, the lowest unit of operations for the Land Bureaucracy, operates at a level below another unit of general administration called the district[14](See Figure 3.3). The district handles field operations across all departments of the state and is headed by an official called the District Magistrate or District Collector. Thus, any policy framework created at the centralized level of the Land Bureaucracy is operationalized across the more than 300 units by individual managers of the *Tehsil* or the *Tehsildars*.

Figure 3.2: State of Odisha

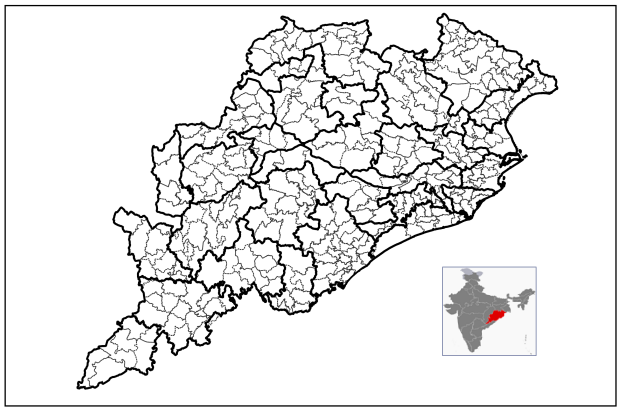


Figure 3.3: Tehsils and Districts Boundaries

Tehsildars represent the middle management of the bureaucratic organization as they "mediate between organization's strategy and day-to-day activities" (Wooldridge et al. 2008).

[12]A sub-national unit

[13]I use the term "state" in the sub-national or federal sense i.e the state of Odisha

[14]There are 30 districts in the state of Odisha and 317 tehsils

They form the crucial link between the elite administrators from the Indian Administrative Service and the Street Level Bureaucrats who interface with the citizens directly (Lipsky 2010; Zacka 2017). The State Government[15] recruits *Tehsildars* and manages their transfers and career progression. Thus unlike the elite administrators whose career prospects depend on rules designed by federal governments, the *Tehsildars* are completely under the control of state governments or sub-national units. *Tehsildars*, since they are officials of the state government, are always assigned to jurisdictions within the boundaries of the state. As described earlier, the Land Bureaucracy has a clearly defined policy around the selection and rotation of its agents[16]. Both these aspects allow me to establish a clear link between organizational rules and their implementation. I use the transfer of *Tehsildars* to empirically explore the gap between the *de-jure* policy of bureaucratic rotation and its *de-facto* implementation. To my knowledge, this is the first qualitative exploration of transfer patterns of Tehsil bureaucracy in India.

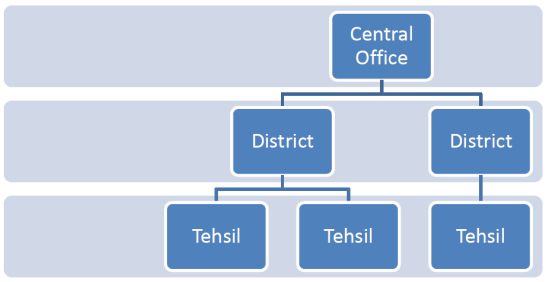


Figure 3.4: Different Level of Administration

3.3.2 Centralized Decisions and Field Level Bureaucracy

In this essay, I focus on the decisions taken by the higher levels of the land bureaucracy regarding rotation of *Tehsildars* across different *Tehsils*, and the extent to which the actions of bureaucrats shape the implementation of these decisions. Bureaucratic rotation is implemented by a centralized unit within the organization called the the cadre management authority. The cadre management authority is comprised of a set of bureaucrats within the higher echelons of the land bureaucracy. The idea of "cadre management" has a long history within bureaucracies. The Chinese communist party to the United States' Federal Emergency Management Agency use the cadre management system for implementing administrative procedures so that the workforce of an organization is capable of conducting its mission (Edin 2003; O'Brien & Li 2017; Fema 2014).

[15] I use the term "State Government" in the sub-national or federal sense i.e, the State Government of Odisha

[16] I discuss this in the next section

The cadre management authority in the Land Bureaucracy is responsible for the movement of *Tehsildars* across different jurisdictions and their career advancement[17]. They regularly assess the positions of the bureaucrats and then put forth transfer orders that relocated officials from one jurisdiction to another. Transfer orders are official government notifications that are legally binding on the agents of the state. During elite interviews, cadre management officials reported that transfers are used to fill existing vacancies at the *Tehsil* level and were made to ensure that officials do not stay in the same position for more than 2-3 years. Cadre management authorities also noted rules required that officers are not placed close to their home locations. These goals are also explicitly stated in the career policy document of the land bureaucracy. I examine the transfer patterns in the subsequent sections to understand the extent to which the final placement of officials succeeds in achieving the stated goals.

3.3.3 Categorizing Citizens

The importance of the *Tehsildar* becomes apparent to a person as soon as they enter the *Tehsil* office. The *Tehsildars* sits on top of an elevated pedestal resembling those created for judges in court houses. The elevated position of the *Tehsildars* is more than symbolic. The *Tehsildar* has wide ranging powers including ability to curtail the lawful assembly of people to maintain law-and-order. The tasks undertaken by the tehsil range from that of managing land records, making changes to land ownership, dealing with encroachment, collecting taxes, conducting elections, to maintaining law and order. While the tehsil engages in a range of activities, the most important citizen facing task is that of certifying the identity of citizens by ascertaining their caste, location, income levels, and land ownership. These tasks involve verifying documentation of the citizens and then creating a certification that legally places citizens into respective categories. Without these certifications citizens cannot establish eligibility for a affirmative action programs or get loans from banks or avail subsidies from the state.

During my fieldwork across close to 30 *Tehsils* I found many people waiting outside the premises. Some were on their own, while others had come with an intermediary willing to facilitate their interaction with the *Tehsil* officials. Many had made this journey to the *Tehsil* from their remote village multiple times before. The majority of the people, however, had the necessary documentation, and were waiting to get the necessary approvals. Waiting for the state is associated with red-tapism and bureaucratic inefficiencies (Carswell et al. 2019; Auyero 2012; Gupta 2012). The long waiting times have a direct impact on people's lives as they result in multiple trips to different bureaucrats, loss of income, and negative perceptions of the state, which in turn have a detrimental impact on citizen agency (Pierson 1992). Further, imposition of administrative burden also disproportionately affects the more

[17]For example, Department of Personnel manages transfers for Indian Administrative Services. For state-level officials, the departments in capital cities handle the transfer process.

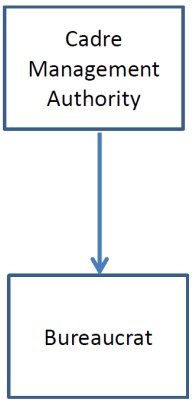


Figure 3.5: Role of Cadre Management Authority in Transfers
Officials in the Cadre Management Authority are responsible for finalizing the transfer orders of field level officials. These orders place officers to different locations

marginalized sections of society (Herd & Moynihan 2019; Zacka 2017). Thus, I focus on this aspect of the citizen's experience engaging with the land bureaucracy.

3.4 Data Sources

Observing bureaucratic preferences is challenging, especially when they diverge from the formal rules of the state. Those who lobby to get placed in a jurisdiction of their choice are unlikely to discuss their efforts openly. Thus, understanding how bureaucrats lobby and shape the implementation of the rotation policy required me to embed myself inside the state. I used qualitative interviews and participant observation methods to engage with bureaucrats in the land bureaucracy. My fieldwork was conducted over 14 months spanned across 30 *Tehsils* [18]. I interviewed bureaucrats across the organization's hierarchy, from local officials in the tehsil to the officials located in the capital cities. Further, I shadowed[19] tehsil level bureaucrats over a period of 2-3 days to understand their roles and responsibilities and their interactions with citizens, politicians, and higher-level officials. This inductive process played a crucial role in helping me formulate my theoretical framework. To generalize my insights based on qualitative fieldwork, I rely on a data set that tracks bureaucratic transfers, an administrative dataset with measures of the quality of citizen-state interactions, and a survey that captures bureaucrats' preferences in the land bureaucracy. This section describes

[18]The majority of the fieldwork was done in Odisha, but I also interviewed Tehsildars in Maharashtra, Haryana, and Telangana

[19]Shadowing a qualitative technique that involves sitting in the office of the bureaucrat for 3-4 days and noted down all their interactions (See (Bussell 2018; Fenno 1978))

the quantitative data sets used to empirically examine the theoretical claims put forth in the previous sections.

3.4.1 Transfer Dataset

For empirically analyzing how bureaucratic preference over relocation shapes spatial allocation of personnel resources, I created a transfer dataset, which tracks the movement of state officials across different jurisdictions. To create this dataset, I code notifications published by the land administration over a period of 8 years. These notifications detail the movement of officials from one location to another and allow me to track the placement of officers to different *Tehsils* over time[20]. The transfer notifications covered the relocation of a large set of officials, and each row of the dataset details the transfer of an official from one jurisdiction to another on a particular date along with their old and new responsibilities (See Figure 3.14).

As stated before, officials positioned as *Tehsildars* belong to a larger pool of officials recruited by the state government. Thus, those assigned as Tehsildars can serve across different positions in various departments over the course of their career[21]. For this essay, I limit the analysis to officials who at some point were assigned to the position of a Tehsildar over the last eight years. Thus, the dataset only includes officials who were placed into or out of one of the more than 300 Tehsils. Thus, there are close to 1100 assignments to the position of Tehsildar over an eight-year period[22]. The data includes more than 600 officers. To my knowledge, this is one of the first transfer datasets that comprehensively documents the movement of officials belonging to sub-national units in India (See Appendix for details).

3.4.1.1 Transfer Modifications

The transfer dataset has a unique feature that plays a central role in the empirical analysis – formal modifications of existing transfers issued by the department. As discussed in the previous section, the cadre management authority officially declares a transfer. Thus whenever a state official is placed as *Tehsildar* in one of the *Tehsils* (jurisdictions) the cadre management authority notifies the transfer order (Figure 3.14). However, the same cadre management authority in many cases issues new orders annulling the original transfer order. These annulments of existing transfers orders are regular occurrences and account for a large portion of (1 in 5) overall transfer orders. As I argue in the next section, these modifications result from bureaucrats' lobbying efforts and reveal their preferences over being relocated to different jurisdictions.

[20]The digitization of the transfer notifications required scraping a large number of PDFs and using optical character recognition (OCR) software to convert them into readable text. Five research associates worked for 16 months to create a clean dataset based on a clear coding manual. I thank Leila Hooshyar, Ankita Mitra, Anurag Aiyar, Barada Behera, and Abdul Khan for their hard work in helping me create this dataset

[21]For example, they could be assigned to a block-development-officer responsible for implementing welfare schemes at the block level or a sub-collector in the district headquarters

[22]See Table 3.3 for details

3.4.1.2 Original and Replacement Transfers

When a transfers is modified, there two possible outcomes. When the the original transfer asking an official to relocate (say from place A to B) is annulled, either the officer either remains in the same jurisdiction (A) or is asked to move to a new place (C). Thus, transfer orders can be divided into the following categories- original transfer orders that are never modified, original transfers that are modified. The modified transfers have replacement orders that either maintaining the status quo or asking the officer to relocate to a new place (See Figure 3.6).

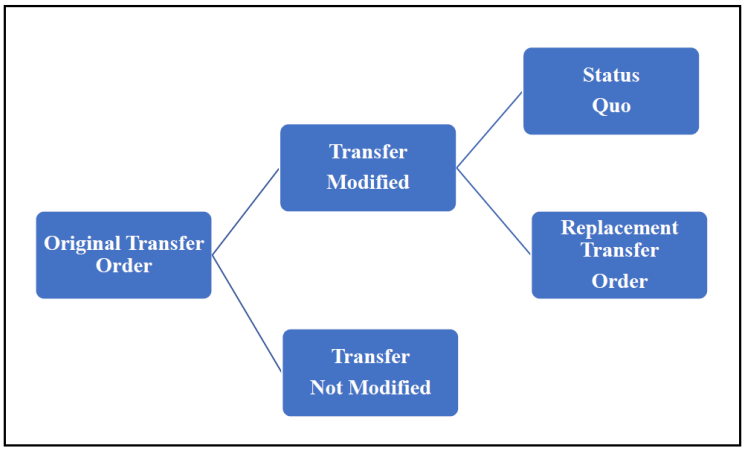


Figure 3.6: Transfers Categories

3.4.1.3 Frequency of Modifications

In the transfer dataset, I track these changes and code transfers that were annulled[23] as modified. I find that of all the transfers assigning state officials to serve as *Tehsildars* notified between the period of 8 years from 2012-2019, 20% were modified (See Table 3.1). Figure 3.7 empirically demonstrates that modifications account for a substantial portion of the overall transfers and have been consistent across many years. While there is year on year variation in the number of transfer modified the process of modification is consistent across the time period observed in the dataset.

3.4.2 Background Dataset

While the transfer dataset captures the movement of officials to and from *Tehsils*, the background dataset has information regarding the characteristics of officials being assigned to these locations. This information was also collected from the government website and has

[23] Another transfer order was issued nullifying the original transfer

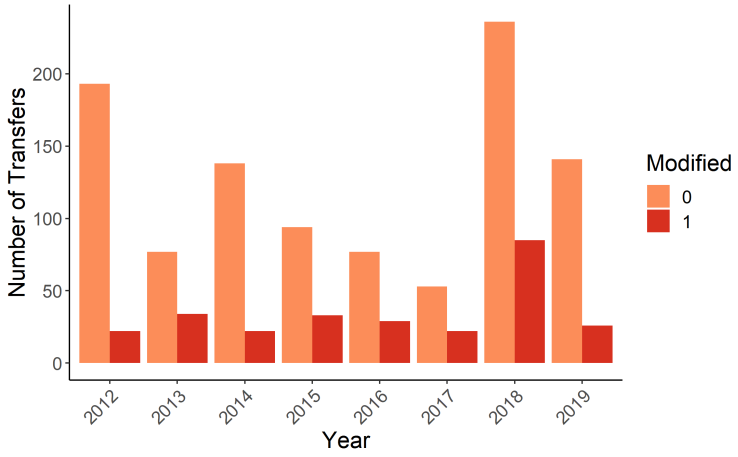


Figure 3.7: Issuance of transfers (and modifications) over time

the age, gender, rank-within-cohort, caste background, recruitment method, and home location of the officer (See Appendix). These covariates allow me to examine whether the characteristics of transfers can be linked to the background of bureaucrats.

3.4.3 Jurisdiction Characteristics Dataset

Finally, I also create a dataset that has Tehsil level socio-demographic variables like education, population, and night light luminosity. I have created these variables by merging village-level identifiers from the Census of India with data from Socioeconomic High-resolution Rural-Urban Geographic Platform for India (SHRUG) (Asher et al. 2019). Since village to *Tehsil* mapping is not available in the Census documents for Odisha, this process involved manually scraping data in the local language (Odia) from the land records website and using fuzzy string matching to assign them census village identifiers. These variables capture the socio-economic development of jurisdictions to (and from) which officers are being assigned to serve. I mainly use Night Light Luminosity as a measure of development and also cross-validate the against luminosity from satellite imagery.

Further I also use the jurisdiction locations to create metrics related to distance. For example, I assign every transfer a transfer length. To do so, I code latitude and longitude coordinates of every start and endpoint of a transfer and then calculate the distance of the transfer[24]. I also combine the transfer dataset, jurisdiction dataset, and the background dataset to calculate the difference between from and to locations a transfer with respect to the bureaucrat's home location[25]. A positive number indicates that the jurisdiction to which the bureaucrat is being sent is farther away from their home than the present jurisdiction

[24]measured in Kilometers

[25]Home location is identified based on the permanent address of the bureaucrat and is geo-coded. A similar strategy is used by Xu et al. (2018)

(and a negative number means that the jurisdiction is closer to home than their present jurisdiction).

3.4.4 Jurisdiction Presence Dataset

Finally, I map the transfer dataset, which records the date at which an officer is assigned to and from a tehsil, to a jurisdiction level dataset that notes the presence of an official for a specific duration. Mapping the overall transfer involves using entry and exit dates from the transfer dataset to place officers in certain jurisdictions for fixed tenure duration. The team of coders was asked to note the pattern when an officer exits a jurisdiction carefully, but a new one is not assigned. If there is a period when an officer has left, but no other officer has taken charge, or if there has been a modification, I code that period as "absent" to indicate that the position is vacant[26]. This coding is conservative since any incomplete information in the transfer process, which is likely to be due to the position being vacant or ambiguity around the start date, is coded as being "missing"[27]. I validate the coded dataset against the incumbency charts I collected from a subset of offices during my fieldwork, which allows me to be more confident about the data quality (see Figure 3.15 in the Appendix). By mapping transfers to a particular jurisdiction, I am able to create a history of transfers to and from a tehsil (See Figure 3.16 for details).

3.4.5 Administrative Dataset on Citizen State Interactions

To link the bureaucratic rotation to outcomes related to state responsiveness, I rely on an administrative dataset that captures the quality of citizen-state interactions. The administrative dataset captures how long citizens have to wait to get legal certifications from the land bureaucracy. The legal certifications ascertain the caste category, income level, and place of residence of a citizen and are essential for getting access to their entitlements. For example, a resident certificate is required for admission into an institute of higher education since many educational institutions require that the applicant be a state resident. An income certification validates an applicant's income allows low-income families to establish eligibility for subsidized health benefits or low-interest loans from banks. Caste certificates allow individuals belonging to these groups to avail themselves of affirmative action benefits. Close to 25% of the population over a period of 4 years interactions with the land bureaucracy to avail these certifications. The nature of certification is broad-based and not limited to any sub-group in the population. During the focus group discussions, citizens repeatedly highlighted the delays during getting certifications as a source of frustration with the bureaucracy. Local news sources[28] also validate the challenges faced by citizens while navigating the land bureaucracy. Further, citizens belonging to marginalized sections of the

[26]In such scenarios the task of Tehsildar is performed by another official who is in additional-charge i.e performing additional tasks over and above her regular assignment

[27]There are close to 15% cases where the vacancy period was ambiguous and was marked as missing

[28]From the Times of India article, last accessed on September 21st 2020

society, disproportionately face the costs of lack of bureaucratic accountability (Ahuja & Chhibber 2012; Gupta 2012; Mathur 2016). Based on these considerations, I operationalize the average response time taken by the tehsil to process legal certifications as an indicator of the effectiveness with which state places citizens in official categories.

3.5 Empirical Analysis

This section empirically examines how bureaucratic preferences shape the implementation of the policy of the bureaucratic rotation and its consequences for citizens trying to get legal certifications from the land bureaucracy. Based on the theory of change outlined previously, I divide the empirical analysis into three parts. The first part of the analysis establishes that individual bureaucrats influence the implementation of bureaucratic rotation. To capture the role of individual bureaucrats in circumventing the policy of bureaucratic rotation, I focus on modification[29] of transfer orders declared by the cadre management authority. Using evidence from my fieldwork and the quantitative analysis of the transfer dataset, I establish that transfer modifications[30] results from lobbying efforts initiated by bureaucrats. Specifically, I establish that proxies for bureaucrats' preferences are strongly associated with the probability that a transfer is modified. In the second section, I delve into the mechanisms. How do bureaucrats modify transfer orders issued by higher levels of bureaucracy? This section explores the role of informal networks of bureaucrats in influencing the implementation of the rotation policy. I show that caste networks, controlling for various confounders, emerge as an important correlate for a bureaucrat's ability to influence the transfer process successfully. Bureaucrats belonging to upper caste groups are more likely to be located closer to their home location. In the third section, I examine how transfer modifications shape the territorial reach of the state and its ability to respond to citizens' claims. I show that modifications to transfers made by bureaucrats result in spatial variation in state presence and are associated with a more extended period of absence at the local level. With positions lying vacant, bureaucracy is less responsive to citizens' claims. These results highlight how bureaucratic influence on the rotation policy plays a dominant role in shaping disparities in state effectiveness at the local level.

3.5.1 Transfer Modifications

When I interviewed Anand[31] he had recently been appointed as the *Tehsildar* in one of the jurisdictions in the coastal jurisdictions. The jurisdiction was partly urban and was adjoining

[29] I interchangeably use the terms "modification", "cancellation", "annulment" throughout this document. For analysis, I focus on original and modified transfer orders and drop the replacement orders to ensure that the counterfactual is clearly defined.

[30] 1 in every 5 transfers is modified

[31] Name changed due to IRB requirements protocol

the national highway, allowing him to visit his family regularly. However, a few months back, Anand had been transferred to a rural location in the northern part of the state, hundreds of miles away from the present jurisdiction. Taking up the position would have meant working far away from home and staying away from his family for a longer duration. After months of efforts contacting officials in the capital city who could "put in a word" in his favor, Anand had finally managed to get himself reassigned to the present location. Anand's efforts were not one-off but rather part of a more widespread phenomenon. A large share ($> 20\%$ or 1 in 5) or transfer orders issued by the state assigning officials to the position of a Tehsildar are annulled at a later date. These changes are significant not only due to their regularity and high frequency but also because the changes require reverse official decisions taken at the highest levels of the state.

Is it possible that these changes are a result of idiosyncratic factors or genuine unwillingness on the part of a bureaucrat to re-locate to another jurisdiction? While waiting for interviews with officials in cadre management authority in the capital city, I encountered officers petitioning to modify their transfer order on humanitarian groups. One officer had an ailing parent and wanted to be allowed to stay close to home. The land administration, unlike other agencies[32], does not formally collect the preferences of officers before allocating them to different positions. Centralized decision-making without eliciting preferences from agents can result in some errors, and it is plausible that modifications are corrective mechanisms. This section shows that the modifications of the transfer orders are not corrective steps of a centralized bureaucracy but are largely driven by bureaucrats' preferences. I use empirical patterns in the data to establishes the centrality of bureaucratic preferences in shaping the implementation of bureaucratic rotation. Further, these preferences are at loggerheads with the stated goals of the organization.

3.5.1.1 Predictors of Transfer Modifications

Bureaucrats lobby to change transfer in order to achieve two sets of objectives. First, as documented by the Wade (1982) the potential for corruption varies widely across different jurisdictions. I witnessed this change in tehsil operations during my fieldwork across urban, peri-urban, and rural areas. In rural locations, tehsildars were concerned with collecting small land taxes from farmers and handling disputes emerging from the division of agricultural land. In peri-urban and urban areas, high monetary value transactions like demarcation of land for commercial use and sanctioning conversation of agricultural land for non-agricultural purposes were the bureaucracy's main tasks[33]. In rural tehsils, the overall monetary transactions were low. In peri-urban tehsils, the state collected thousands of dollars based on high-value land transactions involving commercial land use. I test whether the

[32]For example the state department of the United States or Judiciary in India collects information around preferences from agents before assigning them a position (Rao 2020)

[33]I examine the non pecuniary motivations of bureaucrats in another working paper (Agnihotri et al. 2021)

nature of a tehsil's economic development can predict the probability of transfer modification. I operationalize economic development using night light luminosity.

Second, bureaucrats might have socio-cultural reasons for lobbying to change transfers. Existing literature on bureaucratic transfers highlights that bureaucrats like to stay close to their home locations due to cultural familiarity and also might find moving over long distances to be disruptive to their lives (Dal Bo et al. 2013; Khan et al. 2019; Lipton 1977; Wade 1982). In this section, I do not seek to differentiate between the exact motivations behind the lobbying efforts of the bureaucrats but highlight that their preferences do have a substantial impact on the political economy of transfers. Based on these factors, I come up with the following hypothesis

- **H1** Distance of Transfer: When a bureaucrat is asked to move over a long distance, she encounters high transaction costs. If transfer annulments are an effort to avoid relocation costs, there should be a positive relationship between the overall distance a bureaucrat is being asked to relocate and the probability of transfer being modified, with a longer distance of transfer associated with a higher likelihood of modification.

- **H2** Distance from Home: Bureaucrats prefer to be located in jurisdictions with socio-cultural familiarity and where they have strong family ties. Therefore, we should see a positive relationship between the distance of the jurisdiction to which a bureaucrat is being transferred from her home location and the probability of transfer being modified, with jurisdictions away from the home location associated with a higher likelihood of being modified.

- **H3** Urban-Rural Jurisdictions: Bureaucrats may prefer to be located in jurisdictions that are more urban. Therefore, we should see a relationship between rural/urban nature of the jurisdiction and the probability of transfer being modified, with transfer to rural jurisdiction having a greater likelihood of being changed and transfer to urban areas having less likelihood of being changed.

3.5.1.2 Identification Strategy

To establish a causal relationship between characteristics of transfers and the probability of modification would require randomly assigning transfer characteristics to different bureaucrats. In the observational dataset, the allocation of bureaucrats to different jurisdictions and successful lobbying efforts that result in the annulment of transfers are endogenous. Since I have limited exogenous variation that allows for a quasi-experimental design, I use fixed effects to control for confounders and approximate the ideal counterfactual scenario. I also perform several sensitivity tests to check the robustness of the results.

Two sets of confounders can make the relationship between transfer characteristics and the propensity of modification spurious. First, I consider the background characteristics of bureaucrats. Officers from a particular background may be more likely to be transferred over long distances. The background characteristics may drive (in)ability to lobby to get

transfers modified. Therefore, in the econometric models, I use fixed effects to control a host of bureaucrat characteristics like the caste background of an officer, the rank of an officer within the cohort, recruitment method (direct or promoted), and recruitment year. These fixed effects control for potential confounders that might bias the results. Finally, I also use individual bureaucrat fixed effects.

Jurisdictional characteristics are also potential confounders. Certain jurisdictions might be more likely to have transfers issued and modified. For example, political competition of elite control of particular jurisdiction might drive the propensity to change a transfer and the probability of initial placement. I, therefore, add fine geographical controls (District) to control for time-invariant confounders linked to characteristics of from and to jurisdictions. To further strengthen my claims, I add the year of transfer fixed-effects and compare the propensity for modification within the transfer year. This narrows the counterfactual and tests if the pattern is consistent within different sub-groups. I run the following regression models

$$Y_{ijt} = \alpha + \beta_1 * D\_home_{ijt} + \beta_2 * D\_transfer_{ijt} + \beta_3 * NL\_from_{ijt} + \beta_4 * NL\_to_{ijt} + \theta_t + X_j + \phi_i + \epsilon_{ijt}$$

- i is the jurisdictional unit, j is the index for the officer, and t is the time of the transfer
- D_home is the difference in the distance of to and from jurisdiction with respect to the home location of the officer being transferred. +ve values indicate that the officer is being assigned to a jurisdiction that is further away from her home.
- $D\_transfer$ is the overall distance of the transfer i.e the distance between the to and from locations.
- NL indicates the Night Light Luminosity of the jurisdiction from and to which the officer is being assigned.
- Y_{ijt} the dependent variable is 1 if transfer was modified.
- θ_t Time (Year of transfer) fixed effects
- X_j : Background (Cohort, Promoted/Direct Recruit, Caste Category) Fixed Effects and individual bureaucrat level Fixed Effects
- ϕ_i controls for jurisdictional characteristics using District Fixed Effects.
- standard errors are clustered at officer level

I run three regression models, the first one without any controls, the second one has transfer year fixed effects and third one has complete set of fixed effects .

3.5.1.3 Results

As the results indicate (See Table 3.2), characteristics of transfers that proxy violation of rules guiding bureaucratic rotation are significant and strong predictors of a transfer being modified. One standard deviation increase in distance of transfer (variables have been scaled) increases the probability of a transfer being modified by 5% points, which is a 22% increase compared to the baseline. These effects are large and consistent across different specifications. Thus, when bureaucrats are asked to relocate over longer distances, they are more likely to modify transfer orders. Similarly, the transfer location from the bureaucrat's home location is a strong predictor of the probability of the transfer modification. The table shows that one standard deviation increase in distance away from home (variable is scaled) increases the probability by 4% points or 18% increase with respect to the baseline. The jurisdictional characteristics have the right signs, with the probability of modification going up when the transfer originates from an urban area with a higher night light and going down when the transfer ends up in an urban area. The results, however, are not significant in the final model with all the fixed effects. Support for hypotheses related to transfer distance and distance from home locations suggests that transfer modifications violate administrative guidelines put forth by the bureaucracy. Thus, bureaucrats prefer to be closer to their home location and lobby to get transfers modified when asked to relocate to areas over a long distance.

3.5.1.4 Robustness Checks

I also perform robustness checks to increase the validity of my results by limiting the dataset to only transfers that are modified. I compare the transfers that are modified with their replacements[34]. The comparison between modified transfers and their replacement provides a clear counterfactual - for every successful lobbying effort by the bureaucrat, how does the replacement order compare to the original. As the figure below shows for all the transfers that are modified in the dataset[35] the replaced transfers have a significantly shorter distance from home i.e the replacement transfers place the officers closer to their home. This is in line with the findings of the previous section, where the transfers that placed bureaucrats further away from home are more likely to be modified.

3.5.2 Role of Informal Networks in Transfers Modifications

A large portion of changes to the rotation policy are initiated by bureaucrats based on their preferences over jurisdictions. However, modifying an existing transfer order requires lobbying at the highest levels of the organization. During field interviews, bureaucrats repeatedly

[34] As discussed before, transfers that are annulled are marked as modified. These transfers are replaced by new transfers. The previous analysis only looked at the original transfers and excluded the replacement transfers

[35] 20% of the close to 1000 transfers are modified and for each of these transfer order there is a re-issued order which is the counterfactual

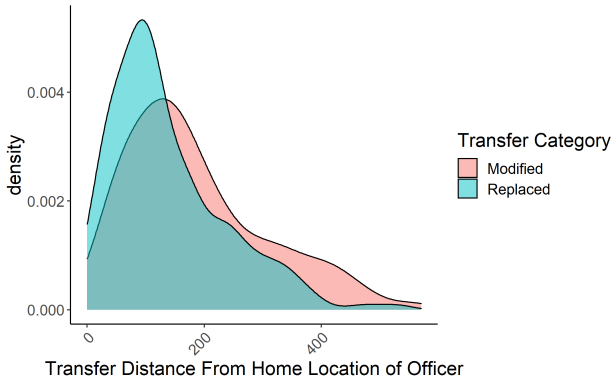


Figure 3.9: Original and Replacement Transfers

highlighted that modification of transfers required approaching a high-level politician[36] or an important bureaucrat and asking them to "put in a word" to the cadre management officials. Many officials also admitted that their attempts to get transfers modified were unsuccessful. In this section I argue that successful lobbying efforts rest on the strength of informal networks. The literature on transfers and anecdotal evidence point out how politicians use transfers for rent-seeking. Thus, lobbying often involves an exchange of money in the form of bribes[37]. While the ability to pay bribes plays a role in modifying transfers successfully navigating the higher echelons of power also depend on strong bureaucratic or political networks.

To understand the role of networks in the transfer modification process, I examine the importance of caste networks. I rely on both the knowledge of the local context and the existing research on bureaucracies. Caste remains the most important marker of network strength in India (Jeffrey 2002; Witsoe 2013). As Wade suggests in his seminal paper on the market for transfers, "if an engineer is noticeably 'without influence' he may have to pay more... A Low Caste Engineer or an out-of-state Brahmin may well be without influence" (Wade,1982, pg 305). Similar linkages between caste and the ability to pay bribes or influence higher-level officials have been established by anthropological research in India[38] (Jeffrey 2002; Gupta 2012). To investigate how caste networks shape the ability to influence placement I look at whether upper-caste identity is correlated with the average distance an officer is placed away from her home location. If we assume that bureaucrats, on an average, would like to be located as close to their home as possible, then those with less influence are more likely to be placed in jurisdictions further away from their home location.

To examine the relationship between preference for being close to home locations and

[36]Member of Odisha Legislative Assembly or Member of Indian Parliament from the state of Odisha

[37]In some interviews, bureaucrats suggested that while requests for modification were processes in exchange for bribes (to the tune of $4000-$8000), but that the decision ultimately depended on "influence"

[38]Jeffery describes how caste linkages are essential for farmers influencing procurement in sugar mills of Uttar Pradesh, and Gupta discusses the role of caste in bribing officials in the Block Development Office

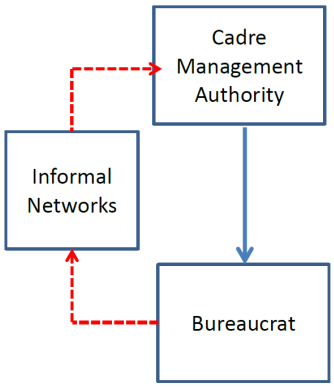


Figure 3.10: Modification of Transfers Due to Lobbying Efforts by Bureaucrats

caste of bureaucrats, I look at the placement history of officials. To do this analysis I map the transfer patterns into presence at the jurisdiction level. Based on the date of entry/exit and transfer modifications, I create a jurisdiction level dataset (More details in Appendix: See 3.16).[39] The jurisdiction dataset captures where individuals are placed after accounting for their lobbying efforts. I examine close to 700 individuals who served as *Tehsildars* across 300 jurisdictions between 2014 and 2019. I calculate the distance between the location they were assigned and their home district. I find that overall, bureaucrats belonging to upper caste groups were placed closer to home compared to other officials (See Table 3.6). To narrow the comparison I uses Home District Fixed Effects i.e. I compare bureaucrats from upper caste backgrounds from one district against other officials from the same district.[40] The Upper Caste advantage widens when I subset the data to officers whose home is close to the capital city located in the coastal part of the state of Odisha. Limiting the analysis to home locations with close proximity to the capital city is guided by the observation that many bureaucrats, irrespective of their home location, would like to be placed close to the state's capital city. Thus, controlling for home districts, we see that bureaucrats with upper caste backgrounds are more likely to be placed closer to their home than other officers. This effect is larger for home locations closer to the capital city since the informal networks become more salient due to the higher levels of demand. Thus, I argue that while locational preferences for transfers drive transfer modification, the translation of preferences into formal changes requires leveraging informal institutions. These modifications have consequences for state presence, social embeddedness, and quality of citizen-state interactions, which I discuss in the next section.

[39]Each row of this dataset has a start and end date for every Tehsil with the identity of the bureuacrat serving in that location. If there is no bureaucrat the duration is marked as "Absent"

[40]There are 30 Districts in Odisha

3.5.3 Impact of Transfer Modifications on State Presence and State Responsiveness

As described in the previous section, the Cadre Management Authority use the policy of rotation to achieve a uniform distribution of personnel across jurisdiction. The transfer policy document of the land administration is explicit about a) the willingness of bureaucrats to serve in any jurisdiction of the state and b) the need to ensure that bureaucrats are not assigned their home districts or regions where they have long term ties. However, the ability of individual bureaucrats to modify transfer orders shows that fidelity with these rules within the bureaucracy is weak. How do the actions of the bureaucrats impact the land bureaucracy's ability to carry out its functions at the local level? In this section, I suggest that the lobbying efforts undertaken by bureaucrats have negative consequences on the land bureaucracy's ability to maintain uniform presence at the local level. I find that the lack of adherence to formal rules around the policy of bureaucratic rotation creates spatial disparities in the presence of the state at the local level. Further, due to the pattern of spatial representation within the bureaucracy, underdeveloped jurisdictions face higher levels of cumulative absence. Finally, vacancies limit the ability of the land bureaucracy to effectively respond to citizens requesting legal certifications.

3.5.3.1 Transfer Modifications and State Presence at Local Level

I use the Jurisdiction-Presence dataset[41], to examine the extent to which Tehsildar positions lie vacant across different jurisdictions. My estimates of the incidence of absence at the Tehsildar level are in the ballpark of recent surveys done by researchers studying the Block Development Officer[42] (Dasgupta & Kapur 2017). Dasgupta and Kapur, in their survey of Block Development officers, state that "42% of sanctioned full-time employee posts currently vacant across the blocks" (Dasgupta & Kapur 2017). TThe figure below aggregates the percentage of vacant days per year from 2014 to 2019 across more than 300 jurisdictions of Odisha and then plots the vacancies by the Night Light Quartile[43]. In my data set, the average vacancy rate per year is close to 30%. The rate of vacancy in the middle-level bureaucracy is a significant challenge for the Indian state. Low and middle-income countries are often resource-constrained and have limited personnel on their payroll. As research shows in India, the number of bureaucrats per citizen is substantially lower from a cross-national perspective, especially for the middle-level bureaucracy responsible for managing the implementation of welfare schemes (Ruparelia et al. 2011; Kruks-Wisner 2018; Kapur 2020).

[41]The Jurisdiction-Presence dataset maps the transfers to and from tehsils to assign an officer to a particular tehsil or mark it as Absent

[42]Block Development Officers are also middle-level managers and in the state of Odisha are drawn from a similar pool of officers as Tehsildars.

[43]As mentioned before, Night Light Luminosity proxies the level of economic activity

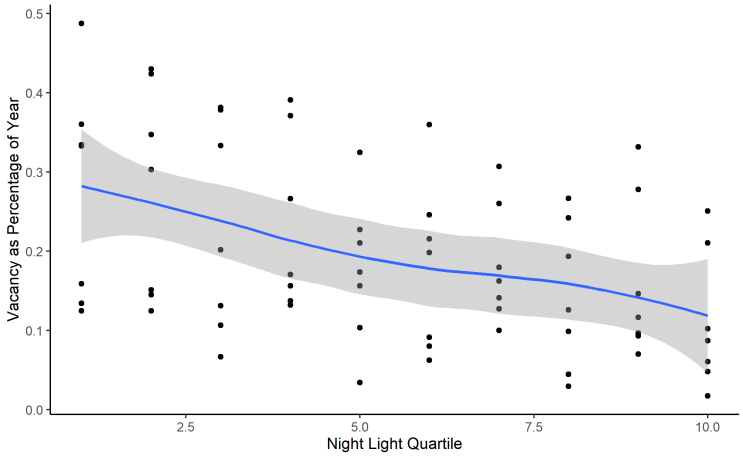


Figure 3.11: Vacancies across Tehsils

The Figure plots the duration for which each Tehsil experiences vacancies every year. The X axis has the Night Light Luminosity and the Y axis has the duration of absence.

However, the bureaucracy's inability to ensure that transfers follow organizational norms compounds the problem of middle-level positions lying vacant. To examine the relationship between transfer modifications and state presence, I test if the duration for which a Tehsildar position is vacant correlates with the extent to which a tehsil has experienced transfer modifications. To do so, I aggregate the jurisdiction level at the tehsil-year-quarter level and calculate the duration for which each unit experiences absence (ranging from 0 to 100 in percentage terms)[44]. Thus, the dependent variable is measured at the Tehsil (i) Year-Quarter (t) level ($Y_{i,t}$). Then I test if *Tehsils* where there was a modification of a transfer order in a particular year-quarter, have a greater duration of vacancies compared to *Tehsils* where there was no modification; if any bureaucrat modified the transfer order that had assigned her to Tehsil i in a Year-Quarter j that unit-time pair is marked as having experienced a "Modification".

$$Y_{i,t} = \alpha + \beta_1 * Modification_{i,t} + \gamma_i + \theta_t + \epsilon_{i,t}$$

- $Y_{i,t}$ is the duration for which a tehsil-year-quarter is absent/vacant. Range from 0 to 100%.
- γ_i are the unit fixed effects
- θ_t are time fixed effects
- $Modification_{i,t}$ is 1 for every tehsil-year-quarter where a transfer was modified

[44]The dataset before being aggregated to the Tehsil-Year-Quarter level tracks the start and end date for when the Tehsildar is present in a jurisdictions.

The results highlight that absence per quarter is significantly higher (> 100% compared to the Baseline) in a *Tehsil* if a bureaucrat modifies their transfer to that jurisdiction. This effect persists with both time (year) and unit (district, and tehsil) fixed effects (Table 3.4). The Tehsils that experience modification are different on many characteristics when compared to Tehsils that did not experience a modifications. However, the persistence of results after adding fixed effects indicates that the association is robust and not driven by a particular time period or region.

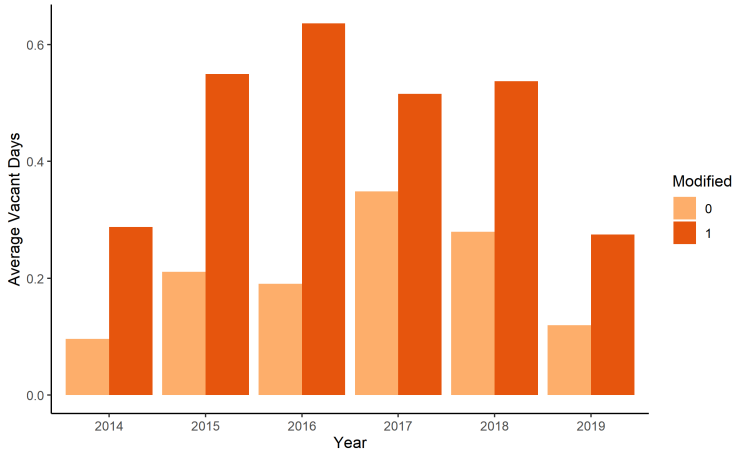


Figure 3.12: Transfer Modifications and State Presence

The figure shows the difference in average vacancies per year between tehsils that saw a transfer being modified vs. those that did not

Why does a modification of a transfer result in the local bureaucratic position[45] being vacant for a longer duration? Due to hiring constraints, bureaucracies in low and middle-income countries have more vacancies than the number of available bureaucrats. When the cadre management authority does assign its agent to a vacant jurisdiction, and the bureaucrat circumvents that directive, the cadres management authority has to reassign a new bureaucrat to the position. This results in delays and the original post lying vacant for a longer duration. Thus the ability of bureaucrats to modify transfers based on their preferences compounds the challenge of maintaining state presence.

Further, the impact of transfer modifications on vacancies at the local level is not uniform; under-developed jurisdictions experience more prolonged periods of absence than developed areas. The spatial variation in the duration of absence is partially explained by the nature of representation within the bureaucracy. The higher representation of officers from more developed jurisdictions combined with preferences for positions closer to home locations results in jurisdictions with lower developed experiencing limited state presence. The over-representation of officials from the coastal regions heightens the divergence between

[45]The position of Tehsildar.

preferences of individual bureaucrats and organizational goals of ensuring equitable distribution of personnel. The strong preferences of officials for being located in areas closer to their home create additional incentives for them to circumvent organizational orders placing them in underdeveloped parts of the state that are away from the coast. As the Figure 3.13 shows, the number of months for which a Tehsildar position is vacant is much lower in the coastal part of the state. Part of the reason is that more officers are willing to take up the positions in coastal regions. These same officials are also more likely to use informal networks to avoid being placed in the southern part of the state.

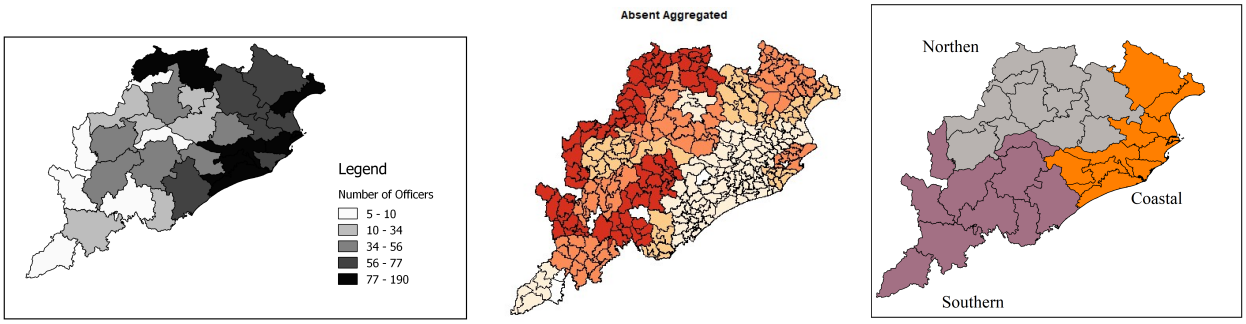


Figure 3.13: Accumulated absence and Bureaucratic representation
The Figure shows the spatial correlation between home districts of officers, the accumulated vacancies over time, and the three socio-cultural divisions of Odisha

The geographical disparity and its consequences have sociological and historical origins. As Figure 3.18 shows that the coastal regions have a much higher rate of literacy compared to other sub-regions in the state. This divergence has also led to a feeling of neglect among people outside the central districts of Odisha. As Bailey in this famous analysis of political change in Odisha notes while talking about the antipathy expressed by people from hill regions belonging to the Southern parts of the state towards those from the coastal regions "...the odium which alien administrators incurred was extended to anyone who came from the same region. *Kataki*, strictly a man from Cuttack district but in most of the hill areas applying to anyone from the coast, is a term of abuse"(Bailey 1970). The geographic representation is the broader structural condition driving preferences over relocation. When we examine "representation" within the bureaucracy, the focus often is on descriptive identities rather than spatial representation. However, there are many contexts where similar patterns of unequal representation create underlying preferences over being relocated across different jurisdictions.

3.5.3.2 State Presence and State Responsiveness

This section examines the impact of transfer modifications on citizens seeking legal certifications from the land bureaucracy. The previous section demonstrated that transfer modifications increase the duration for which *Tehsildar* positions remain vacant. Vacancies are a

direct measure of state capacity since the state needs to maintain the presence of personnel on the ground to carry out its functions effectively (Pg21, Lee (2019)). Thus, the ability of bureaucrats to influence organizational policy influences local state capacity measured in terms of state presence. Further, the lack of state capacity is not uniform with underdeveloped jurisdictions experiencing more frequent and longer vacancies. However, does the lack of a manager at the Tehsil level have an impact on state responsiveness?

In this section, I test if state presence impacts the quality of citizen-state interactions at the local level. As described before, in the case of the land bureaucracy, the outcome of interest is the state's ability to respond to citizens' claims expeditiously. Does greater state absence impact the quality of citizen experience engaging with the state? Given the existing constraints on the bureaucracies in the low and middle-income countries, limited state presence should have a negative impact on the quality of outcomes. For example, recent research on mid-level bureaucracy in India documents that "bureaucratic overload" or the need to multitask has a strong negative consequence on the nature of public services (Dasgupta & Kapur 2017). Thus, if a position is lying vacant, it should result in higher levels of multitasking and impact how long it takes the state to fulfill demands by the citizens for legal certifications. Another possible channel linking state presence with responsiveness is management quality (Rasul & Rogger 2018). In the absence of a Tehsildar (manager) the lower level of street level bureaucrats are more likely to shirk from carrying out their responsibilities. To test this claim, I examine if tehsildar positions lying vacant increases the time it takes the tehsil to respond to citizens claims.

3.5.4 Identification Strategy

Based on the transfer patterns, I qualify the duration for which a *Tehsil* is vacant[46]. The response time or processing time is at the Year-Month level, and I code if for a particular month a *Tehsil* has an official working full time (1= Absent and 0 = Present). The dependent variable measures the time on an average taken by citizens applying for legal certifications from the land bureaucracy to get approvals ($Y_{i,t}$) for every month-year at a particular tehsil[47].

$$Y_{i,t} = \alpha + \beta_1 * Absent_{i,t} + \beta_2 * Volume_{i,t} + \gamma_i + \theta_t + \epsilon_{i,t}$$

I use unit fixed effects (γ_i) to control for time-invariant characteristics that may confound the relationship between vacancies and state responsiveness and quarter fixed effects (θ_t) to control for temporal trends. I also control for the volume of applications received by the tehsil in each period. As the Table shows, higher vacancies[48] are associated with longer wait times for citizens seeking legal certifications from the state. On an average the citizens in places

[46] Vacant means either there is no Tehsildar or there is an official who is in additional-charge i.e performing additional tasks over and above her regular assignment

[47] i is the index for the *Tehsil* and t is the index for week-month-year

[48] Absence is a binary variable for every period

where tehsildar is absent have to wait 15% longer[49] or close to 3 days[50] (See Table 3.7 and Table 3.8). Since "Absent" is a time-varying variable, confounders that might limit causality have to be time-varying and associated with both absence and changes in processing time.

Thus, lobbying efforts by individual bureaucrats and the resulting transfer modifications create disparities in how effectively the state places citizens into legal categories. In the absence of a Tehsildar, citizens have to wait longer to get their applications for legal certifications approved by the state. The wait for additional few days is crucial for citizens who cannot establish their legal identity without the approval of the land bureaucracy. The delay results in additional trips to multiple offices and often require bribing officials and intermediates to expedite the process. Those who depend on daily wages also incur a loss of income due to additional trips. Further, the average effects do not capture the impact on people with limited resources who likely face higher costs due to bureaucratic delays. Thus, the overall costs are for society are large since these delays are experienced by millions of people and reinforce existing development disparities as underdeveloped jurisdictions see higher vacancies.

3.6 Conclusion

I have argued in this essay that the lack of adherence to the policy of bureaucratic rotation is mainly a result of actions initiated by bureaucrats. Individual bureaucrats have strong preferences over jurisdictions and lobby to avoid relocated further away from their home locations and over long distances. The organizational imperatives differ. The organization would like bureaucrats to be agnostic towards where they are being relocated in order to ensure equitable distribution of human resources across its territory. I show that the actions of bureaucrats based on their preferences over jurisdiction are substantive enough to shape the distribution of bureaucratic resources. Places that see circumvention of organizational directives or transfer modifications see an increase in the duration of state absence. This reduces the territorial reach of the state and negatively impacts citizen-state relations. In places where the position of *Tehsildar* is vacant, citizens find it more challenging to get their claims addressed. Thus, the lack of programmatic implementation of bureaucratic rotation limits the state's ability to effectively respond to citizens' claims.

The findings of this essay contribute to our understanding of the determinants of state capacity. The dominant explanations for state failure focus on external actors like politicians, local elites, and citizens. This essay argues that dynamics within the state also shapes state capacity at the local level. This shifting of focus from external actors influencing the bureaucracy to the state's internal politics has theoretical and policy implications. While research in high-income countries has theorized and examined the inner workings of the state, for the majority of research on low and middle-income countries, the state remains a black box. The essay highlights the need for the interactions within the hierarchies of

[49] Y is in log terms

[50] Y in days

the state in low and middle income countries. Delving into the inner workings of the state would enhance our understanding of why bureaucracies fail to institutionalize rules in some instances but not others. The essay also has important policy implications. If the bureaucrats have strong preferences over relocation, policymakers should focus on management practices and designing policies that reduce costs associated with relocating across large territories. Individual preferences that weaken the state capacity can also be leveraged to improve how the state functions. With the growing use of information systems within low and middle-income countries, eliciting preferences of state agents might allow centralized planners to align individual incentives with organizational goals more effectively.

3.7 Appendix

Transfer Notifications: The Data Generating Process

There is extensive literature on absenteeism amongst bureaucrats in low and middle-income countries that documents how and why bureaucrats do not show up to work and note that absence is higher in more remote areas (Callen et al. 2013; Chaudhury et al. 2006; Davies 2018). While the essay draws on this literature there are some crucial distinctions. The main distinction is around the importance of the position of *Tehsildar* within the state hierarchy. Often movement of bureaucrats who operate at the lowest rung of the state are not part of the official record. Further, evidence from South Asia suggests that these officials (teachers or healthcare workers) when assigned to work in a jurisdiction can be absent without authorization (Callen et al. 2013; Chaudhury & Hammer 2003; Chaudhury et al. 2006; Ramachandran et al. 2017). In contrast, research on judges in India and Brazil notes the strict guidelines around their assignment to a new position Scot et al. (2020); Rao (2020).

A bureaucrat's position within the larger hierarchy shapes the extent to which formal rules constrain their actions. Since Tehsildars play an important role in the bureaucracy the cadre management authority diligently tracks and publishes the movement of state-level officials. In my 14 month fieldwork, I rarely encountered a situation where a tehsildar was officially present but not showing up for work. Thus, outside of formally modifying an existing transfer order, a state-level official has a limited option but to report to the assigned location. Therefore, I can capture the majority of transfers (>90%) due to the requirement that all transfers and modifications be officially notified.

Transfer Dataset

The dataset has following variables

- Date of Transfer: This has been coded as the date on which the notification is issued.
- Name of the Officer: This is used to track the officer transfer over time

- Designation Pre: This notes the position occupied by the officer at the time of the transfer
- Designation Post: This notes the position to which the officer is being assigned
- From Location: The location of the officer at the time of the transfer
- To Location: The location to which the officer is being assigned
- Cancelled: If a transfer is subsequently cancelled or modified this variable is coded as 1
- Probationer: Indicates that this is the first posting of an officer so pre/from fields are empty
- Transfer Distance: transfer_dist geometric distance of the transfer. I scale this variable for easier interpretability transfer_dist_norm
- Distance of Transfer with reference to home i.e the difference between how far the to location is from home and how far the from location is from home.

Table 3.1: Transfers and Modifications

	Year	Original	Modified	Percent_Modified
1	2012	193	22	0.11
2	2013	77	34	0.44
3	2014	138	22	0.16
4	2015	94	33	0.35
5	2016	77	29	0.38
6	2017	53	22	0.42
7	2018	236	85	0.36
8	2019	141	26	0.18

GOVERNMENT OF ODISHA
REVENUE & DISASTER MANAGEMENT DEPARTMENT
*****

NOTIFICATION

Bhubaneswar, dated the 16th January, 2014

No. IIIEPT-29 /13 (Pt)- /211 **/R&DM.**, The following OAS-I(JB) Officers are hereby transferred and posted to the places noted against each.

Sl. No.	Name & designation	Place of posting
1.	Dipak Kumar Rautray, Tahasildar, Kishannagar	Deputy Collector, Khordha
2.	Damodar Mahalik, Dy. Collector, Mayurbhanj	Under Secretary, Board of Revenue, Odisha, Cuttack
3.	Sharat Chandra Behera, OSD (LR), Panposh	Tahasildar, Bhawanipatna

Figure 3.14: Sample Notification
This is a sample notification that has information regarding movement of state officers from one location to another.

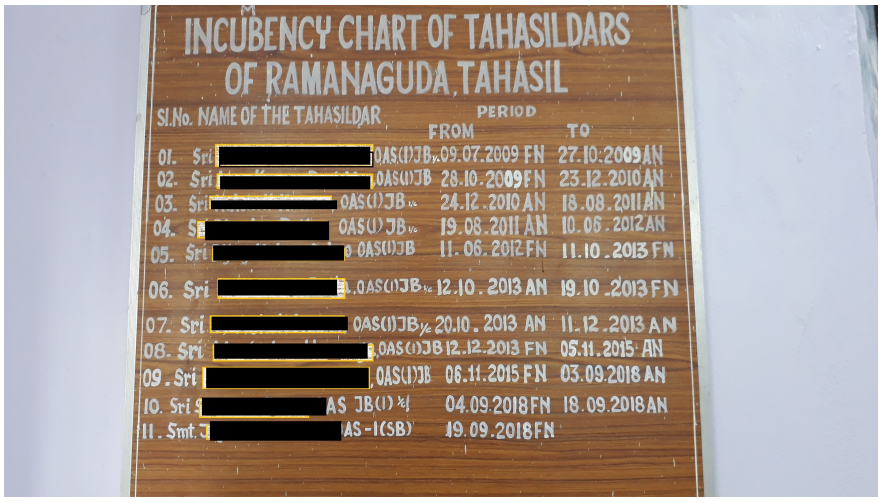


Figure 3.15: Incumbency Chart
The incumbency chart has transfer history at the tehsil level. No time period is marked as absent, but there are small i/c (in-charge) symbols next to officers who are in additional charge. These are coded as vacant since the person in charge is a lower level official or another officer who is mainly responsible for the functioning of a different office.

Table 3.2: Determinants of Probability of Modification

	Modification Probability		
	Modified		
	(1)	(2)	(3)
Transfer Distance	0.035***	0.040***	0.052**
	(0.013)	(0.013)	(0.023)
Rank Quantile	−0.001	−0.003	
	(0.011)	(0.011)	
Distance from Home	0.060***	0.068***	0.041**
	(0.013)	(0.013)	(0.019)
Night Light To	−0.006	−0.003	−0.014
	(0.013)	(0.012)	(0.019)
Night Light From	0.025*	0.036**	0.010
	(0.013)	(0.014)	(0.026)
Constant	0.227***		
	(0.033)		
Year of Transfer FE	No	Yes	Yes
Caste FEs	No	No	Yes
District FE	No	No	Yes
Bureaucrat FEs	No	No	Yes
Recruitment FEs	No	No	Yes
Entry Decade FEs	No	No	Yes
Observations	1,092	1,092	1,092
R^2	0.034	0.081	0.692
Adjusted R^2	0.029	0.071	0.153
Residual Std. Error	0.411	0.402	0.384

Note: *p<0.1; **p<0.05; ***p<0.01
Distance of Transfer is Normalized/Scaled

Table 3.3: Summary Statistics for Analysis of Transfers

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Modified Transfer	1,093	0.2	0.4	0	0	0	1
Transfer Distance	1,093	155.3	127.9	0.0	47.2	236.7	714.1
Distance From Home	1,093	13.4	141.1	−557.9	−41.4	77.4	524.1
Scheduled Caste Officer	1,093	0.2	0.4	0	0	0	1
Scheduled Tribe	1,093	0.2	0.4	0	0	0	1
Direct Recruit	1,093	0.6	0.5	0	0	1	1
Night Light From	1,093	5.0	4.1	0.0	0.8	8.5	13.4
Night Light To	1,092	3.5	3.5	0.0	0.5	6.5	13.4

Table 3.4: Modifications and Vacancies

	Percentage Vacancies Per Quarter			
	Absent_Days			
	(1)	(2)	(3)	(4)
Cancelled/Modified	0.290***	0.267***	0.268***	0.232***
	(0.027)	(0.026)	(0.026)	(0.023)
Constant	0.202***			
	(0.004)			
Year FE	No	Yes	Yes	Yes
District FE	No	No	Yes	No
Tehsil FE	No	No	No	Yes
Observations	7,875	7,875	7,850	7,875
R^2	0.014	0.066	0.122	0.357
Adjusted R^2	0.014	0.065	0.118	0.330
Residual Std. Error	0.384	0.374	0.363	0.317
The dependent variables is the % time for which the tehsil was vacant in a given quarter				

Table 3.5: Probability of Modification and Distance from Elections

	Modfication Probability	
	Cancelled	
	(1)	(2)
Margin_Months	−0.0001	0.0001
	(0.002)	(0.002)
From_To_Home_Scaled		0.043**
		(0.022)
Constant	0.219***	0.220***
	(0.022)	(0.022)
Jurisdictional Controls	No	No
Background FE	No	No
Observations	380	380
R^2	0.00000	0.012
Adjusted R^2	−0.003	0.007
Residual Std. Error	0.414	0.412

*p<0.1; **p<0.05; ***p<0.01

Note: Margin Months is months away from Elections

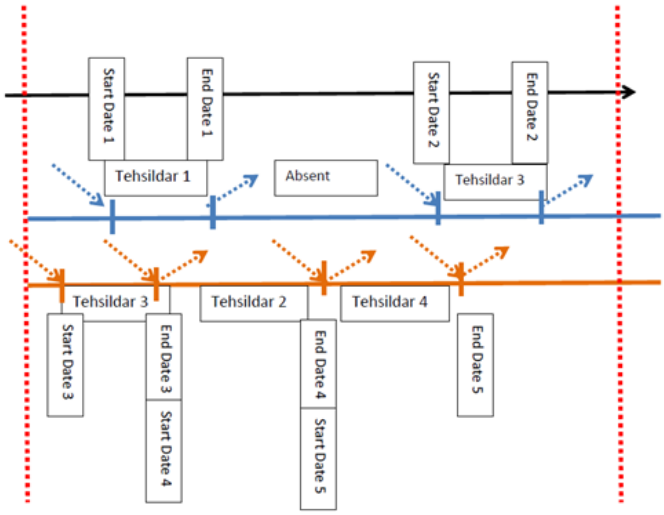


Figure 3.16: Mapping Transfers to Jurisdictions
The stylized figure described the process of mapping the transfer data to jurisdiction level data. The transfer data has date of transfer to/from a jurisdiction, which is used to assign officials to jurisdictions over time.

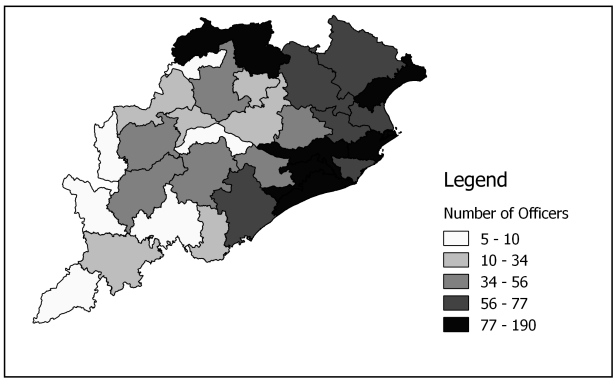


Figure 3.17: Representation within bureaucracy

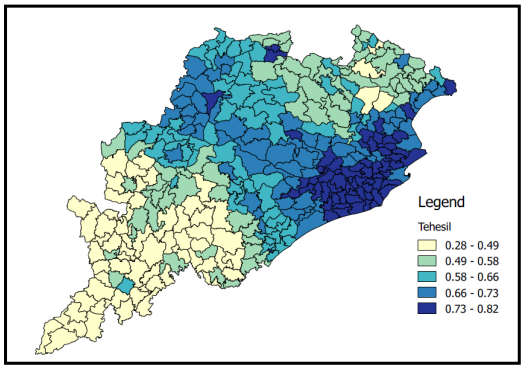


Figure 3.18: Tehsil Wise Literacy Rate

Table 3.6: Distance Away from Home and Caste Background

	Distance from Home and Caste			
	Distance_from_home_scaled			
	(1)	(2)	(3)	(4)
Upper Caste Officer	−0.134	−0.155*	−0.203**	−0.223**
	(0.086)	(0.086)	(0.099)	(0.099)
Constant	0.086			
	(0.068)			
Year of Transfer FE	No	Yes	No	Yes
Home District FE	No	No	Yes	Yes
Central Division	No	No	Yes	Yes
Observations	707	707	707	707
R^2	0.004	0.057	0.083	0.156
Adjusted R^2	0.003	0.046	0.044	0.105
Residual Std. Error	1.008	0.986	0.987	0.955

Note: *p<0.1; **p<0.05; ***p<0.01
transfer from home is normalized

Table 3.7: Vacancies and Impact on State Responsiveness (Logged)

	Processing Time (Logged)		
	processing_time_ln		
	(1)	(2)	(3)
Absent	0.254***	0.130***	0.132***
	(0.056)	(0.032)	(0.032)
Volume_normalized	0.124***	0.129***	0.118***
	(0.010)	(0.010)	(0.013)
Constant	2.161***		
	(0.038)		
Quarter FE	No	No	Yes
Unit FE	No	Yes	Yes
Observations	16,228	16,228	16,228
R^2	0.034	0.493	0.496
Adjusted R^2	0.034	0.484	0.486
Residual Std. Error	0.910	0.665	0.664
Note:	*p<0.1; **p<0.05; ***p<0.01		
	Volume is Normalized/Scaled		

Table 3.8: Vacancies and Impact on State Responsiveness (in Days)

	Processing Time (in Days)		
	processing_time		
	(1)	(2)	(3)
Absent	5.611**	2.699*	2.847*
	(2.234)	(1.500)	(1.528)
Volume_normalized	−0.436	−0.317	−0.858
	(0.437)	(0.420)	(0.652)
Constant	18.661***		
	(0.834)		
Quarter FE	No	No	Yes
Unit FE	No	Yes	Yes
Observations	16,228	16,228	16,228
R^2	0.005	0.206	0.207
Adjusted R^2	0.005	0.191	0.192
Residual Std. Error	34.692	31.280	31.261
Note:	*p<0.1; **p<0.05; ***p<0.01		
	Volume is Normalized/Scaled		

Chapter 4

Centralized Monitoring and Local State Responsiveness

4.1 Introduction

Can top-down monitoring of frontline bureaucrats in low state capacity settings improve their responsiveness towards citizens' claims? This question gets at the heart of the delegation vs. control trade-off faced by all bureaucracies. Giving agents autonomy is a double-edged sword. On one hand, it can lead to greater flexibility in decision-making and therefore result in improved bureaucratic performance. The agents who operate at the frontlines of the state understand the ground realities better than a far-off principal who sits in a capital city. On the other hand, greater autonomy can increase organizational slack if agents take advantage of the information asymmetry between them and the principal to shirk their responsibilities. Greater autonomy of agents can also result in state capture when bureaucrats actively take advantage of the lack of monitoring to undermine the goals of the principal. In such cases, top-down monitoring of frontline staff can result in improvement in bureaucratic performance.

Thus, a priori, it is not clear under what circumstances monitoring frontline bureaucrats can improve service delivery outcomes. Further, in low and middle-income countries, the relationship between top-down monitoring and bureaucratic performance is also contingent on existing levels of state capacity and availability of enabling infrastructure for designing and implementing a monitoring system. State capacity shapes the efficacy of top-down monitoring since limiting the discretion exercised by agents is less likely to improve bureaucratic performance if agents are capacity-constrained. Top-down monitoring reduces information asymmetry between the principal and the agent but does not improve state capacity. Thus, if a lack of bureaucratic responsiveness is due to limited resources, additional monitoring will not reduce those barriers to performance. On the other hand, if bureaucrats are shirking responsibilities by taking advantage of information asymmetries, the introduction of top-down monitoring is more likely to improvement in performance. Further, low and middle-income

countries often lack the digital infrastructure needed to design a top-down monitoring system successfully. Before monitoring the performance of field-level agents, the centralized principal has to capture the decision-making of agents. The measurement of field-level decisions often requires designing complex digital infrastructure that can relay information from the field to the far-off central locations on a real-time basis (Callen et al. 2013; Dhaliwal & Hanna 2014; Hyun et al. 2018). This is often challenging in contexts where citizen-state interactions are paper-based, or the digital infrastructure is under-developed.

This essay examines the impact of a newly designed top-down monitoring in the context of the land bureaucracy in the state of Odisha in India (See Figure 4.6). Every year, millions of citizens engage with the land bureaucracy to get access to certifications that establish crucial parts of their legal identity. The citizens then use these certifications to get downstream benefits like low-interest bank loans and affirmative action education scholarships. Citizens measure the success of their interactions with the land bureaucracy in terms of the time it takes them to get their claims approved. The interaction between the citizen and the land bureaucracy is localized across more than 300 field offices called *Tehsils*. These offices report to the centralized department situated in the capital city. To understand the impact of top-down monitoring of state responsiveness, I begin by examining the ability of local offices to respond to the increase in the number of claims by citizens in the absence of any monitoring. I exploit the natural seasonality in demand for certifications to study the relationship between task burden and local state responsiveness. I find that additional task burden, in the form of the higher volume of applicants, reduces the overall state responsiveness. Further, there is divergence in how low and high state capacity jurisdictions handle higher task burden - while low state capacity jurisdictions take longer to respond to citizens, the high state capacity jurisdictions maintain their performance, even as the number of claims increases.

I then exploit an exogenous change in leadership and subsequent implementation of top-down monitoring to re-examine the relationship between increased task burden and responsiveness. Based on the qualitative fieldwork, I document the details of the top-down monitoring implemented by new organizational leadership, which involved monthly meetings with all *Tehsildars*, managers of local land administration officers. The monitoring used digitized citizen-state transactions to create metrics that measured time for approval and delays and pendency of applications. These metrics were used to set targets for every jurisdiction and compare performance over time. I find that when the performance of field-level bureaucrats is monitored, the same jurisdictions that slowed down due to an increase in task volume become more responsive to citizens' claims. Further, the improvement in state responsiveness takes place across low and high state capacity jurisdictions. The results have two implications. First, they indicate that that top-down monitoring of bureaucrats can improve local state responsiveness and the ability of bureaucrats to improve their performance. Second, the improvement across jurisdictions with different levels of capacity points towards high levels of organizational slack with the bureaucracy.

My essay contributes to two strands of research on bureaucracy. First, I engage with the literature on the trade-off between delegation and control in bureaucracies (Xu et al. 2018; Honig 2021; Wilson 2019). As described before a-priori, it remains unclear if monitoring bu-

reaucrats and reducing their discretion can improve their performance and make them more responsive towards citizens. Further, the majority of research on which theories of delegation vs. control draw upon evidence from more advanced democracies and high-income countries (Niskanen 2017; Gailmard & Patty 2012; McCubbins et al. 1987; Lipsky 2010; Moe 2012). There are limited examples of successful efforts of using top-down monitoring to improve bureaucratic performance in low and middle-income countries (Finan et al. 2017). For example, efforts to use top-down monitoring on frontline workers in low and middle-income countries limited success due to a strong resistance among bureaucrats against such measures or their inability to take on additional tasks set by the principals (Callen et al. 2013; Dhaliwal & Hanna 2014; Hyun et al. 2018). In contrast, recent literature on bureaucratic monitoring shows that providing greater autonomy by delegating control to agents has a positive impact on performance (Rasul & Rogger 2018; Honig 2021). This paper contributes towards this research agenda by examining how top-down monitoring can successfully improve bureaucratic responsiveness.

Second, this essay contributes to our understanding of contributes towards the role of management practices in bureaucracy and its relationship with the adoption of information technology. While there has been a rich exploration of the role of management practices within private organizations, its impact on public organizations has received limited attention (Bloom & Reenen 2011). Further, the management of bureaucrats in public bureaucracies increasingly relies on the adoption of digital infrastructure and management of information systems (Muralidharan et al. 2016; Bank 2016). The digital traces of citizen-state interactions are the basis of efforts to monitor the performance of bureaucrats. However, for digital technology to be successful, it needs to have a strong analog component linked to institutional practices (Bank 2016; Group 2019). The essay examines a rare example of management practices that emerge from within the organization and utilize an existing digital infrastructure to institute a system of top-down monitoring. Using qualitative evidence, I document how the leadership qualities and management practices, along with the technology, shape the implement top-down monitoring.

The rest of the essay proceeds as follows. The next section outline the theoretical framework for understanding the relationship between top-down monitoring, state responsiveness, and state capacity. I use a queuing model to help the reader understand the relationship between additional task burden, local state capacity, and bureaucratic responsiveness and get a testable hypothesis. In the third section, I provide the reader with the context in which this research is placed and describe the data used for testing the theories. In the fourth section, I test the theories using data and report the results. The final section outlines the implications of these findings to the broader research agenda on state capacity and policy implementation.

4.2 Motivation and Theoretical Framework

Research on the delivery of public services in low and middle-income countries highlights the inability of the state to respond to citizens' claims effectively. Further, bureaucratic responsiveness towards citizens is uneven[1] with citizens experiencing regular and predictable state in some places while the same state is arbitrary and unresponsive in other parts (McDonnell 2020; Tendler 1997). What explains this variation in bureaucratic responsiveness? The dominant frameworks for understanding differences in bureaucratic responsiveness focus on how bureaucratic discretion is exercised and why it deviates from the objectives outlined by the organization. The broad explanations regarding exercise on bureaucratic discretion can be divided into two categories - explanations based on state capacity and explanations focused on shirking or organizational slack.

State capacity based explanations focus on the resource constraints faced by bureaucrats in low and middle-income countries (Berwick & Christia 2018; Lee 2019). The variation in bureaucratic responsiveness is determined by the availability of resources necessary for meeting performance goals. In places with limited resources, bureaucrats are overloaded with tasks and therefore fail to meet performance milestones (Dasgupta & Kapur 2017). The focus on state capacity assumes the willingness of bureaucrats to execute policies that align with the goals but forth by the organization. Another explanation for variation in bureaucratic performance in low and middle income countries focuses on the widespread prevalence of corruption and shirking among bureaucrats (P. Bardhan 1997; Chaudhury et al. 2006; Gupta 2012). Thus, the lack of bureaucratic responsiveness can stem from incentives of bureaucrats to use their discretion to maximize personal goals at the expense of organizational priorities. While the distinction between these two frameworks is stylized, they highlight two different sets of explanations for the lack of bureaucratic responsiveness.

However, these explanations overlook another important factor that shapes how bureaucrats exercise their discretion - organizational control. As principal-agent models and research on organizations show, bureaucracies are hierarchies with clearly defined rules and regulations. How should the ability of the centralized principal to monitor the actions of bureaucrats shape their responsiveness towards citizens? In this section, I put forth a theoretical framework for explaining the impact of top-down monitoring on citizen-state interactions. I begin by outlining a simple model for understanding how additional tasks can influence state responsiveness. I focus on the results from this model to outline the baseline scenario for how bureaucrats would handle the additional workload in the absence of monitoring. I then theorize how the introduction of top-down monitoring would impact state responsiveness.

4.2.1 Baseline Model of Citizen-Bureaucrat Interaction

In this section, I lay out a basic queuing model that captures the relationship between workload, state capacity, and state responsiveness. To illustrate the role of bureaucratic

[1] borrowing from Kruks-Wisner (2018), page 51 and 52

capacity in shaping responsiveness, I model the citizen-state interaction using queuing theory. In a queuing model, customers seeking a service line up in front of an office that processes their requests on a first-come, first-serve basis. This basic model provides me with some predictions for the relationship between the volume of citizen claims, local state capacity, and responsiveness of bureaucracies.[2] Every queuing model is characterized by the following parameters - the **arrival process**, the **service time**, and the **queue length**. The **arrival process** describes the process by which customers or, in this case, citizens making claims on the tehsil arrive in the queue. The arrival process is characterized by arrival rate, or the time between the arrival of one customer and other ($\frac{1}{arrivalrate}$), and is assumed to follow a particular probability distribution. In the case of a simple M/M/1 [3] queue we can assume that the inter arrival time (t) between applicants follows a Poisson distribution with parameter (λ) and takes the functional form $f(t) = \lambda \exp^{-\lambda * t}$. Thus if more people are arriving to the tehsil to submit their claims on an average the value of λ goes up reducing the inter-arrival rate $\frac{1}{\lambda}$.

The **service time** (μ) is defined as the time taken to serve an application and also assumed to have a pre-defined probability distribution. In the case of the M/M/1 queue we assume that the service time (s) follows an exponential distribution characterised by a rate parameter μ i.e $g(s) = \mu \exp^{-\mu * t}$ In the case of a M/M/1 Queue model there is a single window that serves customers one at a time and dispenses one application in an average time of μ.

As is intuitive, how long people end up waiting depends on how fast people queue up (linked to λ) and how quickly the single window can dispense applications. The most fundamental result for a queuing model is the Little's Law which states that

$$W = \frac{1}{\mu - \lambda} \tag{4.1}$$

where

- W is the waiting time an claimant spends in a queuing system,
- μ is the average service rate,
- λ as stated before is the arrival rate or the average number of items arriving at the system per unit of time.

[2]The terminology I am using borrows from research in telecommunications, where queuing models are used to understand the most efficient way for transferring information across a network (Giambene 2014). Queuing models have also been widely applied in field like public health and operations research where customers seek critical services from institutions with limited capacity and resources (Fomundam & Herrmann 2007; Meisling 1958)

[3]The shorthand notation for describing any queue takes the generic format of A/S/c, where A refers to inter-arrival time distribution, S is the service-time distribution, and c is the number of servers. M/M/1 suggests that the inter-arrival and service-time distributions are Markovian and that there is one server. Refer to Kendall's Notation for more details

This result[4] suggest that if people queue up at a faster rate (λ goes up) or the single window slows down how quickly applications are processes (μ goes down) we should expect longer lines and increase in the average waiting time experienced by applications. These results allow me to explore the relationship between claim-making, state-capacity, and responsiveness at bureaucratic frontlines.

Within a particular administrative unit, assuming that the service rate (μ) is constant, if rate at which people arrive to make claims increases it will cause increase the time they have to wait to get their claims processes. The service rate (μ) captures the the capacity of a particular *tehsil*. We assume that a *tehsil* has a constant set of resources therefore has a particular service rate.[5] The the increase in the arrival rate of claimants increases the waiting time each applicant due to formation of a longer queue. The queue length (Q) captures the idea of accumulating backlog when number of applications arriving increases. As existing research suggests, frontline bureaucrats are resource and time constrained and therefore additional task burden due to greater **arrival rate** λ is likely to have an negative impact on responsiveness. We should see an increase the time it takes on an average to get applications processes (W goes up) when more applicants queue up.

This model suggests that

Hypothesis 2 (H2): *Higher case load or number of applications to be processes increase the response time*

4.2.2 State Capacity and Divergence in State Responsiveness

The overall relationship between caseload and responsiveness put forth is contingent on the service rate (μ), which may vary at the local level. In this section, I outline how local capacity levels would result in divergence in the relationship between state responsiveness and additional caseload. The model is agnostic to the cause of high or low service rate (μ), which could range from multiple political principals, social institutions, or bureaucratic embeddedness that constraint how bureaucrats exercise their discretion (Pepinsky et al. 2017; Tsai 2007).

Based on the literature on state capacity, I divide jurisdictions with high state capacity as having adequate resources for carrying out their functions. The lack of resources at the local level is a serious challenge for low and middle-income countries. India also stands out for having a low number of bureaucrats per citizen from a cross-national perspective; this challenge is for the local level bureaucracy responsible for implementing welfare schemes (Vaishnav 2019). Recent work on India also finds that bureaucratic agents who interface with citizens on a day-to-day basis are often overburdened with tasks and have to take decisions constrained by resource scarcity (Dasgupta & Kapur 2017; Kapur 2020). Thus, places with adequate resources and high capacity are better places to respond to citizens. On the other

[4] these results are well established under a set of simplifying assumption

[5] This assumption is tested empirically and I elaborate on conditions in which this assumption may or may not hold

hand, places with limited capacity are less effective in their ability to respond to citizens. This distribution of state capacity, therefore, shapes the variation in state responsiveness.

Hypothesis 3 (H3): *State capacity of jurisdictions would moderate the relationship between increase in case load and state responsiveness*

4.2.3 Top-Down Monitoring and State Responsiveness

While the previous sections examine the role of local state capacity in shaping state responsiveness, the model does not have predictions for how pressures from top-down monitoring shape citizen-state interactions. Can top-down monitoring impact local state responsiveness? The impact of top-down oversight depends on how bureaucrats take decisions in the absence of being monitored. To understand the impact of top-down monitoring, we can imagine two counterfactual worlds where bureaucrats reduce responsiveness due to capacity constraints or shirk responsibility.

Both capacity constraints and shirking can be attributed to local factors. Even though the service rate (μ) was described as state capacity, it can also capture the idea of bureaucrats shirking responsibilities. The queuing model described before depicts a capacity-constrained scenario where responsiveness towards additional tasks is contingent on existing capacity. When capacity constraints kick in, the bureaucracy slows down. On the other hand, if bureaucrats are driven by shirking and pecuniary motivations, delays due to additional tasks are linked to an unwillingness to respond on the part of the bureaucrat. Both cases are observationally equivalent in the absence of monitoring. Thus in the absence of monitoring in both these scenarios, additional task burden should result in an increase in response time.

However, the results would substantially differ in the presence of top-down monitoring. The monitoring by higher levels of the organization constrains how lower-level bureaucrats exercise their discretion. Further, top-down monitoring also sets clear targets that need to be met. Whether centralized monitoring on state responsiveness reduces the divergence in state responsiveness or maintains the status quo rests on the extent to which bureaucratic decision-making is guided by capacity constraints or shirking. If we assume that state capacity limits state responsiveness, the introduction of top-down monitoring may not have any impact on bureaucracy since increasing monitoring constrains bureaucratic decision-making but does not increase the capacity to respond to citizens' claims. Thus in such a scenario, we should not expect the results to be any different. Locations with higher capacity should continue to perform better.

Hypothesis 4 (H4): *Centralized monitoring should not have any impact on the local state responsiveness if state capacity is the dominant factor constraining bureaucratic decision-making*

However, if we assume that there are lot of information asymmetries between the principal who operates at the centralized level and the agents then monitoring could bring efficiency gains. The ideal of organizational slack captures the notion that frontline staff

can take advantage of informational asymmetries to shirk responsibilities or engage with decision-making that goes against the goals of the principal. Thus, if the principal monitors the decision-making and reduces these information asymmetries, constraining the actions of frontline staff could increase state responsiveness.

Hypothesis 5 (H5): *Centralized monitoring improves state responsiveness if organizational slack is high*

4.3 Background and Data

This essay situates itself in the state of Odisha and looks at the interactions citizens have with the land administration for certifying documents that ascertain their legal identity. The land administration handles all matters related to land through its extensive field bureaucracy that is tasked with activities ranging from collecting taxes, to monitoring crop output, to managing historical land records. For example, when a new building is constructed, the *tehsildar* is responsible for ensuring that the land does not belong to the government and if that is the case flagging the encroachment and taking appropriate action. The land bureaucracy also regulates mining of minor-minerals and collects taxes from farmers in rural areas. Along with these land related functions, the land administration is also responsible for a critical welfare related task - issuing certifications that establish eligibility for a range of welfare services. These certifications enable citizens to get admission into a government school or apply a job based on affirmative action.

The land administration like all bureaucracies has a hierarchical structure with a central office in the state capital and 317 local jurisdictions called the *Tehsils*. The Tehsils are the lowest administrative units within the land administration and are headed by an field level bureaucrat called the *tehsildar* (See Figure 4.6). An citizen who seeks to get a welfare certification starts by filing an application in a service center. The application which has all the necessary documents and information is electronically forwarded to the *tehsil* office (Figure 4.8 shows the software used at the service center). The *tehsil* office then directs the digital application to a lower level bureaucrat – the revenue inspector (RI).[6] The RI is responsible for verifying the authenticity of the application based on information in the application as well as in-person checks (if required). Once the RI approves or rejects the application, the tehsil office then communicates the decision to the service center. The citizen goes back to the service center for collecting the certificate. The final approving authority for all the requests for welfare certifications is the *tehsildar* - the main field level official of the Revenue Department. The officials in the capital act as the principals and are responsible for controlling the actions of the Tehsildars. I focus on how centralized monitoring shapes state responsiveness across different tehsils.

[6]Other parts of my dissertation focus on the relationship between the *tehsildar* and the RI and its impact on state responsiveness

4.3.1 Data

The empirical analysis of the theoretical framework rests of three sets of empirical observations. First, I use qualitative insights based on six months of fieldwork to understand both the local variation in state responsiveness as well as the design of centralized monitoring program. The second set of data captures the quality and volume of citizen-state interactions across more than 300 Tehsils of Odisha. This administrative dataset is used to operationalize the queuing model and test the relationship between claim volume and responsiveness. Finally, I use data on jurisdictional characteristics to identify Tehsils with high state capacity.

4.3.1.1 Qualitative Dataset

My empirical examination began with 14 months of qualitative fieldwork across more than 30 *Tehsils*, across four different states of India.[7] I interviewed bureaucrats across the organization's hierarchy, from local officials in the tehsil to the officials located in the capital cities. Further, I shadowed[8] tehsil level bureaucrats over a period of 2-3 days to understand their roles and responsibilities and their interactions with citizens, politicians, and higher-level officials.

This inductive process played a crucial role in helping me formulate my theoretical framework. During my interviews with land administration officials I learnt about the efforts to create a top-down monitoring system. The new efforts were tied to the new leadership in the department. I was able to interview the core leadership team implementing these reforms. These insights allow me to both come up with strategies for measuring the impact of reforms as well as theorize about their importance.

4.3.1.2 Citizen State Interactions

I rely on an administrative dataset that captures how long citizens have to wait to get legal certifications from the land bureaucracy. The legal certifications ascertain the caste category, income level, and place of residence of a citizen and are essential for getting access to their entitlements. For example, a resident certificate is required for admission into an institute of higher education since many educational institutions require that the applicant be a state resident. An income certification validates an applicant's income allows low-income families to establish eligibility for subsidized health benefits or low-interest loans from banks. Caste certificates allow individuals belonging to these groups to avail themselves of affirmative action benefits. Close to 25% of the population over a period of 4 years interactions with the land bureaucracy to avail these certifications. The nature of certification is broad-based and not limited to any sub-group in the population. During the focus group discussions, citizens

[7]The majority of the fieldwork was done in Odisha, but I also interviewed Tehsildars in Maharashtra, Haryana, and Telangana

[8]Shadowing a qualitative technique that involves sitting in the office of the bureaucrat for 3-4 days and noting down all their interactions (See (Bussell 2018; Fenno 1978))

repeatedly highlighted the delays during getting certifications as a source of frustration with the bureaucracy. Local news sources[9] also validate the challenges faced by citizens while navigating the land bureaucracy. Further, citizens belonging to marginalized sections of the society, disproportionately face the costs of lack of bureaucratic accountability (Ahuja & Chhibber 2012; Gupta 2012; Mathur 2016). Based on these considerations, I operationalize the average response time taken by the tehsil to process legal certifications as an indicator of the effectiveness with which state places citizens in official categories.

4.3.1.3 Jurisdiction Characteristics Dataset

Finally, I also create a dataset that has *Tehsil* level socio-demographic variables like education, population, and night light luminosity. I have created these variables by merging village-level identifiers from the Census of India with data from Socioeconomic High-resolution Rural-Urban Geographic Platform for India (SHRUG) (Asher et al. 2019). Since village to *Tehsil* mapping is not available in the Census documents for Odisha, this process involved manually scraping data in the local language (Odia) from the land records website and using fuzzy string matching to assign them census village identifiers. These variables capture the socio-economic development of jurisdictions to (and from) which officers are being assigned to serve. I use Night Light Luminosity as a proxy for state capacity. In another paper I show that jurisdictions with high night light luminosity have greater state presence and capacity.

4.4 Case Load, State Capacity, and State Responsiveness

This section begins by testing the baseline queuing model to understand the relationship between case load, state capacity and state responsiveness. Based on the administrative data and jurisdictional characteristics I examine if a) increase in case load results in slower responsiveness towards citizens b) whether this relationship differs across low and high state capacity jurisdictions. The section tests the first two hypothesis outlined in the previous section.

4.4.1 Testing the Baseline Model

To examination the queuing model is based on monthly data on citizen-state interactions across three years. In order to test the relationship between arrival rate of applications (λ) and waiting time (W) I use natural variation on the independent variable - the case load or arrival rate. As stated before, applicants seek certifications from the state and use them for various different down stream purposes. The most common reasons for seeking certifications

[9]From the Times of India article, last accessed on September 21st 2020

are related to educations. The applications for education related certificates have natural seasonal variation. The seasonality in applications in the education category are due to the requirement for documents before the start of every school year. I use the seasonal variation to test how increase in case load impact state responsiveness across different jurisdictions. The responsiveness is measured at the month-tehsil level for each month between Feb-June.

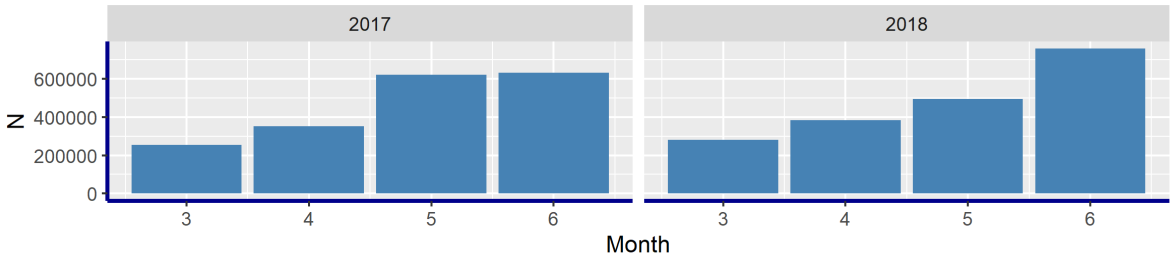


Figure 4.3: Increase in Volume of Claims (March-June)
The Y Axis is number of applications by Month-Year

4.4.1.1 Identification Strategy: Fixed Effects Regressions

In order to test the relationship between Arrival Rate (λ), Queue Length (Q), and and Waiting Time (W) I rely on variation in arrival of applications over time. I test to see if a Tehsil has a longer waiting time when faced with higher rate of application compared to time periods when rate of application arrival is low? Arrival rate (λ) is operationalized in terms of normalized volume of applications for each each tehsil for the duration between March to June when the volume increases steadily. $V_{normalized}$ is centered at 0 and each observation indicates how far it is away from the mean in terms of standard deviation.

To test the relationship between application arrival rate between arrival rate (λ) and Waiting Time (W) I use of fixed effects regression model that includes unit fixed effects. The standard errors are clustered at the Tehsil level.

$$Y_{it} = \alpha_{tehsil} + \beta * V_{normalized} + \epsilon_{tehsil} \tag{4.2}$$

where Y_{it} is the processing time for any individual application submitted to a tehsil office at time t (Year-Month). The processing time is log normalized since there is a very high variance in terms of days and outlying values could bias the analysis. The model is run at the level of Tehsil-Year-Month level. The variation in the overall volume is dependent on the nature of population within the tehsil and its socio-economic characteristics. Therefore there are large differences across say a urban tehsil and a rural tehsil in terms of the number of applications it receives it is difficult to interpret what increase in volume of applications by 100 means without knowing the background characteristics of the tehsil, a doubling of applications or one standard deviation from mean can be more easily interpreted. However

the Tehsil Fixed Effects ensure that the comparison is within the Tehsil. The model tries to descriptively understand if increase in the volume results in the it takes a Tehsil to respond to citizens.

4.4.1.2 Results

As the Tables 4.1 shows the relationship between rate of increase in volume of applications and processing time is positive. As more applicants line up in front of the tehsils the time constraint kicks in and the *tehsil* office is forced to prioritize some applications over others increasing the overall processing time. The coefficients indicate that one standard deviation increase in the volume of application increases the processing time (or reduces responsiveness) of the *tehsil* by close to 6%.[10]

Since the difference between volume during peak application periods and the trough represents a change in 4 to 5 units and the average time for getting an application process is close to 10 days, during peak volume periods the additional delays are close to 25% or half a week i.e during peak periods people have to wait for 4-5 days more on an average.

This additional wait period needs to be interpreted in terms of the circumstances under which people are seeking services from the *tehsil*. Most people seeking services have already spend a day or two in the application process which is not counted in the present analysis [11]. Further, most people I interviewed were seeking certifications close to the deadline and higher than average wait times meant individuals had to rush to the Revenue Inspector or *Tehsildar* to follow up on their applications. Many applicants I met at *tehsil* offices had taken a day off work to come to the tehsil to follow up on their applications. For daily wage labourers or shop keepers this often meant losing a days work. Thus additional wait times for 4-5 days often meant multiple trips to the tehsil office or additional bribe to an intermediary to get application processed faster.

4.4.2 State Capacity and State Responsiveness

The previous section established that increase in the number of applications reduces overall state responsiveness towards citizens' claims. In this section, I test if this relationship is moderated by the local state capacity. As discussed in the previous section, theoretically, jurisdictions with higher state capacity should be better placed to handle additional application load. I use Night Lights as a proxy for state capacity based on previous research (See Chapter 3). I create this variable by aggregating village-level data to the tehsil level (Asher et al. 2019). Night lights luminosity is a commonly used proxy for economic development in the social science literature. I divide Night Light luminosity into four quantiles or quartiles (higher quartile scores have higher night light luminosity which I associate with greater economic activity). Since night light measures are at the tehsil level, I run split-sample

[10] since the processing time is in log terms the percent change is (eβ -1)*100

[11] since processing time starts from the dat the applicant enters the tehsil to the day it gets approved. The effort made by the individual while trying to file an application is not measured

regressions where the same regression model with tehsil level fixed effects is run across different night light quartiles. As results (Table 4.3, and Figure 4.4) indicates, the relationship between application rate and responsiveness is moderated by the economic activity of the tehsil. In *Tehsils* with higher night light quantile values, the relationship between the higher volume of applications and responsiveness is not positive (Table **??** shows that the relationship has a negative but statistically insignificant estimand). In Tehsils that have low state capacity, as predicted by the theoretical model, an increase in volume is increases response time.

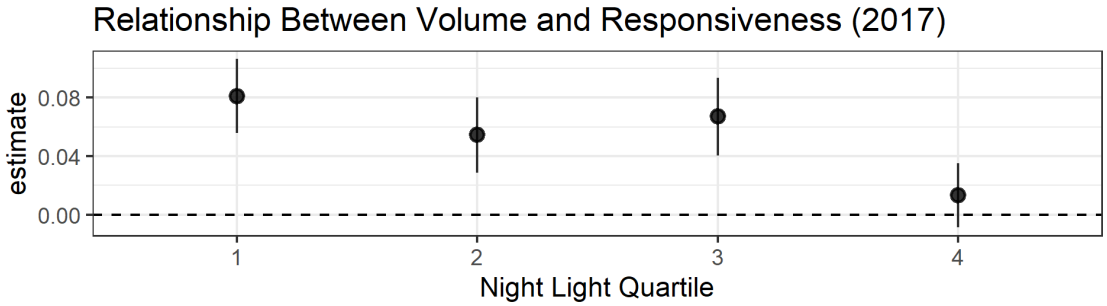


Figure 4.4: Relationship between application volume and responsiveness (2017)
The figure shows the relationship between in volume of applications and response time for the Year 2017 across different Night Light Quartiles.The +ve value of the estimate (Y axis) shows that as volume of applications increases the response time also goes up.

The tehsils with higher night light luminosity have greater state capacity due to either higher resources and the denser bureaucratic presence or better quality of human resources. As Chapter 3 in this dissertations shows, bureaucrats self-select across different tehsils based on the characteristics of the tehsil. Bureaucrats are more willing to accept positions in tehsils with greater economic activity and tehsils with lower economic activity seeing higher absenteeism. This leads to the sparsity of bureaucracy in low Night Light tehsils and reduces the quality and resources available. Therefore, I use Night Light Luminosity as a proxy for state capacity. Thus, when application volume increases, tehsils with high capacity are able to meet the additional demand.

The overall results indicate that in periods of high task burden, bureaucracy slows its overall responsiveness towards claims made by citizens. Further, state capacity moderates this relationship - places that are more rural are likely to be less responsive when faced with a greater task burden. This model seems to capture ground realities depicted by research on bureaucracy in India - that the Indian state is constrained in terms of its ability to accommodate claims by the citizens in an efficient manner and that there is a significant variation in the institutional terrain of the state (Dasgupta & Kapur 2017; Kruks-Wisner 2018). In the next section, I show that the same bureaucracy that slows its responsiveness

when faced with a larger volume can respond with speed when monitored and provided clear goals.

4.5 Centralized Monitoring, State Capacity, and Variation in State Responsiveness

The previous section examined how the increase in the volume of applications reduces the responsiveness of the local bureaucracy. The results are in line with the queuing model (See Equation 4.1) outlined in the theoretical framework. As more people arrive (λ increases) seeking a service, a larger queue forms, constraining the capacity of the office to respond, thereby increasing the time an applicant has to be a wait to get her approval. The results also shed light on the importance of state capacity in shaping the relationship between task volume and responsiveness. While the overall results indicate that the increase in applications was associated with a slower response, in the jurisdictions that were "central" or had the highest levels of Night Light luminosity, greater tasks were not associated with slower response. The Night Light Luminosity proxies state capacity and two pathways might explain the findings. One interpretation is that Tehsils with high state capacity have more resources which they can reallocate when task volume goes up, thereby maintaining the same levels of response. The second explanation could be that high Night Light jurisdictions attract more able officers. As the third essay in this dissertation shows, there is considerable sorting of bureaucrats across jurisdictions. Higher quality of human resources might also allow these central jurisdictions to maintain levels of responsiveness when the number of applications increases.

In this section, I focus on centralized monitoring and its impact on state responsiveness across different jurisdictions. To do so, I exploit an exogenous change in leadership of the land bureaucracy towards the middle of 2017. The department's new leader decided to implement a newly designed top-down monitoring strategy. While the land bureaucracy always monitored the performance of the field officers through audits, field visits, and by seeking reports, this new strategy leveraged digitized citizen transactions to set clear goals for all Tehsildars (More details in the next section). The goals involved ensuring standardizing the metrics used to review bureaucratic responsiveness and ensuring a consistent monthly meeting to discuss progress. In these monthly meetings, the top leadership of the bureaucracy would make sure that there were no hurdles in responding to citizens' claims and that applications were not pending for a long duration. If there was a lack of improvement in the number of applications pending there, officials were asked to provide a clear rationale for the delay. I examine if this top-down strategy yielded results. The challenge of studying the impact of centralized monitoring is that of creating a counterfactual. Since all jurisdictions were "treated" by centralized, top-down monitoring, I do not have a control jurisdiction that does not experience the top-down monitoring at the same time as other jurisdictions do. Thus, I compare the results of the increased volume of applications with changes in

processing time across 2018 and 2017. I consider the relationship between change in volume of applications and change in responsiveness in 2017 as emblematic of how local jurisdictions would respond to additional tasks when not monitored by a centralized principal. Thus, the pre-post design uses results from 2017 as a counterfactual for 2018, when top-down monitoring is initiated. I discuss the results in the last part of this section.

4.5.1 Top-Down Management of Mid-Level Bureaucracy

The success of top-down management often rests on the details of its implementation. In this section, I discuss how the top-down monitoring system was instituted and how the actions of the higher levels of bureaucracy impacted the exercise of discretion by the mid-level officials. The new design of the top-down management was initiated due to an exogenous change in leadership. While the land bureaucracy, like other bureaucracies, had always used different techniques for monitoring the actions of field agents, the new leader decided to institute a monitoring system based on digitized citizen-state interactions. These changes were accompanied by several managerial changes based on an information technology system that captures granular interactions of citizens and the Tehsil bureaucracy. Thus, on the one hand, the top-down management included creating a dashboard for monitoring the completion rate of tasks across all the *tehsil* offices. Along side, the dashboards the top-down management also involved institutionalization of monthly meetings that required all *tehsildars* to report quantum of applications that were pending review and whether applications had been held up for an inordinate time. The process of monthly monitoring started in November 2017 *tehsils* and continued regularly till the following year.

The metrics used to review were standardized comparisons across different units. The monitoring dashboard based on analysis of the digitized transactions captured the pendency of applications over time productivity of the tehsil offices. The numbers for a particular month could be linked back to performance with the previous month. Thus, the mid-level officials were aware of the goals and targets they were trying to meet. During my fieldwork, I also interviewed both the higher levels of leadership and field level officials (See Figure 4.9). Through systematic interviews, I was able to document and how field-level officials were prioritizing tasks. My interviews with *tehsildars* suggested that they were trying to make sure no application was pending for an inordinate amount of time and that the overall number of pending applications in the system was stable. This became challenging when the number of applications started rising. The monitoring efforts also imposed peer group pressures. Since the monthly meetings were held alongside peers, lagging behind would require providing explanations for lack of performance in front of colleagues. Many Tehsildars reported frustration at being monitored so closely but suggested that they made sure applications were not pending for a long time and that application volume under consideration was kept stable.

The newly designed top-down monitoring is an example of the combination of the management of field-level officials using existing information technology. As discussed before (See Chapter 2), digital systems, in themselves, cannot produce a change in how public

bureaucracies operate; digital systems need analog institutional counterparts (Bank 2016). The digital eco-system which formed the basis of the reforms in 2018 was instituted in 2014. The initiative for creating a centralized monitoring system taken in 2018 was thus a result of decision-making within the bureaucracy. The top-down monitoring, therefore, is a centralized decision and highlights the endogenous change in organizational practices. While the digital system was envisaged to enable citizens to monitor the state, I find limited evidence for bottom-up monitoring. The top-down monitoring also underscores that the effort being examined has limited applicability for citizen empowerment. The disruption of the status quo and the establishment of new institutional norms was a bureaucratic or organizational decision. In the next section, I test whether these steps had any impact on responsiveness by re-running the baseline model for the time period in after these reforms were instituted.

4.5.2 Assessing the Impact of Central Monitoring

This section looks at the impact of the newly designed centralized monitoring introduced towards the end of 2017. As discussed before, the monitoring involved making a dashboard that detailed the performance of every *tehsil* and integrating performance with career advancement. I show that the changes instituted created incentives for the frontline staff to prioritize welfare applications and ensure that responsiveness did not vary significantly when task volume increased. To test if the top-down monitoring had any impact on how *tehsils* handled additional caseload, I re-ran the previous model for the months from March to June in 2018. This allows me to compare the results of 2018 with 2017, when there was no centralized monitoring. The regression model (See Equation 4.2) is the same one the baseline model discussed previously. The model controls for unit fixed effects and checks if a standard deviation increase in applications

$$Y_{it} = \alpha_{tehsil} + \beta * V_{normalized} + \epsilon_{tehsil} \tag{4.3}$$

I find that while the relationship between volume ($V_{normalized}$) and responsiveness was positive and significant in 2017 when there was no top-down monitoring, it is negative and significant in 2018 (See Table 4.4 and Figure 4.11). Thus, an increase in applications from March to June 2018 results in the response time (logged) reducing by 4% points. Thus as more applications line up in front of Tehsils in 2018, on average, they get a faster response. These results also need to be understood in the context of secular growth in an overall number of applications each year. There are 50,000 more applicants in 2019, i.e a 3% increase in application pool compared to 2017. Thus, the task volume faced by bureaucrats was higher in 2018 compared to 2017.

Further, the gains from top-down monitoring are more pronounced in the more central tehsils where the coefficient is strongly negative and significant. In other tehsils, the coefficients are either slightly negative or null, indicating that the responsiveness remains the same even when case volume increases. How should we understand the strong and negative estimates for jurisdictions with higher night light luminosity? The negative effect sizes in-

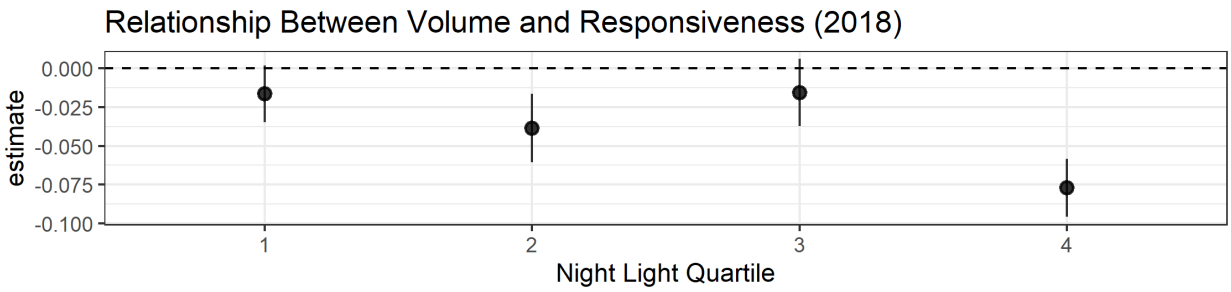


Figure 4.5: Relationship between application volume and responsiveness (2018)
The figure shows the relationship between in volume of applications and response time for the Year 2018 across different Night Light Quartiles.The -ve value of the estimate (Y axis) shows that as volume of applications increases the response time also goes down.

dicate that these jurisdictions, in the face of an increase in citizen applications, managed to reduce response time significantly (See Table 4.6). This could be partly due to the standardization of metrics across tehsils - central tehsils faced a much greater volume of applications but had to put in the effort to make sure that the number of pending applications was not numerically higher than adjacent jurisdictions. One implication is that the effectiveness of organizational reforms (note that the dependent variable is in log scale, so while the difference may look small, it represents a difference of close to 50%) are shaped by existing capacities within tehsils. However, the broad reversal of trends from 2017 to 2018 indicates that the creation of the central monitoring scheme did lead to the prioritization of welfare certifications across the board. Thus, in comparison to performance in 2017, all jurisdictions show improved capacity to handle excess application volume.

There are a few important conclusions that can be drawn from these results. First, that information technology infrastructure creates enabling conditions for the redesign of a centralized monitoring system. The transaction costs for instituting top-down monitoring are greatly reduced due to the digitization of citizen-state interactions. Second, that in the absence of the principal's efforts to monitor the variation in the quality of response is contingent on local factors. When citizens do not have the ability to hold the bureaucracy accountable and the internal accountability measures can prove to be effective. Finally, the results point towards the existence of organizational slack in the local bureaucracy. The local level bureaucracy does not prioritize tasks not only because of lack of state capacity but also due to other reasons that could be linked to shirking. The local bureaucrats do enjoy informational advantages that result in less than effective responses when not monitored by the principal.

4.6 Scope Conditions and Limitations

The essay examines how a newly designed top-down monitoring effort impacts the ability of the local bureaucracy to handle an additional task burden. The context of this exploration is the land bureaucracy in the state of Odisha, India, and the task being examined is the response to citizen applications for certifications to establish parts of their legal identity. The essay argues that top-down monitoring improves the ability of jurisdictions to handle excess claims. In the presence of top-down monitoring, the same jurisdictions that slowed down due to increased citizens' claims improved their performance. In this section, I outline the scope conditions and limitations of the findings.

The first limitation is related to the nature of top-down monitoring examined. The top-down monitoring discussed in this essay was initiated by the higher levels of management within the bureaucracy to specifically monitor the task of approving legal certifications. This limits the scope and external validity of the results in a few ways. The essay does not examine if these changes were institutionalized and carried forward. The improvements are measured the year after the changes were instituted, and the essay cannot shed light on whether the monitoring has a lasting impact in subsequent years. However, the success points towards the potential for top-down monitoring to improve the management of field officers across a large part of the state.

The second limitation is regarding the measurement of the dependent variable. The variable captures one dimension of the functioning of the land bureaucracy - responsiveness towards high volume citizen claims related to legal certifications. The Tehsildars are responsible for multiple tasks, and the metric of success set up by the top-down monitoring only captures one aspect of their functioning. There could be concerns that the gains one this one dimension could have been offset by negative spillovers on other dimensions. The essay does not measure the other aspects of the functioning of the Tehsil bureaucracy to test if the pursuit of the goals set up by the top-down monitoring reduces efficiency on other aspects. However, qualitative research can ameliorate some concerns regarding negative spillovers. The analysis implicitly compared the responsiveness in periods with low task volume with periods with high task volume. During my interviews with Tehsildars and citizens, it was clear that as the volume of citizen claims increase, addressing them becomes the central task of the bureaucracy. During May-June (when task volume is high), land bureaucracies prioritize citizens' claims independent of the top-down monitoring efforts.

Finally, task complexity also shapes the relationship between top-down monitoring and bureaucratic performance; more complex tasks require greater flexibility since bureaucrats may use a lot of local factors to achieve the goals. In such cases, top-down monitoring may have an adverse impact on bureaucratic performance. The task being studied in this essay is not as complex as other decisions made by the Tehsildar related to adjudicating land disputes or handling the inheritance of land. Thus, the results may not apply to tasks that require far greater effort and a complex understanding of the local dynamics.

4.7 Conclusion

The impact of top-down monitoring of bureaucracy in low-capacity settings remains theoretically and empirically under-examined. Most of the efforts to study monitoring focus on street-level bureaucrats who regularly interface with citizens but have limited managerial functions . This essay fills this gap by investigating how mid-level managers in the land bureaucracy can improve response time towards citizens' claims when closely monitored (See (Finan et al. 2017)). To examine this question, I compare the responsiveness of bureaucrats before and after the implementation of a top-down monitoring program. The top-down monitoring used the digitized citizen-state transactions to create and track metrics like pendency of applications over time. The monitoring also involved the higher levels of bureaucracy holding monthly meetings with all mid-level officials in the state. The findings of the essay highlight that the frontline bureaucracy handle increase in task volume more effectively when closely monitored. While the increase in tasks in terms of volume of applications to be processed would, on average, increase average responsiveness[12], after being monitored, citizens can expect a faster response from the state when application volumes increase. Further, the load-handling ability improvement is seen across jurisdictions with low and high capacity.

The essay contributes to our understanding by showing that reducing information asymmetries between the principal and the agent can limit organizational slack. The essay also points towards the importance of internal initiatives within bureaucracies. Part of the policy's success is due to its endogenous nature, where higher leadership initiated the reform and implemented it. Many times externally implemented before are met with strong resistance from field-level bureaucrats due to lack of internal buy-in. The essay also shows that monitoring rests on the availability of existing digital infrastructure that can allow a principal to create uniform metrics for monitoring the performance of all jurisdictions. Finally, the local bureaucracy's ability to prioritize citizen claims independent of levels of state capacity highlights the complex relationship between state capacity, vertical organizational accountability, and bureaucratic responsiveness. State capacity clearly plays a role in both in presence and absence of monitoring - high capacity tehsils are better at handling excess volume even when not being monitored. However, the relationship between organizational slack and state capacity is limited; all tehsils seem to improve when monitored. Thus the ability of the organization to define and monitor goals can have a large effect on state responsiveness, irrespective of levels of state capacity. Research on last-mile delivery of public services needs to pay closer attention to the embeddedness of bureaucrats within the larger organization abd understand how bureaucratic discretion is exercised.

[12] Citizens have to wait longer to get their applications processed.

4.8 Appendix

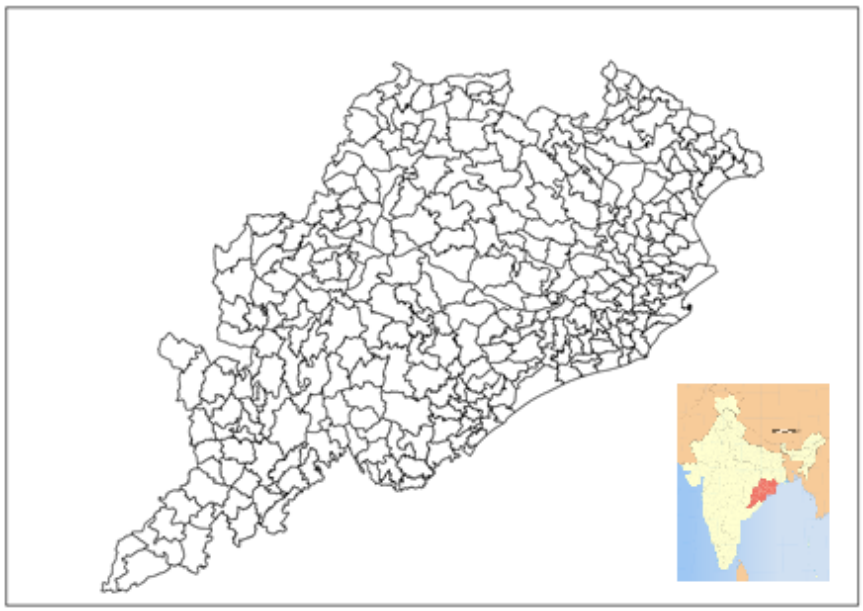


Figure 4.6: Tehsils boundaries in the state of Odisha

Comparative District Wise Performance Report of Dec 2017 & Feb 2018

Sl No	Name of the District	Total Mark	Mark Secured in March 2018	Mark Secured in Feb 2018	Mark Secure in Dec 2017	Improvement
1	Sambalpur	100	88.23	79.46	53.72	8.77
2	Jharsuguda	100	87.62	79.04	65.88	8.58
3	Nuapada	100	85.02	53.68	40.84	31.34
4	Kandhamala	100	82.95	74.22	54.48	8.73
5	Boudh	100	81.3	62.74	52.82	18.56
6	Mayurbhanj	100	80.77	76.14	62.25	4.63
7	Koraput	100	80.26	54.84	39.65	25.42
8	Bargarh	100	78.53	67.99	57.4	10.54
9	Deogarh	100	78.33	68.94	55.97	9.39
10	Angul	100	76.8	67.92	51.97	8.42
11	Balasore	100	76.34	61.78	50.5	15.02
12	Gajapati	100	75.09	52.86	39.04	22.23
14	Dhenkanal	100	74.57	68.24	48.56	6.33
13	Nawarangapur	100	74.51	58.5	39.85	16.01
15	Sundargarh	100	72.92	59.39	43.09	13.53
16	Jagatsinghpur	100	72.69	63.47	45.6	9.22
17	Subarnapur	100	72.38	54.3	46.51	18.08
18	Jajpur	100	71.9	60.72	45.68	11.18
19	Malkangiri	100	70.55	61.67	44.88	8.88
20	Ganjam	100	69.94	53.68	43.76	16.26
21	Puri	100	68.26	58.67	46.63	9.59
22	Nayagarh	100	67.61	56.6	38.72	11.01
23	Keonjhar	100	66.91	55.31	43.84	11.6
25	Kendrapara	100	65.85	63.38	41.16	2.47
24	Cuttack	100	65.82	53.55	46.33	12.27
26	Rayagada	100	65.63	45.15	36.28	20.48
27	Kalahandi	100	62.58	56.94	38.97	5.64
28	Bolangir	100	60.54	49.68	38.81	10.86
29	Bhadrak	100	60.16	54.32	47.32	5.84
30	Khurda	100	56.16	59.16	48.93	-3

Figure 4.7: Ranking of Tehsils

This document from the land administration shows that the monitoring of the frontline staff begins in December 2017. I therefore look at how the increase in applications from March to June impacts state responsiveness.

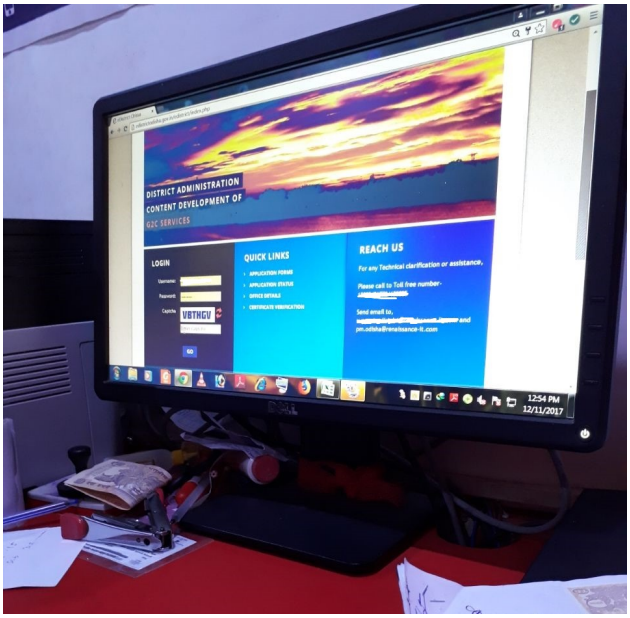


Figure 4.8: Software at the Service Center

Figure 4.9: Performance Monitoring: Monthly Meetings with Tehsildars
The secretary monitoring individual tehsil offices using video conferencing. Source: Facebook Page of the Revenue and Disaster Management Department

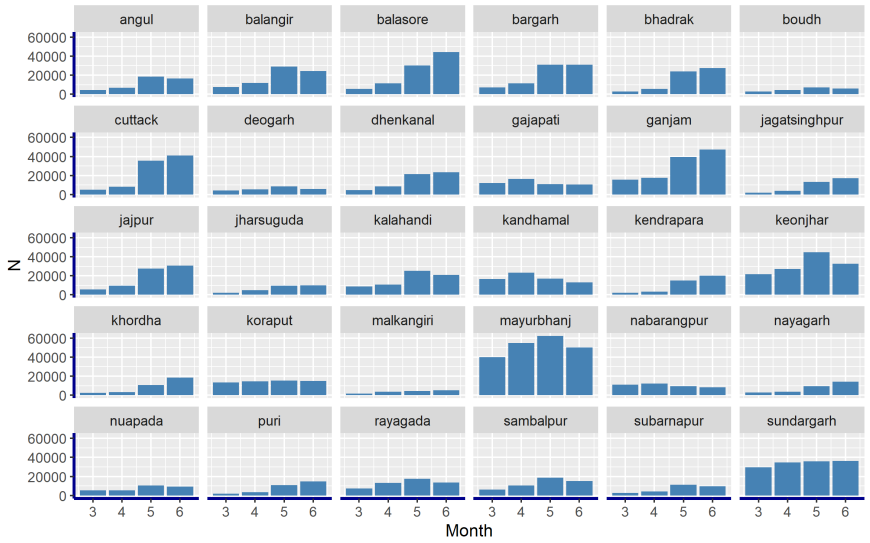


Figure 4.10: Volume Increase Across Districts
The Figure shows how from March to June there is a substantial increase in number of applications.

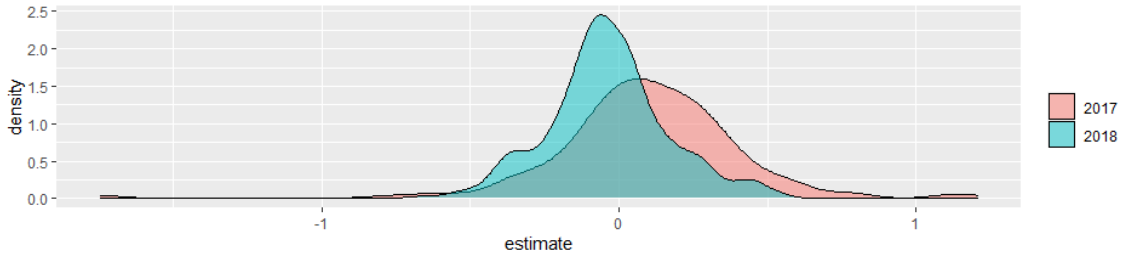


Figure 4.11: Change in relationship between volume and responsiveness
This represents the change in regression coefficients for individual tehsils from 2017 to 2018.Rather than running a fixed effects regression I run individual tehsil level regressions and get one estimate for each tehsil. I repeat the process for 2018 and then plot individual estimates across the two years. As the plot shows the overall distribution shifts left indicating that relationship between volume of applications and processing time has changed from positive to negative

Table 4.1: Volume Normalized and Processing Time (2017)

	Processing Time Monthly (Logged)	
	processing_time_ln	
	(1)	(2)
no_of_apps_normalized	0.053***	
	(0.012)	
no_of_apps_received		0.0001***
		(0.00001)
Applications Scaled	Yes	No
Tehsil FE	Yes	Yes
Observations	1,223	1,223
R^2	0.893	0.893
Adjusted R^2	0.858	0.858
Residual Std. Error	0.301	0.301

*p<0.1; **p<0.05; ***p<0.01

Table 4.2: Summary Statistics for 2017 (pre-monitoring)

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
tuid	1,223	4,589.4	6,922.1	101	1,103	3,010	30,018
processing_time_ln	1,223	2.3	0.8	0.1	1.8	2.9	5.2
no_of_apps_normalized	1,223	−0.0	0.9	−1.5	−0.8	0.8	1.5
no_of_apps_received	1,223	1,520.3	1,032.4	3	704.5	2,098.5	6,926

Table 4.3: Split Sample Regression across NL Quartiles

	Processing Time (Log)			
	processing_time_ln			
	(1)	(2)	(3)	(4)
no_of_apps_normalized	0.081***	0.054**	0.067**	0.013
	(0.025)	(0.026)	(0.026)	(0.022)
Quartile	1	2	3	4
Tehsil FE	Yes	Yes	Yes	Yes
Volume Measure	Normalized	Normalized	Normalized	Normalized
Number of Tehsils	74	79	77	76
Observations	295	311	305	312
R^2	0.874	0.898	0.883	0.890
Adjusted R^2	0.832	0.863	0.844	0.854
Residual Std. Error	0.311	0.305	0.309	0.278

Note: *p<0.1; **p<0.05; ***p<0.01
SEs are clustered at the Tahsil Level

Table 4.4: Volume Normalized and Processing Time (2018)

	Processing Time Monthly (Logged)	
	processing_time_ln	
	(1)	(2)
no_of_apps_normalized	-0.037^{***}	
	(0.010)	
no_of_apps_received		-0.00003^{***}
		(0.00001)
Applications Scaled	Yes	No
Tehsil FE	Yes	Yes
Observations	1,246	1,246
R^2	0.827	0.826
Adjusted R^2	0.770	0.769
Residual Std. Error	0.321	0.322
Note:		*p<0.1; **p<0.05; ***p<0.01

Table 4.5: Summary Statistics for 2018 (post-monitoring)

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
tuid	1,246	4,558.7	6,886.3	101	1,104.2	3,008.8	30,018
processing_time_ln	1,246	2.4	0.7	0.05	2.0	2.9	4.3
no_of_apps_normalized	1,246	−0.0	0.9	−1.5	−0.7	0.8	1.6
no_of_apps_received	1,246	1,538.0	1,049.0	7	759.2	2,034	7,384

Table 4.6: Split Sample Regression across NL Quartiles

	Processing Time (Log)			
	processing_time_ln			
	(1)	(2)	(3)	(4)
no_of_apps_normalized	−0.016	−0.038*	−0.016	−0.077***
	(0.018)	(0.022)	(0.022)	(0.019)
Quartile	1	2	3	4
Tehsil FE	Yes	Yes	Yes	Yes
Volume Measure	Normalized	Normalized	Normalized	Normalized
Number of Tehsils	77	79	77	77
Observations	306	316	308	316
R^2	0.844	0.829	0.788	0.809
Adjusted R^2	0.791	0.772	0.717	0.747
Residual Std. Error	0.316	0.326	0.334	0.307

Note: *p<0.1; **p<0.05; ***p<0.01
SEs are clustered at the Tahsil Level

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