

Strengthening Public Health Systems

Policy Ideas from a Governance Perspective

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Abstract

Public health systems that are capable of disease surveillance and action to prevent and manage outbreaks require trustworthy community-embedded public health workers who are empowered to undertake their tasks as professionals. Economic theory on incentives and norms of agents tasked with performing activities that society cares about yield direct implications for how to recruit and manage frontline health workers to promote trustworthiness and professionalism. This paper provides novel evidence from a survey of public health workers in Bihar, India's poorest

state, that supports the insights of economic theory and taken together yields ideas that can immediately be put to work in policy responses to the COVID-19 crisis. These ideas address problems of governance and trust that have bedeviled health policymakers. Managing the current and preventing future pandemics requires going beyond technical health policies to the political institutions that shape incentives and norms of health workers tasked with implementing those policies.

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Strengthening Public Health Systems:

Policy Ideas from a Governance Perspective *

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1 Introduction

The global spread of a coronavirus has led to renewed calls for greater investments in public health systems around the world. Policymakers are being advised to increase public spending on health to combat the disease as well as provide a fiscal stimulus to the economy (Wolf, 2020). A previous disease outbreak, of Ebola, had led researchers to conclude then that public health systems in poor countries need Community Health Workers (CHWs) as the frontline health workers to prevent, detect and manage disease outbreaks (Miller et al, 2018; Lo et al, 2017; Moon et al, 2015). This is the workforce that can ultimately implement any public health policy strategy advised by senior scientists and health professionals. Without the institution of such a workforce the world remains at risk of not being able to effectively manage and prevent disease outbreaks, especially those that originate in and spread from low capacity, poor countries.

This paper provides new ideas for policymakers to invest in frontline public health workers using economic theory of "principal-agent" relationships, in which one type of actor, the agent, takes actions on behalf of another, the principal. Insights from economic theory are supported by survey evidence from Bihar, the poorest state of India, a place which is representative of the challenges involved in building capacity of public health systems in poor environments. These ideas are: to combine steady wage structures, as opposed to high-powered incentives where salaries are conditioned on specific inputs or outputs of health workers, with management to strengthen peer-to-peer monitoring and professional norms; and political engagement of local leaders around public health. These ideas can immediately be put to work in policy responses to the COVID-19 crisis and strengthen public health systems to prevent future pandemics.

Policy-makers in poor countries, such as India, have typically relied on voluntary or quasi-voluntary CHWs, rather than contracting CHWs to perform specified tasks under a wage structure. Any remuneration that is provided is typically incentivized on indicators of service delivery, such as in the case of the Accredited Social Health Activists (ASHAs) in India who receive payments when they bring pregnant women of their village to deliver babies in public

health centers (rather than at home, where institutional assistance for delivery is unavailable). Incentive payments are also supported by a growing body of research which uses randomized control trials (RCTs) to assess the impact of performance-based financing in the health sector (Ahmed et al, 2019, provide a review). These RCTs have found consistent evidence of positive impact on health facility quality indicators such as cleanliness and availability of medicines and equipment, but mixed evidence on the medical content of care, utilization and health outcomes. However, most RCTs are unable to disentangle how much of the impact is owing to greater financing becoming available, in poor resource contexts, versus the incentives-based design of providing that financing. Kandpal et al (2019) provide some of the first evidence on this question through the evaluation of a World Bank project in Nigeria that enabled lessons to be drawn about how to design the financing provided to health facilities. The findings suggest no substantial difference in impact between the performance-based arm, which had specific features of high-powered incentives, such as bonus payments to staff, and the general provision of financing to be used at the discretion of autonomous, decentralized health facilities.

The push in economics research to examine incentives in public service delivery came from the 2004 World Development Report, *Making Services Work for Poor People* (World Bank, 2004), which documented widespread absenteeism, a clear and measurable indicator of poor performance, among public sector health workers and teachers in public schools, along with more qualitative evidence which suggests that public service providers in poor countries are not motivated to do their jobs well even when they are present at their facilities. Given this status quo situation of poor performance and weak incentives (for example, in one study, Banerjee, Duflo and Glennerster, 2008, found that health workers face no sanctions when they are absent from work), it is perhaps not surprising that when incentives are credibly strengthened, such as within an RCT, outcomes are better than the status quo of weak incentives. These research studies also show that scaling-up what "worked" within the context of the study into actual policy (such as, for example, routine application of sanctions for unexcused absences) is difficult and often runs into political problems (Muralidharan and Sundararaman, 2011; Banerjee, Duflo and Glennerster, 2008; Dhaliwal and Hanna, 2014).

This paper uses a synthesis of economic theory to challenge the prevailing policy regimes that focus on high-powered incentives to deliver basic health services and offers new ideas that have the potential of working more effectively to improve public health. First, the paper draws upon Khemani (2019) and World Bank (2016) to summarize the insights from a synthesis of economic theory of principal-agent relationships. Economic theory argues that optimal contracts in complex organizations that are tasked with providing public goods could use low-powered incentives (steady wages, job security), and rely on recruitment of intrinsically motivated workers, as well as professional norms among peers to achieve high performance or productivity.

Second, the paper provides evidence from a rich survey in Bihar on current health policies, management practices, and incentives, beliefs and norms of health workers in the public sector. It shows how current management practices and the environment in which health workers perform their tasks are the opposite of what economic theory would recommend.

Third, the paper discusses how this difference between economic theory and policy practice can be rationalized and explained. We use available research on institutions to argue that low trust and perverse expectations of behavior in the public sector, for rent-seeking rather than service delivery, characterize institutions in poor places like Bihar. Because of these institutions, reform leaders are reluctant to provide steady wages to new cadres of public health workers because they do not trust that the additional fiscal burden will yield significant results that are valued by the citizens who vote them into, or remove them from, office.

Fourth, the paper shows how local politics in Bihar (as in other poor places of the world, examined in World Bank, 2016) exhibit potential for change that policymakers could harness to transition to institutions of greater trust, and stronger norms of performance in the public health sector.

The paper concludes with outlining a set of policy ideas for reform leaders and international partners to immediately put to use as they respond to the COVID-19 pandemic. Over time, these ideas can contribute to addressing weaknesses in public health systems that has bedeviled national and global policymakers. Fixing difficult problems like public health requires a

complex mix of policy instruments, going beyond health to institutions of governance and trust. This paper aims to bring these complex ideas to the fore at a time when governments are forced to contend with health systems, and international financing is being mobilized to assist them. Projects to combat the new coronavirus outbreak should use the arguments provided in this paper to inform the design of those projects, and help developing countries move beyond the crisis to establish the public institutions needed for health.

2 Insights from a synthesis of economic theory of principal-agent relationships

Public health services—disease surveillance, actions and outreach to prevent and manage outbreaks—involve significant positive externalities, in the classic economic sense (Claesen et al, 2003). Delivery of services in one local area or to one population group has benefits for all, while service failures can lead to global spread of disease, as the world is currently experiencing with a new coronavirus. These positive externalities constitute a case for public spending on public health to address the theoretical under-investment by private actors and markets alone. Furthermore, a case can be made for direct government provision of public health services, rather than through subsidies to private providers, because of the need for systems that stay vigilant in normal times, in the absence of any crisis or visible health need, and for the legitimacy to regulate citizen behaviors in the broader public interest. The power of regulation of individual behavior in the public interest resides with the state. All countries thus have some form of a state agency tasked with maintaining public health goals and enforcing health laws.

Economic theory lends itself to understanding how such state public health agencies should be organized, how health workers should be recruited and managed to effectively deliver the services needed for detecting, preventing, and mitigating disease outbreaks. The health profession has weighed-in on these questions in the aftermath of the Ebola outbreak in West Africa, arguing for public investments in community health workers (CHWs) who are members of the communities they serve. From the economic perspective, the value of community-embedded public health workers can be traced to their informational advantage. As mem-

bers of the community they are likely to have greater information about who is falling sick, whether there are suspicious clusters of disease, whether citizens are complying with health regulations, etcetera, than temporary visits by health supervisors from outside the community. As members of the community, CHWs may also have greater communication capacity to win trust and compliance with public health regulations. The trade-off with these intuitive advantages of greater local information and communication capacity is the fiscal burden of keeping such health workers on the public payroll. For example, critics of bureaucracies in the United States argue that federal workers are overpaid and underworked (Johnson and Libecap, 1994). Countries have not invested in keeping a regular cadre of CHWs on the public payroll probably because of competing needs for public funding and lower public valuation of a task focused on prevention—the benefits of surveillance and public health regulations typically do not make headlines, and are not visible (Mani and Mukand, 2007), while the costs of complying with regulations are all too palpable. Furthermore, in poor countries where workers on the public payroll are viewed as having weak incentives and motivation to perform the tasks assigned to them, even reform oriented politicians are reluctant to spend scarce public resources on hiring them. Evidence of widespread absenteeism among public sector doctors and teachers, for example, provides clear indicators of weak incentives and motivation (Chaudhury et al, 2006).

Weak incentives and motivation are arguably the bigger problem (Filmer and Wagstaff, 2020)¹ The fiscal burden can be reduced, or the "value for money" by keeping CHWs on the public payroll can be increased by tasking CHWs with additional health functions, such as maternal and child health, and expanding coverage of primary health to those who cannot af-

¹Filmer and Wagstaff (2020) provide a recent review of the problem of quality in the delivery of health and education services. They also report emerging insights from ongoing meta-analysis of the impact of different pay-for-performance schemes on a variety of health indicators. They conclude that much more research is needed on the impact of different "blended" schemes that combine steady budgets to health or education facilities, or steady salaries to individual providers, with elements of pay-for-performance. In this paper we focus on the theory and evidence for remunerating community health workers who get tasked with different public health goals by senior policymakers. As we show below, the "blend" we argue for is to combine steady wages to CHWs tasked with public health services with management practices in health bureaucracies and engagement of local political leaders. We discuss how economic and game theory provide insights for how communication can be targeted at bureaucratic and political institutions to strengthen peer-to-peer professional norms, and local political support for, rather than hindrance of health workers. We too call for more research to evaluate impact, and experiment with different policy designs, as policymakers take-up the ideas proposed here.

ford private providers. For example, medical research has found that neonatal care can be improved and childhood disease mortality can be reduced in poor resource environments through community-based interventions (Bang et al, 1990 and 1999). These health benefits can improve economic outcomes, and thus fiscal space in the future, through the channel of greater human capital (Flabbi and Gatti, 2018). But, the health, human capital and economic benefits of community-based interventions can only materialize if the frontline health workers are motivated to perform their tasks well. Economic theory provides policy ideas to improve the performance of frontline health workers, which can reduce the trade-offs and increase the payoffs from greater public spending on public health workers.

The performance of frontline public health workers can be examined within a series of interdependent “principal-agent” problems in which one type of actor, the agent, takes actions on behalf of, or at the behest of another, the principal. Public health policies are selected and implemented by government agencies within the following principal-agent relationships illustrated in Figure 1: (i) between citizens and political leaders, (ii) between political leaders and public officials who lead government agencies, and (iii) between public officials and frontline providers. This figure also shows how popular development initiatives of citizen engagement, to monitor frontline providers and participate in service delivery, fit into this framework.

To illustrate in the health policy context of India, there are at least three cadres of workers who are expected to live and work in the communities assigned to them to serve: the Auxiliary Nurse Midwives (ANMs) who are supposed to provide primary and maternal health services at the lowest tier of public clinics, the health sub-center; the Accredited Social Health Activists (ASHAs) who could provide a range of services and are currently incentivized to shift home-based child deliveries to medical institutions; and the Aanganwadi Workers (AWWs), who are responsible for delivering early childhood development and nutrition programs that have direct implications for child health. The ANMs, ASHAs and AWWs together organize immunization drives and vaccinate children in rural India, for example. ANMs and ASHAs are hired and managed by the Department of Health of state governments in India, and im-

mediately supervised by the Medical Officer in Charge of Primary Health Centers at the level of blocks, the lowest tier of state administration above the village or community. AWWs are hired and managed by the Department of Women and Child Development. Health policy in India mandates the constitution of a committee, the Village Health Sanitation and Nutrition Committees (VHSNC) through which citizens can participate in monitoring and contributing to health and nutrition services. The VHSNC is presided by the directly-elected head of local government. Local politicians can thus play a role in monitoring and managing health workers, even though the formal powers reside within the bureaucracy of state governments who ultimately report to the state-level executive, the Chief Minister and her cabinet of ministers under a parliamentary form of government. Elections to gain power over the state government are vigorously contested in India, with frequent turnover of political parties in office (Nooruddin and Chhibber, 2008; Nooruddin and Simmons, 2015), thus completing the chain to citizens and society as the ultimate principals illustrated in Figure 1.²

Frontline health workers are thus tasked with multiple and complex functions that could be expanded as policymakers strive to prepare for more global outbreaks of new diseases. In fact, India is mobilizing these workers to deploy non-pharmaceutical interventions (NPIs) in its first line of defense against the new coronavirus (The Hindu, March 31, 2020)³. While other complex organizations share the problem of motivating agents to perform multiple tasks that are difficult to monitor, agents in the public sector have more unique roles of serving the public interest. Public health tasks and functions, like disease surveillance, testing, enforcing compliance with NPI policies, have precisely these characteristics of serving the public good. Furthermore, in normal times, these frontline health workers serve the children and women whose families' capacity is limited by budget and credit constraints, in addition to any behavioral constraints imposed by poverty, lack of education, and social discrimination. In addition to the "public good" nature of tasks that health workers are required to undertake,

²The governance of CHWs in Africa can similarly be framed in this interdependent principal-agent framework. A detailed analysis of these relationships in Uganda is provided in Habyarimana, Khemani and Scot (2018). The case of Brazil, examined in Rocha and Soares (2010) is described further below.

³India's Ministry of Health announced online training of ANMs, ASHAs and AWWs, along with nurses and doctors, for the implementation of activities to combat the pandemic. <https://www.thehindu.com/news/national/coronavirus-panel-formed-for-co-ordinated-research-and-development-activity/article31221310.ece>

the structure of principal-agent relationships in the public sector is also quite different from those in other complex organizations outside government. Namely, the presence of multiple principals with potentially conflicting interests, such as citizens belonging to different socio-economic groups with different preferences and attitudes to the public sector, local politicians, medical officers, district and state bureaucrats, state politicians. This is a particular feature of public sector organizations, or government bureaucracies, that is examined in economic principal-agent theory (Dixit, 2002).

Two insights emerge from the literature about how to structure principal agent relationships in government bureaucracies when tasks are multiple and complex, and involve serving the public interest⁴: 1. Reduced role of high-powered incentives and greater role for recruiting intrinsically motivated agents 2. Reduced role for top-down hierarchical monitoring and greater role for autonomy and peer-to-peer professional norms

In practice, bureaucracies across the world tend to use flat and above-market wages, presumably to attract public service motivated and talented workers (Finan, Olken and Pande, 2015). In many striking cases, these arrangements also “work”. For example, the success of one of the highest performing education systems in the world, the Finnish public education system, has been attributed to the meritocratic recruitment of highly trained teachers, imbued with strong professional norms, and autonomy in their classrooms (World Bank, 2018). Incentives are also strong in that teacher salaries are high to be able to attract highly competent individuals into the profession, and teachers can be let go by school administrators (who also exercise autonomy in how they manage schools). But incentives are not high powered in that salary structures are flat rather than consisting of bonus components contingent on test scores of students. The Republic of Korea’s high-performing education system shares with Finland these characteristics of the management of public school teachers (World Bank, 2018)⁵ Greater autonomy in public agencies is also found to be robustly associated with better outcomes in the delivery of public investment projects in developing countries (Rasul and Rogger, 2017).⁶

⁴Following are some of the pioneering contributions: Tirole, 1994; Dewatripont et al., 1999; Francois, 2000; Dixit, 2002; Besley and Ghatak, 2005; Acemoglu et al., 2008; Alesina and Tabellini, 2007, 2008.

⁵Even though the Korean and Finnish systems diverge in their pedagogical approach, they are strikingly similar when it comes to management of teachers in public education bureaucracies.

⁶Peer-to-peer monitoring and social interaction also matters in private firms (Ashraf and Bandiera, 2018,

Yet, a body of research on public service delivery in poor countries cautions against trusting the intrinsic motivation of workers in the public sector, providing evidence of poor performance, and perverse incentives and motivation (for rent-seeking rather than service delivery). For example, one study found that doctors in India systematically under-perform in the public sector compared to in their own private practice (Das et al., 2016). Other qualitative research suggests that the problem of poor performance is likely to be widespread because bribery and corruption are the norm in human resource management in the public health sector, weakening incentives for good performance (La Forgia et al., 2015). Furthermore, the available research suggests that powerful leaders at upper levels of the government hierarchy, who wield formal power over the humble workers on the frontlines of the state, can be thwarted in their attempts to exact accountability and performance from them. Banerjee, Duflo and Glennerster (2008) and Dhaliwal and Hanna (2014) provide evidence that reformers who tried to use new technology to monitor frontline health workers and strengthen their incentives ultimately failed to implement or sustain these reforms.

The available research has focused on documenting evidence of weak incentives and low accountability for service delivery in the public sector, and thence on evaluating interventions targeted at strengthening incentives, such as making some part of pay conditional on performance indicators (for example, Singh and Masters, 2017, for CHWs). But what is available is barely scratching the surface of knowledge needed to help reform leaders think about how to structure government bureaucracies and assign tasks to leverage intrinsic motivation and to reduce reliance on high-powered incentives. Even when increasing the power of incentives has been shown to “work”, the authors of those findings concede that implementing optimal incentive contracts at scale can place significant demands on state capacity (Muralidharan and Sundararaman, 2011).

Finally, the logic of economic theory, and growing international evidence in support of it, further suggests that politics casts a long shadow on culture in the bureaucracy and at the frontlines (World Bank, 2004; Devarajan et al, 2015; World Bank, 2016; Khemani, 2019). For

provide a review). For example, Kandel and Lazear (1992) showed how differences in the observed management policies of American versus Japanese firms can be interpreted in economic theory as arising from differential degrees of team-work norms and social pressure among peers.

example, research has found that effective enfranchisement of poor voters has direct consequences for the delivery of health services and improved health outcomes, while poor voters' disenfranchisement, through vote buying, has the opposite effects (Fujiwara, 2015 and Khemani, 2015). But these ideas about the role of politics and exploration of its policy implications has not happened through RCTs for the simple reason that the suggested interventions are more complicated than what is feasible in most RCTs. The interventions involve not only changes in contract design (level of wages, whether high powered or not) which other RCTs have undertaken (Dal Bo et al, 2013; Ashraf et al, 2014; Ashraf et al, 2015), but crucially, these contract changes need to be combined with political and bureaucratic reforms if the insights of economic theory are to be fully tested and exploited. Collaboration with policy-makers who are willing to experiment with policy is hard enough for most RCTs, and compounded in this case by the complexity and potential sensitivity of targeting bureaucratic management culture and political contestation.

In the absence of opportunity to directly undertake a policy experiment suggested by economic theory, and evaluate its impact to the standards of econometric rigor of other RCTs, the research in Bihar we report on in this paper gathered descriptive data, through rich surveys using innovative modules to measure the variables that economic theory suggests are important (such as, intrinsic motivation, and peer norms). This survey provides evidence of the mis-match between actual policy practice and the insights from economic theory and offers ideas to policy makers to adopt a different approach to strengthening health systems using the current crisis as an opportunity.

3 Description of the survey in Bihar, India

The survey was undertaken in the state of Bihar in India between November 2018 and March 2019.⁷ Data were collected across different layers of government jurisdictions within the state—districts, blocks and village governments, known as Gram Panchayats (GPs)—and across different types of respondents—politicians, bureaucrats or public officials, frontline service

⁷Data were collected in two phases— one at the village level, and one above the village at blocks and districts

providers—who share interdependent relationships while undertaking their tasks of delivering public health and nutrition services. In the first phase, data were gathered from village-level respondents—Gram Panchayat (GP) politicians, frontline health and nutrition workers (ASHAs, AWWs, and ANMs at health sub-centers), citizens and leaders of women’s Self Help Groups (SHGs), an important social institution in this context. In the second phase, the survey was implemented to block and district-level respondents.

3.1 Geography of the survey

Budget and implementation constraints required us to select a sample of districts rather than covering all 38 districts of Bihar. At the same time, we needed a large sample to be representative of the diversity within the state, and allow us to capture some variation across district-level institutional characteristics. These constraints led us to determine 16 as the number of districts in which to undertake the survey. The purposive selection of *which* 16 study districts, from among the 38 of Bihar is described in the sampling materials posted at the following website, along with survey questionnaires and all results currently available at this stage of our data analysis: <https://sites.google.com/view/stutikhemani/public-health-systems-survey>

Within each of the 16 districts, 4 blocks were selected using a random number generator, after stratifying by proximity to the main railway line. Within each block, 4 Gram Panchayats (GPs) were selected using a random number generator. However, in one block each in the districts of Lakhisarai and Buxar, 3 GPs instead of 4 were selected because the sampling protocol required a sufficient number of replacement respondents to be available, and these districts only had 3 GPs fulfilling the replacement requirement (more details in section on Respondents below). This yields a sample of respondents drawn from 16 districts, 64 blocks from within those districts, and 254 Gram Panchayats (GPs) from within those blocks. The sampled districts and blocks are shown in Figure 2.

3.2 Respondents of the survey

Following the framework in Figure 1, data were gathered from the following types of respondents:

1. Citizens:

The citizen survey was aimed at respondents from 16 households residing in each GP area. The survey firm was provided with a list of respondents (with replacements) drawn randomly from the electoral rolls available of all voting-age adults in Bihar's population. The target sample size is thus 4064 citizens (16 each from 254 GPs).

Within the category of citizens, the survey additionally targeted office-bearing members of women's Self Help Groups (SHG) under a rural livelihoods program in Bihar known as Jeevika. However, we had no lists available with names of SHG leaders of the village-level organizations across GPs. In the absence of these lists, we relied on the survey firm to ensure that enumerator teams would identify SHG leaders during their field-work. The data from SHG leaders that have been provided to us is thus subject to a greater than usual caveat: the risk of whether the enumerator teams accurately identified and obtained interviews with the targeted SHG respondents. The instructions provided to the survey teams was to ask the GP Mukhiya and other GP-level respondents (such as the ANM, ASHA and AWW) about the GP-level federated organization of all the SHGs across the GP's communities to identify its President, Secretary and Treasurer. That is, 3 SHG leaders were targeted for each GP, for a total sample of 762 (3 each from 254 GPs) SHG leaders.

2. Politicians:

- Village level:
 - GP Mukhiya (or head of the elected village council; 1 per GP)
 - Elected village councilors or Ward members: 3 per GP
 - Candidates who contested the Mukhiya position in the last election of 2016,

but lost: 3 contenders per GP

Lists were provided to the survey teams of all incumbent Mukhiyas to be interviewed, and a random selection (with replacement) of 3 Ward members and 3 candidates from among those who contested the previous GP elections of 2016.⁸ The targeted sample size of GP politicians is thus 1778 (7 each from 254 GPs) respondents.

- Block level:
 - Elected head of block-level government (Panchayat Samiti Chairperson)
 - Elected member of Panchayat Samiti: targeted to be the member who is on a committee related to public health
 - Member of Legislative Assembly (MLA, Bihar state) elected from the MLA constituencies in our study area: approximately 1 per block (57 MLAs across the 64 blocks of the study area)

The survey firm was responsible for identifying the block-level politicians targeted to be interviewed. The targeted sample size of Block-Panchayat (Panchayat Samiti) elected members' is 128 respondents (2 each from 64 blocks). The 57 MLAs across the 64 blocks of the study area were also identified by the survey firm. However, because of problems of reaching politicians at a time that was close to the 2019 elections in India, the survey firm was able to complete interviews with only 39 MLAs (of the targeted 57), and with 119 Panchayat Samiti members (of the targeted 128).

- District level:
 - Member of Parliament (MP, national-level) elected from the MP constituencies in our study area: approximately 1 per district
 - Elected head of district-level government (Zilla Parishad Chairperson)

⁸Across Bihar, on average, 12 candidates per GP contested the Mukhiya elections in 2016.

- Elected member of Zilla Parishad: targeted to be the member who is on a committee related to public health

The survey firm was responsible for identifying the MPs from constituencies within the 16 study districts, and the 32 respondents of the District-Panchayat (Zilla Parishad). Again, because of problems reaching political leaders at election time, the survey firm was able to interview only 9 MPs, and 28 Zilla Parishad members.

3. **Bureaucrats:**

The following district and block-level positions were identified which have supervision and management powers over frontline health service providers.

- Block level
 - Block Medical Officer (typically known as MOIC– Medical Officer in Charge of the Block-level Primary Health Center)
 - Block Programme Manager of the National Health Mission (NHM)
 - Block Programme Officer of Reproductive and Child Health (RCH) and Immunization
 - Block Community Mobilizer (Block-level supervisor of ASHAs)
- District level
 - Civil Surgeon or Chief Medical Officer (CMO)
 - Additional (like a deputy) Chief Medical Officer (ACMO)
 - District Programme Manager of NHM
 - District RCH and Immunization In-Charge
 - District Community Mobilizer (District-level supervisor of ASHAs)

The survey firm was responsible for identifying and interviewing the respondents holding these positions. The final data submitted by the survey firm contains 293 respon-

dents in supervisory or management positions, including: 13 Civil Surgeons, 11 Chief Medical Officers (including 4 who were in Acting capacity), 23 Superintendents (including 13 in Deputy or Acting capacity), 9 District Programme Officers-NHM, 4 District RCH and Immunization In-charge, 7 District Community Mobilizers, 58 MOICs, 58 Acting Facility Incharge, 43 Block Program Managers-NHM, 29 Block RCH Programme officers, and 35 Block Community Mobilizers.

4. Public providers of health services:

- Village level:
 - ANM at village health sub-center
 - ASHA
 - AWW

The survey team was provided a list (with replacements) of 3 AWW workers to interview per GP, for a targeted sample of 762 AWW respondents. We did not have population lists of ASHAs and ANMs. Hence, the survey team was instructed to ask the AWW respondents to identify the ASHAs and ANMs in their communities within the GP. The survey teams were to pick 3 ASHAs and all available ANMs to interview in a GP. We describe the shortfalls from these targeted numbers in the data description further below.

- Block level:
 - Doctors at Primary Health Centers (PHC)
 - Nurses at PHCs
 - ANMs at PHC
- District-level:
 - Doctors at District Hospitals or equivalent

- Nurses at District Hospitals or equivalent

The survey team was provided with a list of randomly selected candidates for the above categories of respondents for all the PHCs and higher-level health facilities (such as District Hospitals) across the 64 blocks of the study area. However, the survey team reports substantial difficulty in adhering to this list because the personnel were not found at the health facilities. We describe the numbers of respondents that the survey team was able to reach in the sections below, and highlight the fact that we were not able to reach a random sample of providers appointed at these positions.

3.3 Description of the questionnaire

The questionnaires were designed to understand whether the characteristics or traits (such as, public service motivation and integrity) of frontline health workers in the public health system, and how they are managed by their supervisors within the bureaucracy, correspond to the insights of economic theory discussed above. All of the questionnaires are posted at <https://sites.google.com/view/stutikhemani/public-health-systems-survey>. Below we briefly summarize some of the novel aspects of the data.

The concepts of intrinsic motivation and social pressure among peers are at the heart of economic theory of managing complex organizations tasked with delivering public goods, but are very difficult to measure. The difficulties arise not only because they are intangible and subjective concepts which makes it hard for researchers to design the questions that would go into a survey, but also because it is hard for respondents to understand and answer the questions. In our extensive field-testing of these survey modules in Bihar we found that the abstract nature of the questions made it difficult for respondents to grasp what we were asking. For example, the module to measure "integrity" comes from literature in psychology and aims to assess the extent of moral disengagement (Moore et al, 2012). In field testing these questions in rural Bihar, we found that respondents struggled to understand what we were asking. The very first question of this module, for example, asks respondents to indicate the extent to which they agree or disagree with the statement "It is okay to spread rumors to de-

defend those you care about." In Bihar, respondents repeatedly asked for concrete examples to understand this question, leading us down a path where the module might differ significantly from how it is administered in other countries and contexts.

Furthermore, in any country or cultural context in which similar questions have been tried, respondents tend to exhibit what is termed as "social desirability bias"—that is, to answer some of the questions in ways which they think would win social approbation even if their true responses would be otherwise. For example, a question like "are you very careful or attentive when undertaking a task?" has been used to measure the personality trait of conscientiousness, but getting sincere responses to it is a problem, as evidenced by 100 percent of some respondents in our survey saying they are always careful. As we analyzed the data, we assessed whether/which questions worked as intended, to capture meaningful variation across respondents (even though the "levels" are subject to desirability bias). We report all our findings so that readers can reach their own interpretation and argue against the ones we offer. Part of the contribution of this work is methodological—finding better ways to measure these concepts, that may be crucial for strengthening public health systems, through trial and error.

We follow an established practice in the growing literature measuring public service motivation and integrity of grouping different sets of questions into indices. The underlying questions in each of the indices created are summarized below.⁹

In this paper we focus on the following traits:

- **All Surveys:**

1. **Integrity Index** (8 questions): Questions on agreement or disagreement with morally disengaged behavior (e.g. it's OK to spread rumors to defend those you care about or it's no big deal to pass someone else's work as your own).

⁹All indices are created using Inverse Covariance Weighting (ICW) as described in Michael Anderson. "Multiple Inference and Gender Differences in the Effects of Early Intervention: A Reevaluation of the Abecedarian, Perry Preschool and Early Training Projects. *Journal of the American Statistical Association*. December 2008, Vol. 103, No. 484. This is similar to Principal Component Analysis (PCA), but overweights variables that provide "new information" (i.e. have lower covariance with other variables). All underlying data is coded such that higher value of indices are "more positive" outcomes.

2. **Public Sector Motivation index** (8 questions): Questions on commitment to serve the public, capacity to resolve conflict among people, faith in government's role in improving society.

We developed a new module to understand the attitudes of health workers towards their work, and group these questions into an index of professional identity and efficacy:

- **Public providers' surveys:**

Professional identity and efficacy (5 items): whether respondent would have preferred another profession; whether feels a sense of inner pride/fulfillment when doing their work; whether gets social status from being in the profession; whether feel they can improve outcomes through their effort; whether they have to take permission for every little thing.

Finally, we asked frontline health workers and their supervisors within the bureaucracy about management culture. During the field work to develop the survey instruments, we learnt that frontline health workers attend regular meetings with their supervisors at the block level. We thus targeted the questions to understand management culture by specifically referencing the types of issues that come-up in these regular meetings with supervisors. We start by reporting these results.

4 Management and professional culture

Health workers in Bihar attend regular meetings with their supervisors, which provides an opportunity to measure management and professional culture through survey questions targeted at the content of these meetings. Among the lowest tier health workers—the ASHAs—94 percent report meeting with the ANM of the village health center, their immediate supervisor, and 85 percent report meetings organized at the next level, by the Medical Officer In-Charge (MOIC) of the Block Primary Health Center, at least monthly. Similarly, 95 percent of ANMs report regular meetings (at least monthly) convened by their supervisor (block-level MOIC). In the survey of supervisors (Medical Officers in Charge, Civil Surgeons, various programme

officers at the district and block levels, including those who supervise the AWWs under the Women and Child Welfare department), 98 percent respond that they hold meetings at least monthly with the staff who work under their supervision.

Figure 3 shows that high rates of respondents across health cadres report that these meetings involve "scoldings" and discussion of bad performance. Among the lowest tier of workers, the ASHAs and AWWs, more than 77 percent report that meetings with supervisors involve scoldings. These numbers are even higher for the ANMs, more than 90 percent of whom report that meetings consist of scoldings. In response to a module of questions asked about meetings with their peers and supervisors, the ANMs report that issues about bad performance are often raised— 48 percent respond "always", and 44 percent "sometimes"; only 8 percent say "rarely" or "never". In contrast, when it comes to the question of how often good work is praised or recognized, 47 percent of the ANMs respond "rarely" or "never". As many as 30 percent of ANMs say that their supervisors always scold people at meetings for bad performance. Similar patterns are reported by higher-level cadres of health personnel interviewed at block PHCs and district hospitals— there is bunching of respondents at "always" when asked about discussion of bad performance and "scoldings" at meetings, and at "never" when asked whether good work gets recognized or praised. A consistent picture is provided by supervisor respondents at the block and district levels, as shown in Figure 4. Among these supervisors, 76 percent report that bad performance is always discussed at these meetings.

The dominance of concerns with poor performance at management meetings would be consistent with the research evidence of high absenteeism and low performance among public health workers in India (discussed and cited in the sections above). The problem of absenteeism, in particular, is something the survey teams encountered when attempting to interview the ANMs who are supposed to be located at the village-level health sub-centers. Among the 254 targeted GPs, 226 health sub-centers were found, and out of these, 145 sub-centers (or 64 percent) were closed. The survey teams were able to interview ANMs at the 81 open sub-centers and located 28 others, resulting in an available sample of 109 ANMs, less than half of the expected number. The problem of lack of availability of ANMs at the health sub-centers

is corroborated in responses by citizens and local politicians. When asked whether the ANM is usually available at the health sub-center, 73 percent of both citizens and GP politicians responded "sometimes", "rarely", or "never". Our survey thus confirms what was widely reported during our fieldwork in Bihar—that village-level health sub-centers are often dysfunctional, and ANMs are not usually available.¹⁰ In contrast to the responses of citizens and local politicians, when the ASHAs and AWWs were asked this question about the availability of ANMs, only 35 percent responded "sometimes", "rarely" or "never". This pattern is consistent with reluctance on the part of health workers to speak ill of their peers. Other survey questions targeted at asking health workers about their view of peers is likely to suffer from this same reluctance to answer the question objectively. One such question posed to ANMs was to think about all the ANMs they knew or had worked with and tell us out of those how many were hardworking, and how many were honest. Among the ANMs who answered these questions, 80 percent indicated that all (100 percent) of the ANMs they know are hardworking, and 88 percent indicated that all (100 percent) are honest.

While the regular "scoldings" and discussion of problems of poor performance in management meetings is consistent with the evidence of lack of availability of ANMs on the job, it also suggests a vicious cycle of low expectations sustained by lack of trust among colleagues and peers. This can feed a lack of professional motivation among health workers as we find in responses to another module of questions on whether ANMs feel attached to their profession, and a sense of efficacy. Half of the ANMs respond that they agree it would have been better if they had taken-up another profession (in contrast, only 16 percent of doctors respond that they would have taken-up another profession).

Lack of professional agency or efficacy is particularly demonstrated in responses to the following question: "Irrespective of my efforts, the system will not allow health outcomes to improve". Figure 5 shows that across health cadres, from the village level up to doctors in public hospitals and health supervisors, more than 70 percent agree with this statement. Lack of professional authority or discretion is evident in Figure 6, showing high rates of respondents

¹⁰Interestingly, in this regard, when comparing responses of citizens, ASHAs, AWWs and politicians at the GP level on the modules to measure norms and motivation, the ANM respondents stand-out as having the lowest measures on Integrity and Public Service Motivation, as reported further below.

across health cadres agreeing with the statement that "In my work, I have to take permission for every little thing."

Supervisor responses are a useful source for understanding the extent to which the public health system suffers from low-effort norms. As mentioned earlier, questions posed to health workers about their expectations of their peers—whether they think their peers are hardworking or honest—did not work well in eliciting objective views because respondents are reluctant to speak ill of their peers. Indeed, even supervisors appear reluctant to report any problems: 80 percent of supervisor respondents say that 100 percent of the various cadres of health staff are both hard-working and honest. But, when we restrict attention to the 20 percent of supervisor respondents whose answers are less than 100 percent, these supervisors are reporting quite high rates of dishonesty and shirking among health workers. The average reported shares of dishonest/shirking workers when we only look at the data from those supervisors are: 36 percent of ANMs, 44 percent of Nurses, and 47 percent of Doctors.¹¹

Health supervisors answer other pertinent questions in ways that suggest systemic problems: 44 percent say that good workers get transferred because others feel threatened by them; 80 percent say that irrespective of their efforts, the system will not allow people's health to improve; 67 percent say they have to get permission for every little thing. Health supervisors' responses to these three questions related to professional efficacy are thus similar to the responses of health workers across the cadres, from the GP-level up.

Grouping the set of questions aimed at measuring attachment to the profession, and sense of efficacy into an index, we examine variation across frontline health workers. Table 1 reports correlates of this variation.

To highlight a few interesting correlations: one, non-receipt of salary payments is negatively correlated with the index of professional identity and efficacy, and this correlation is statistically significant for ANMs but not for ASHAs/AWWs.¹² Two, those who report few opportu-

¹¹The ANMs here include those posted at PHCs, who may be performing significantly better than the GP-level ANMs).

¹²The average ASHA and AWW reported that in the past year, they had not received the payments due to them for six months of work. The average ANM reported that salary for three months of work had not been received. That is, the ANM reports lower delays in receiving remuneration compared to the lower tier community health

nities for interaction with peers during the regular meetings held at the block-level Primary Health Center also report weaker professional identity and efficacy. Three, those who report that informal payments (bribes) are important to get desired transfers and promotions are also likely to report weaker professional identity and efficacy. Four, those who report that politicians create difficulties for their work are also likely to report lower efficacy or weaker norms. All of these correlations are reasonably intuitive, and consistent with the importance of management practices and political environment in shaping professional attitudes among health workers.

Taken together, the pattern of survey responses across different cadres of health workers and their supervisors suggests that the public health system is stuck in an equilibrium of low expectations, low trust, and low performance. Across the board, health workers express a sense of professional inefficacy, that no matter how hard they try, the system will not allow health outcomes to improve. Health workers think they are not recognized and empowered to perform; those who have any management power or authority think that health workers need to be scolded and handled strongly to get them to perform. This equilibrium stands in stark contrast to the recommendations that emerge from the logic of economic theory about how to organize institutions that are tasked with delivering services with "public good" characteristics. The next section discusses how such an equilibrium is consistent with a broader literature examining the role of institutions in development.

5 Institutions of low trust and perverse expectations of behavior in the public sector

Available research suggests that low trust and perverse expectations of behavior in the public sector, for rent-seeking rather than service delivery, characterize institutions in poor places like Bihar. Scholars of Bihar argue that the Indian caste system runs deep in the state, which together with a historical legacy of feudal systems of land ownership creates persistent social divisions and lack of trust across groups (Gupta, 1981).

workers.

Bihar's institutions can also be understood within a broader macroeconomic story of what explains why some countries are rich and others persistently poor. One body of work has argued that European colonization established "extractive" institutions in the history of currently poor countries, and those historical institutions have persistent effects till today, explaining why some places are not able to sufficiently grow out of poverty or develop "inclusive" political institutions that assure health and education for all (Acemoglu, Johnson and Robinson, 2001 and 2002;). These ideas are tested by Banerjee and Iyer (2005) and Iyer (2010) by examining variation in institutions within India. They find that colonial institutions have persistent effects on agricultural productivity and the delivery of public services. Bihar happens to be the state where the historical institutions used by Banerjee and Iyer (2005) and Iyer (2010) show no within-state variation. All of Bihar was governed directly by the British and through feudal land institutions during the colonial era, which are the institutions these authors find correlated with low agricultural productivity and fewer public good provision in current times (respectively), long after independence and land reforms.

However, the mechanisms of persistent impact remain shrouded in mystery. Research is also lacking on why current formal institutions, such as competitive electoral institutions, courts, police, which most states, including Bihar, possess, are not sufficient to overcome the burden of history. Further, these explanations may be unsatisfying because they are so abstract, and provide such little guidance of ways out of the problem. What precisely are "extractive" institutions, and why is it so hard to reverse them after the colonial powers are removed? It is difficult to argue that Bihar's political institutions are not "inclusive", after decades of competitive elections, turnover of political parties in office, and rise of lower-caste political leaders, on platforms of empowering the lower castes. Indeed, our survey data are consistent with inclusive politics, uncovering quite astonishing rates of political aspiration, and sophisticated political thinking among citizens in rural Bihar, across caste groups (discussed in the section below).

Taking stock of the literature on institutions, two World Bank reports have argued that the reason historical institutions have persistent effects is because they work through norms–

beliefs about how others are behaving— which are slow to change (World Bank, 2016; World Bank, 2017). Political norms are defined as a subset of social norms, pertaining to beliefs about how others are behaving in the sphere of politics and government. Political norms of behavior — what citizens demand from the state, and how they expect others to be acting in the public sector — can explain why well-intentioned reformers, in powerful political positions, find it difficult to institute change. To illustrate the argument¹³, prevalent political norms can be characterized as follows. Rational expectation among “ordinary” (i.e. non-office-bearing) citizens is that other citizens will vote for politicians who share their identity or ideology, and who provide targeted private benefits, even though, in equilibrium, the consequences are harmful for everybody (since voting on the basis of identity and private benefits weakens political incentives to provide public goods). Of these ordinary citizens, among those who have leadership or entrepreneurial qualities, who become contenders for political power (starting from the village level, as local elections spread within countries across the political spectrum), the rational expectation is that other contenders are entering the fray to seek private rents from public resources. Among office-bearing citizens, or state personnel, all the way from high- and mid-level bureaucrats to frontline providers, the rational expectation is that their peers do not care about doing their jobs well because there are few formal or informal (sanctions) rewards for (bad) good performance. The service delivery organizations of the state thus lack both incentives and non-pecuniary sources of motivation (such as peer pressure and professional norms). When a reform leader tries suddenly to strengthen incentives in this low- performance setting, those reforms are resisted and thwarted by well-organized interest groups, such as unions of teachers and doctors, or other political opponents who seek rents from the status quo.

Where even dynamic and motivated leaders find it hard to bring reforms is where success is difficult to deliver using their executive powers alone, and therefore, also harder for them to take credit for and return to office. These difficult areas are human-resource intensive and require sustained change in the day-to-day behavior of a large number of frontline personnel. It is also precisely in these human-personnel-intensive sectors of delivery that leaders

¹³This section draws on Khemani (2019).

face a particularly difficult political trade-off – win elections by extending the patronage of government jobs and deploying ideological instruments (such as by exploiting social animus between groups on the basis of religion or ethnicity) versus strengthening bureaucratic institutions so that service providers are professionally motivated and routinely held accountable without need for political intervention. Thachil (2011) and Chidambaram (2012), for example, find that political parties with religious ideologies respond to citizen demand for health and education by providing services through their party organizations outside of the state bureaucracy, in order to win citizens' gratitude and their vote; but, these parties do not appear to have sufficient incentives once in office to institutionalize service delivery by de-linking it from patronage or ideological politics.

In the language of game theory, persistent and systemic problems of low effort and low performance in government agencies can be understood as the non-cooperative equilibrium of a Prisoner's Dilemma, supported by low expectations for cooperation (that is, non-cooperative norms) among large numbers of players. Dixit (2018) describes this problem in the context of widespread corruption. Although it would be beneficial for society as a whole to reduce corruption, society is instead stuck at high corruption levels because individuals believe that engaging in corruption is the best they can do given how others are behaving. For example, bureaucrats ask for bribes in order to provide public services, and citizens pay these bribes because they believe that most others engage in bribery; if they refuse to pay the bribe, they will get nothing, or worse, they may suffer retribution.

The sections below present evidence of forces of change that may be harnessed by policy-makers to try to make public health spending more effective in strengthening public health.

6 Potential for harnessing local political contestation

Patterns in the data suggest that citizen demand for public health can be a force for political change in favor of effective public health spending.

One, there is little evidence of "populist" demands from citizens, such as for cash, or subsidies,

without regard for the opportunity cost of public spending on health. A clear majority of citizens respond that any additional public spending for their area be allocated to health and nutrition services for their children rather than to cash transfers, job creation programs, or roads (Table 2).¹⁴ On a simple question about price subsidies that we tried out—whether governments should provide electricity for free— as many as 25 percent of respondents answered no, without any qualification, while 34 percent qualified that subsidies could be targeted to poor people. These responses from the average citizen respondent stand in contrast to the responses from those who were identified in the data as leaders of the village SHG—only 17 percent of SHG leaders answered no, and 52 percent answered with an unqualified yes, compared to only 40 percent of citizens saying yes (Table 3).¹⁵ This pattern of citizen responses is even more striking when compared with how the higher income and educated respondents, such as doctors, in our sample answered this question. Among doctors, for example, 57 percent answered with an unqualified yes, that governments should provide free electricity, with only 6 percent saying no.

Citizen responses to another set of questions— on whether they would vote for a candidate for village Mukhiya who offers inducements at the time of elections, such as a gift or cash in exchange for votes—suggest a more sophisticated political way of thinking than one of gullible or cynical voters who are easy prey to vote-buying strategies. Only 10 percent of citizens answer that they would vote for the gift-giving or bribing candidate, with 89 percent saying they would not. It is not easy to dismiss these responses as arising only from social desirability bias because other respondents— those that are identified in the data as leaders of the village SHG, and the village ANMs—who may be equally subject to the possibility of such bias—are twice as likely to respond voting for the bribing candidate (20 percent respond they would vote for the bribing candidate). Furthermore, the pattern of responses to some follow-up questions probing whether the respondent thinks the bribing candidate is more likely to win elections, more likely to be corrupt, and more likely to get work done compared to candidates

¹⁴<https://www.brookings.edu/blog/future-development/2019/04/08/what-do-poor-people-think-about-direct-cash-transfers/>

¹⁵The SHG responses are similar to the responses of women in the sample, suggesting that the difference may be entirely due to gender. That is, we do not find that those women who belong to SHGs are less likely to demand free electricity.

who do not bribe, provides a critical view of bribing candidates. Across all respondents—the average citizen, the SHG leaders, and the ANMs—more than 75 percent respond that the bribing candidate is more likely to be corrupt, and more than 80 percent respond that the non-bribing candidate would get more work done. Even those who answered that they would vote for the bribing candidate are more likely to respond that the bribing candidate is more likely to be corrupt and less likely to get work done than a candidate who doesn't bribe. This pattern suggests that citizens may inherently dislike bribing candidates, but nevertheless be compelled to vote for them for other reasons, such as if there is no choice (all candidates bribe), or if the bribing candidate is more likely to win. In our data, those who respond that they would vote for the bribing candidate also tend to respond that the bribing candidate is more likely to win elections.

Two, citizens have political aspirations. When asked whether they would consider running for political office, as many as 31 percent of respondents answer "definitely". Even when we restrict the sample to only the third for which the respondent is a woman, as many as 21 percent respond "definitely" compared to only 5 percent among those women who are frontline public health workers. The average female respondent is only slightly less likely than SHG leaders to report interest in running for office (26 percent of SHG leaders answer "definitely"). This reported interest in running for office in our survey is consistent with the large numbers of candidates actually observed in GP elections in Bihar, with more than 10 on average contesting the Mukhiya position. Other states, such as Andhra Pradesh, in contrast, have 2-3 candidates contesting on average (Afridi et al, 2018).

Of course, the motives behind these aspirations to run for political office is unclear. On the one hand, these high rates of reported interest in running for office could be because holding local political office is lucrative, presenting opportunities to extract rents from state-funded public program. Even without overtly corrupt motives, standing for local elections may be one way to get an income earning position, in an economic environment where jobs are scarce. On the other hand, these responses suggest a highly contestable local political market, with low barriers to entry, which may enable public service motivated individuals to become local leaders.

State government policy-makers may be able to leverage this local political contestability to address problems of implementation and delivery.¹⁶

Among those citizens who have already identified themselves as political contenders—the incumbent village politicians and those who contested for the Mukhiya (village head) position in the previous election—the data show that these village politicians are distinct from other village-level respondents (citizens, ANMs, ASHAs, AWWs, Self Help Group members) in having higher measures of public service motivation and integrity. Figures 7 and 8 show the cumulative distribution function (CDF) of the public service motivation and integrity indices for different categories of village-level respondents. The figures show that village politicians are distributed at higher measures of public service motivation and integrity, compared to the distribution of other village-level respondents. This could be because politicians tend to answer the questions related to these characteristics less sincerely, and hence these measures may not be capturing real differences in public service motivation or integrity among local politicians. We do find some evidence, however, that the public service motivation measure among local politicians tends to be positively correlated with health service delivery reported by citizens—that is, citizens are more likely to receive maternal and child health services in villages where the average politician is measured as having higher public service motivation. Table 4 shows that women are more likely to receive iron and folic acid, and food supplements during pregnancy in villages where local politicians are measured as having higher public service motivation. The last column of Table 4 shows that women are less likely to report never receiving postnatal care in villages where politicians are measured as having public service motivation. We note that not all our survey measures of access to maternal and child health services are significantly correlated with politicians’ public service motivation. The purpose here is not to argue that we have identified a variable—namely, politicians’ public service motivation—as a key predictor of access to health services, but rather to furnish as much evidence as possible on the *potential* of local political contestation to support the policy

¹⁶Further evidence of low barriers to entry for local political leadership comes from politicians’ responses to questions about their family political history. As many as 35 percent of incumbent Mukhiyas, 80 percent of Mukhiya contenders and 62 percent of Ward members report that no one in their family has ever held political office. The majority of these politicians, including those who come from non-political families, report that they would definitely run again for office.

directions we propose under the current calls for urgent action.

7 Potential of frontline public health workers

Citizens report greater reliance on publicly provided preventive and promotive health services than on curative health services. For example, in response to a question about how often they use government health facilities when someone in the family falls ill, only 12 percent answer "often", while 47 percent answer "rarely" or "never". This is consistent with the findings from the work of Das et al (2016) that people in rural India tend to rely on private providers for curative health care. In contrast, when women in the sub-sample of households who had experienced a recent pregnancy (within the past 5 years) were asked which type of provider gave them ante-natal care, 85 percent responded by indicating a public provider (the ASHA and AWW are the most frequently cited); only 14 percent indicated a private sector provider.

This difference in the extent to which the public sector is used for preventive and promotive rather than curative care is particularly large for poorer and less politically connected citizens. Table 5 shows that respondents who are in positions of political power—elected politicians of local government (the panchayats at the village, block and district levels), members of the state legislative assembly (MLAs) and members of the national parliament (MPs)—are significantly more likely to use government clinics or hospitals for curative care needs. We are unable to control for measures of income and assets because these questions were not asked in the surveys of higher-level politicians owing to sensitivity issues and time constraints in getting these powerful respondents to sit down for a survey. We hypothesize that the estimated influence of political power in accessing curative care in government hospitals may be even higher if we were to be able to control for income, since higher-level politicians would tend to have higher incomes, and higher incomes are associated with greater use of expensive private care facilities.

Among the different frontline workers who could provide maternal and child health/nutrition services—the ASHAs, the AWWs, and the village sub-center ANMs—citizens systematically report much lower reliance on ANMs than on the quasi-volunteer workers (ASHAs and AWWs).

For example, when recently pregnant women in the sample were asked who they most relied upon for advice during their pregnancy, 33 percent responded by indicating the ASHA, followed by 28 percent indicating a family member (such as, their mother-in-law); only 5 percent indicated a nurse or ANM. Similarly, only 5 percent of the women indicated the sub-center nurse as the provider of ante-natal care, compared to 27 percent indicating the ASHA, and 43 percent indicating the AWW.¹⁷ In response to a question about where their last child was delivered, only 27 percent of women indicated the health center (including both the village sub-center and the block-level PHC, where the ANMs are the key personnel assisting with child births), while 17 percent indicated a home-birth, 34 percent indicated the district hospital, and 21 percent indicated private providers. Furthermore, 41 percent of citizens report that the ANMs are rarely or never there to provide health services at the village sub-center, while only 18 percent respond that the ANMs are often there.

Consistent with the evidence of lack of availability of ANMs, we find that our survey measures of public service motivation and integrity are lower among ANMs than among other cadres health workers. Figures 9 and 10 show that ANMs are distributed at lower levels of integrity and motivation compared to the distribution of other cadres of health workers. This evidence underscores the need for complementary reforms (in addition to increasing public spending on frontline health workers) to address the problem of incentives and norms among frontline health workers.

8 Potential of complementary communication campaigns

Theoretical analysis of how changes in norms come about points to a triggering role for political contestation, and the leaders selected through it. Leaders can play this role as “prominent agents” who signal a shift in beliefs among society at large (Acemoglu and Jackson, 2015). Growing experience with political engagement and the learning that comes from it, such as through frustration and indignation with bad outcomes, can create fertile conditions for

¹⁷The AWWs may be regarded as a significant source of ante-natal care because AWWs may be distributing supplements like folic acid. In answering a question about access to iron folic acid, 40 percent indicated that it was provided by the AWW.

change in political norms (Bidner and Francois, 2013). Recent theoretical developments on the management of complex organizations generally, both in the private and public sectors, is also pointing to the role of leaders in shaping organizational culture. For example, Akerlof (2015, 2017) defines the concept of “legitimacy” of leaders in getting lower level personnel to follow the organization’s objectives of their own accord, through peer-to-peer interaction, without incentive payments and monitoring from the top.

In each of these theories of how changes in norms come about, information and communication that shift expectations about how others are behaving is the necessary element that brings about change. In some models, the information is communicated through the types of leaders that are selected (Acemoglu and Jackson, 2015). In others, information is gathered and shared over time among citizens through the experience of political participation (Bidner and Francois, 2013). In any problem where norms support a less than desirable outcome, shifting to a new norm requires information sharing and communication among the actors to update their beliefs about how others are behaving. The role of political leaders and processes of political participation as the channels for sharing information that shifts norms in public sector agencies, is consistent with classic work on norms for collective action (Ostrom, 2000).

Using these theoretical insights, communication campaigns can be designed to harness the potential of local political contestation in shifting norms towards the public good of public health. Given available platforms of regular meetings among peers—as is the case in the department of health in Bihar—these meetings can also be an arena in which communication strategies can be used to strengthen peer-to-peer pressure for professional norms.

Our survey included a detailed module asking about media consumption across all categories of respondents. The primary purpose in designing these modules was to understand the context and patterns of media consumption with an eye towards future communication interventions targeted at strengthening norms. There are two elements to consider in this regard: one, which media are likely to provide local (versus national) news; and two, which media are likely to be shared in common across respondents, so that communication about local matters can be expected to reach them all simultaneously. Put another way, to what extent are

different types of respondents—the health workers, citizens, politicians—accessing completely different media outlets for news, versus converging on some common platforms?¹⁸

The following patterns emerge:

One, among the "middle/upper-class" (urban, educated, higher caste and income) respondents in our survey—the district and block-level politicians, health supervisors, and doctors—98 percent respond that they read newspapers regularly, and cite 4 Hindi newspapers as their favored papers.

Two, Figure 11 shows that GP-level respondents—who are rural, lower caste, education and income— are far less likely to report reading newspapers regularly (daily or 2-3 times a week). However, there is considerable variation across different types of respondents: while only 31 percent of citizens report reading newspapers regularly, 82 percent of ANMs and 58 percent of GP politicians do so.

Three, Figure 12 shows GP-level responses to the question "Which medium do you rely on most for news—newspapers, TV, radio, social media/internet?". Even though 82 percent of ANMs report reading newspapers regularly, only about half of ANMs answer that newspapers are their main source of news, with 44 percent citing TV. Similarly, 33 percent of GP politicians cite newspapers as their main source, while 41 percent cite TV. (In fact, the middle/upper-class respondents in point one, also split between TV and newspapers when answering this question of the main media on which they rely for news).

Four, Figures 13, 14 and 15 together show that among those who regularly read newspapers, there is much lower dispersion in which newspapers they read compared to a high degree of fragmentation across different TV stations of those who cite TV as their main source of news. Those who read newspapers converge on the same 4 Hindi language dailies that are local to Bihar. The TV channels on which there is some convergence across respondents, are all national channels and therefore unlikely to focus on local news.

¹⁸Segmentation of consumers across different media markets is being analyzed in the United States as a source of increasing political polarization and non-cooperative norms, because it allows people to select into so-called "echo-chambers" to confirm their priors rather than seek common ground with others.

Five, the average citizen in rural areas is more likely to rely on national Hindi TV channels for news rather than on local newspapers. Strikingly, SHG leaders report the lowest reliance on or use of newspapers (around 11 percent), and much more on national TV (43 percent). Citizens and SHG leaders thus appear to have little consumption of or access to local news from established news outlets, relying on a variety of "other" informal sources, such as their social networks.

Hindi newspapers emerge as the dominant media for local news that is shared across influential respondents (ANMs, GP politicians, and middle/upper-classes of respondents above the GP). A communication campaign that seeks to shift views simultaneously, across health service cadres (ANMS and their supervisors at the block and district level), GP politicians, and the upper-classes of the state, would thus need to seriously consider the role of newspapers as a commonly shared and established media. The existence of newspapers as the shared platform for accessing news is suited to communicating evidence and complex information that requires reading to digest. At the same time, buying time on national Hindi TV channels to devote to Bihar-relevant and specific messages, would be an important complement, to reach citizens and SHG leaders who do not read newspapers, and to re-enforce the messages delivered through newspapers.

9 Conclusion: Outlining policy directions for public health spending

The evidence provided here of a vicious cycle of low trust, perverse expectations, and poor performance in public health systems should inform the design of investments in public health that policymakers are poised to undertake. Designs that do not address the trust deficit will miss an opportunity to use economic theory and research to build trust in public institutions at a time when it is urgently needed for public health. This paper has presented evidence of potential forces of change in local politics and health bureaucracies that can be harnessed by policymakers to establish a cadre of trustworthy and professional frontline public health

workers.¹⁹

This concluding section outlines policy directions that could be tailored to any context, as we do for Bihar, for reform leaders and international partners to consider in their investments in public health systems. The following three elements characterize these policy directions:

- **Infuse messages into management meetings in health bureaucracies:** the Bihar survey found that across all cadres of health workers, there are regular meetings held with district and block-level management (75 percent of sub-center ANMs say they have weekly meetings; 86 percent of ASHAs say they have at least monthly meetings with the MOIC at the Block PHC), and a significant proportion of health workers are part of WhatsApp groups (39 percent of village-ANMs and 52 percent of block-ANMs say they belong to a health workers' WhatsApp group.). Evidence-based messages about the need for professionalism and motivated service delivery can be crafted for sharing at meetings that are already happening organically and provide an institutionalized space for strengthening peer-to-peer norms.²⁰ In the Bihar and India context in particular, this involves a radical shift away from the culture of "scoldings" and disciplining, towards encouragement and recognition of health workers as professionals whose services are urgently needed for the good of society.
- **Newspaper and TV campaigns:** Bihar provides a context in which readership of Hindi-language daily newspapers provides a platform to share complex messages that require reading and discussion among people. As discussed above, newspaper reading is already happening as a way of finding out local, Bihar-specific news, and thus presents an organic platform that external agents can use to disseminate credible, data-based messages. At the same time, the relative importance of TV viewing among the poorer groups of respondents in villages suggests a role for inserting Bihar-specific in-

¹⁹The survey on which this paper draws was designed to understand the management environment in which health workers perform their tasks, and did not have scope to address the important area of professional training. We thank Hemant Pawar and the World Bank's India country team for highlighting the need for better pre-service and in-service training of health workers. Our paper can be used to craft complementary governance interventions so that better trained health personnel are motivated to use their training for health impact.

²⁰Contrast this against the lack of such institutionalized space for social accountability—86 percent of citizens respond that they have never heard of a village committee on health and nutrition.

formation as sponsored programs or ads into national TV channels (the ones people report watching). Such media campaigns are not only hypothesized to reduce rent-seeking by village politicians, and strengthen local incentives for health services, but also to strengthen the hands of state-level reform leaders to invest in a new or rejuvenated cadre of frontline health workers. Research suggests that public health issues have not enjoyed political salience in India because of differentiated demands across socio-economic classes. Upper and middle classes in urban India may lack pertinent information about the value of public health systems in reaching poor households in rural India. Campaigns deployed through the mainstream media in Bihar that reaches citizens across these different socio-economic classes can, potentially, enable reform leaders to build political support for investing in frontline public health workers.

- **New recruitment and steady wages to community-based public health professionals (but crucially, accompanied by the two communication campaigns above):**

as reviewed above, the economics literature on managing principal-agent relationships in the public sector suggests that there is considerable scope for improving bureaucratic productivity by reducing reliance on incentives and strengthening intrinsic motivation and professional norms. Yet, RCTs that focus on incentives alone, with no comparable arm on strengthening professional norms, have captured the policy imagination, to the detriment of trying out different approaches with potential. Financing incentive payments, as well as implementing them with fidelity to the design, require considerable resources. In normal times, it would be of value to policymakers to test whether lower cost management reforms can improve service delivery compared to implementing high-powered incentives. In the current time of crisis, the arguments provided in this paper support a leap of faith in recruiting, training, empowering and equipping frontline health workers with steady wages. Investing in this cadre to manage and prevent disease outbreaks in their communities, liaising with the higher-tier health system as advised to do so by the global scientific and technical research community, is indispensable. Doing so by taking the game of local politics and bureaucracy seriously into account will increase the likelihood of success in fighting the current and future health

crises.

The policy package described above is similar in spirit to what Brazilian Governors in the state of Ceara adopted over 1987-1994, as they confronted a situation of poverty recently made worse by a drought; some of the highest rates of infant mortality (102 deaths per 1,000) in the world; and no functioning public health system. The Governors combined meritocratic recruitment of a new cadre of public health workers with a blizzard of communication using local radio, the dominant media to influence local politics and governance. Tandler and Freedheim (1994) provide a case study of how these steps built trust in the public health system and dramatically turned around health outcomes in the state within a span of a few years. Infant mortality fell by 36 percent and vaccination coverage increased from 25 to 90 percent. Perhaps even more importantly, the Ceara model was scaled-up across Brazil as the country's Family Health Program (now called Family Health Strategy), relying on state-recruited community health agents to deliver basic services targeted at poor households. Rochas and Soares (2010) estimate that this program has been successful in improving health outcomes in poor areas. More examples from other parts of the world are provided by Wagstaff and Claeson (2004) of how professional norms in teams of health workers leads to better health outcomes in the communities they serve. This paper has focused on leveraging theoretical and new empirical research for ideas on how to bring about these professional norms in institutional contexts where they are missing to start with.

Policymakers who are poised to increase public health spending to respond to the global health and economic crises can immediately use the ideas presented in this paper. Fixing difficult problems like public health requires a complex mix of policy instruments, going beyond health to institutions of governance and trust. This paper aims to bring these complex ideas to the fore at a time when international financing is being mobilized to strengthen public health systems. Fast tracked health projects to combat the new coronavirus outbreak should use the evidence provided in this paper when designing those projects, and help developing countries move beyond the crisis to strengthening public institutions for health. The research division of the World Bank stands ready to help in clarifying and tailoring the ideas for im-

plementation in specific contexts, along with evaluating its impact over time.

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11 Figures and Tables

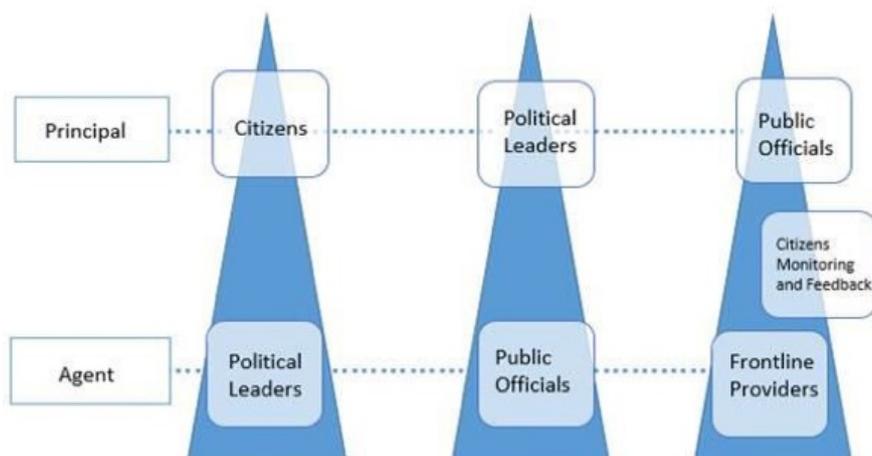


Figure 1: Principal-Agent Relationships of Government

Source: World Bank (2016).

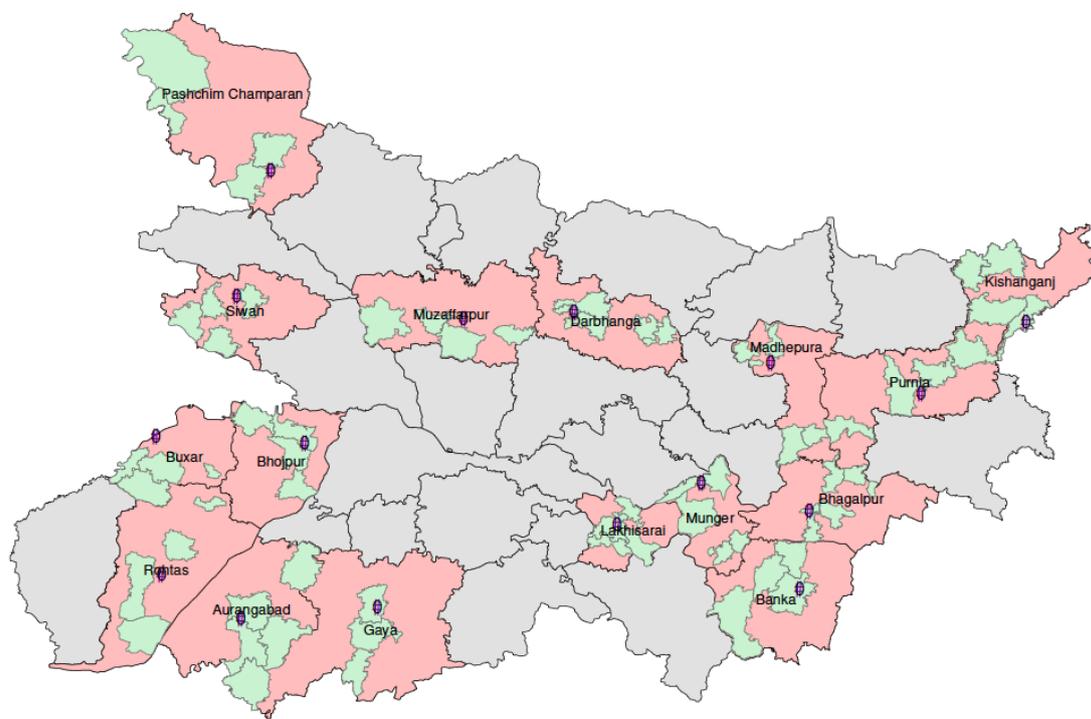


Figure 2: Map of Bihar.

Note: Sample districts are colored in red and sampled blocks, within sampled districts, colored in green.

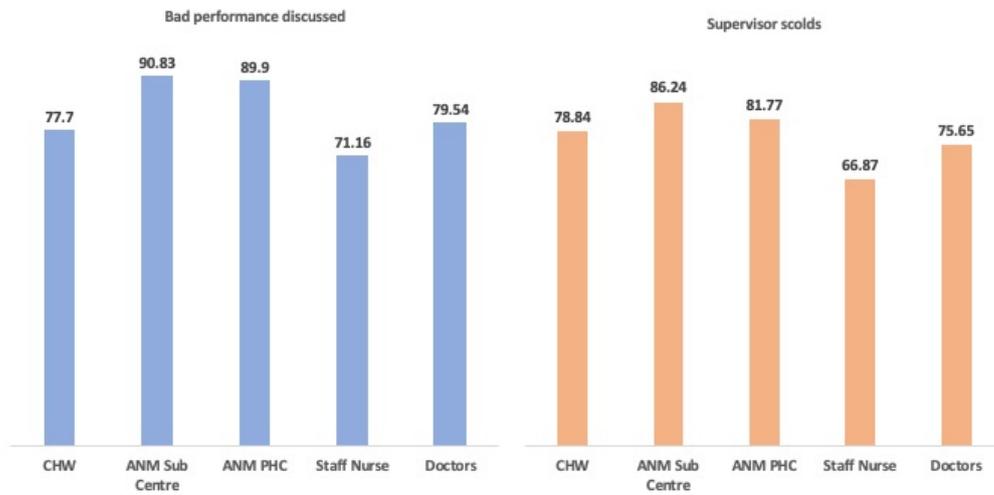


Figure 3: Share of health staff saying management meetings discuss bad performance and involve scoldings

Note: This figure reports the share of health staff, in each survey, stating always or sometimes bad performance is discussed (left panel) or supervisors scold workers (right panel).

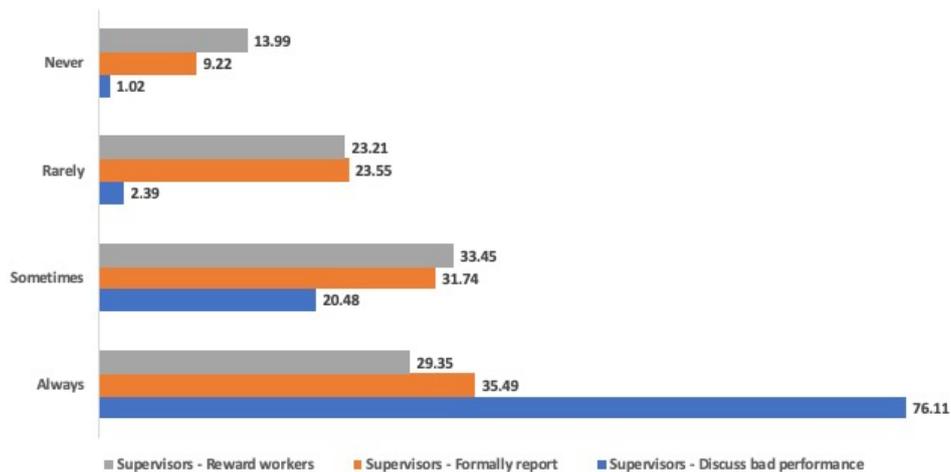


Figure 4: Supervisor reports consistent with dominance of discussing bad performance in meetings

Note: This figure reports the distribution of supervisors' responses about how often workers are rewarded (grey bars); how often they are formally reported (orange bars); and how often bad performance is discussed (blue bars).



Figure 5: Share who agree with: Irrespective of my efforts, the system will not allow people's health outcomes to improve.

Note: This figure reports the share of health workers, in each group, that fully agree or somewhat agree that irrespective of their efforts the system will not allow people's health outcomes to improve.



Figure 6: Share who agree with: In my work, I have to take permission for every little thing.

Note: This figure reports the share of health workers, in each group, that fully agree or somewhat agree that in their line of work they have to take permission for every little thing.

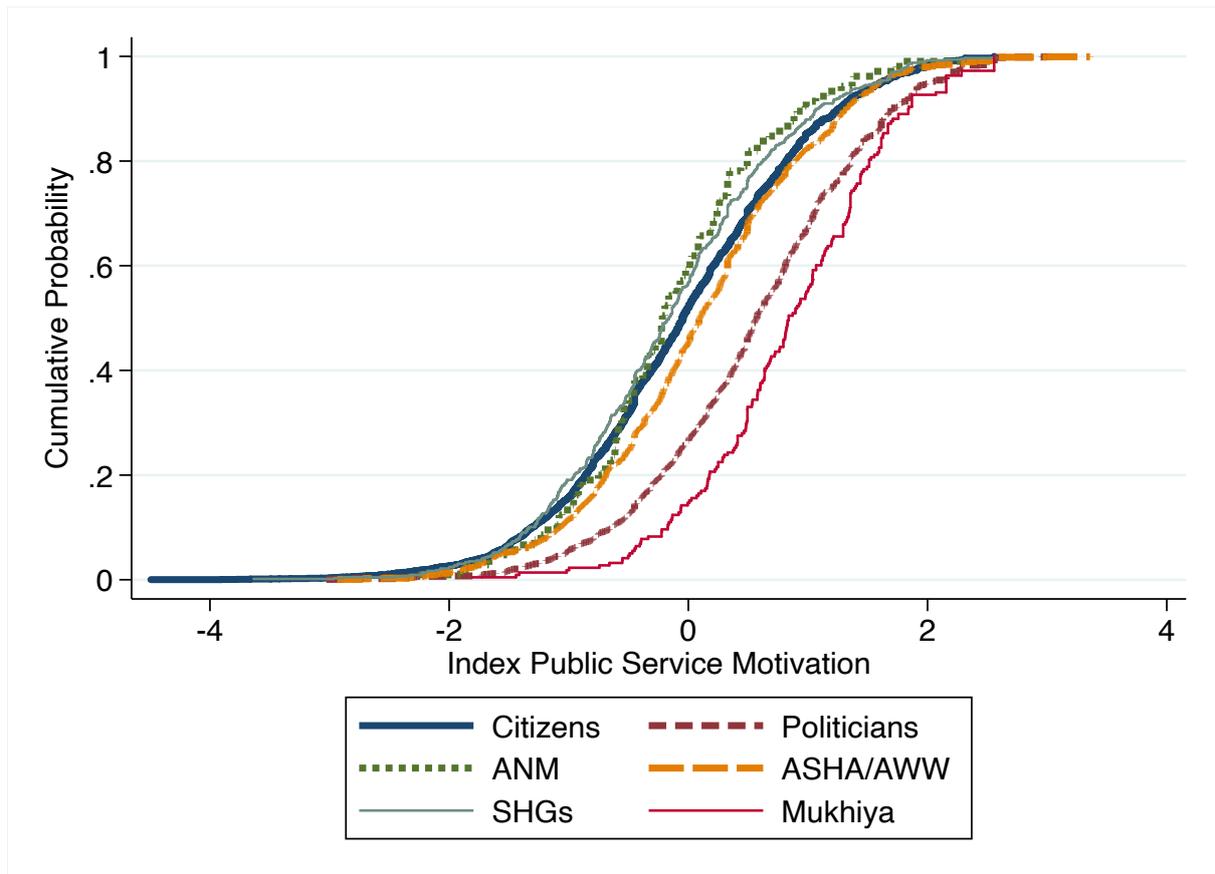


Figure 7: Distribution of Public Service Motivation across Village Respondents

Note: This figure reports the cumulative distribution functions (CDF) of the index of Public Service Motivation for each respondents' category.

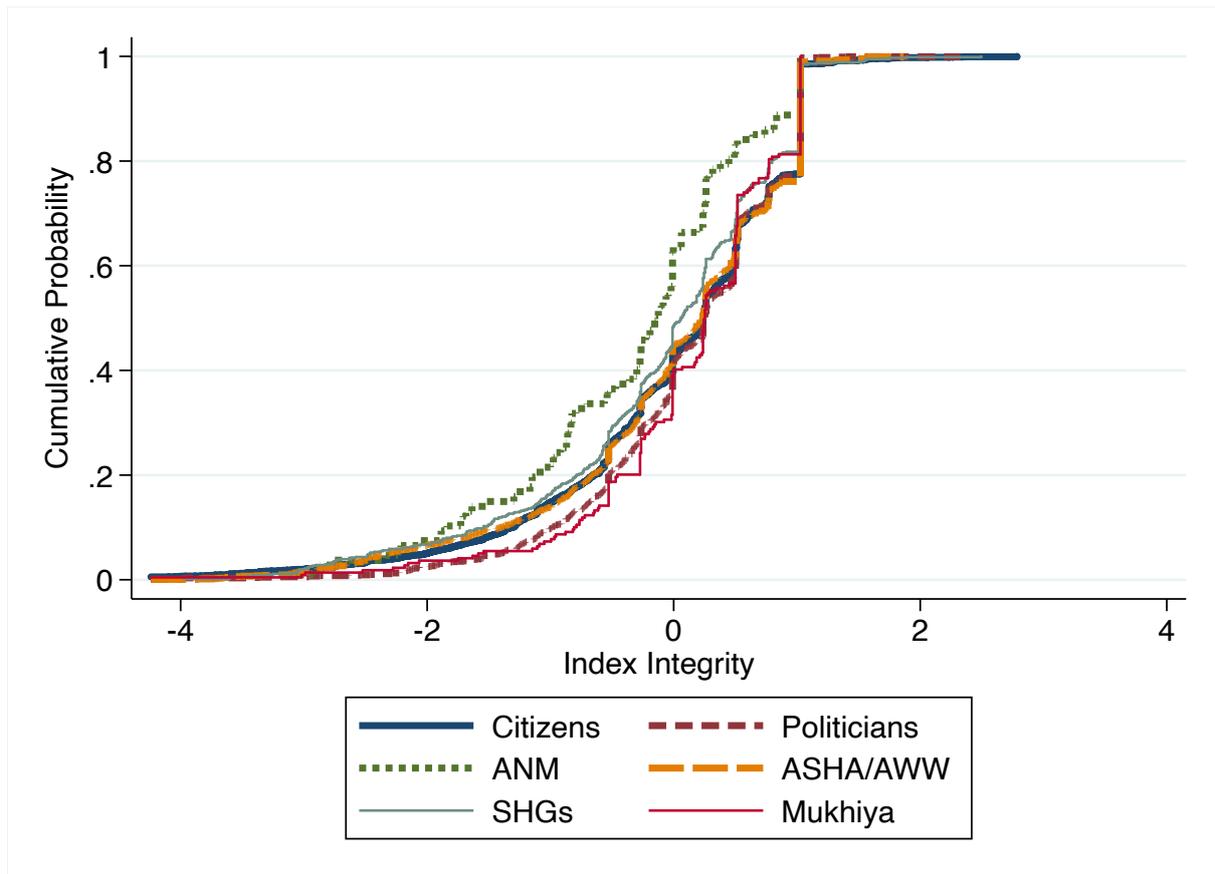


Figure 8: Distribution of Integrity across Village Respondents

Note: This figure reports the cumulative distribution functions (CDF) of the index of Integrity for each respondents' category.

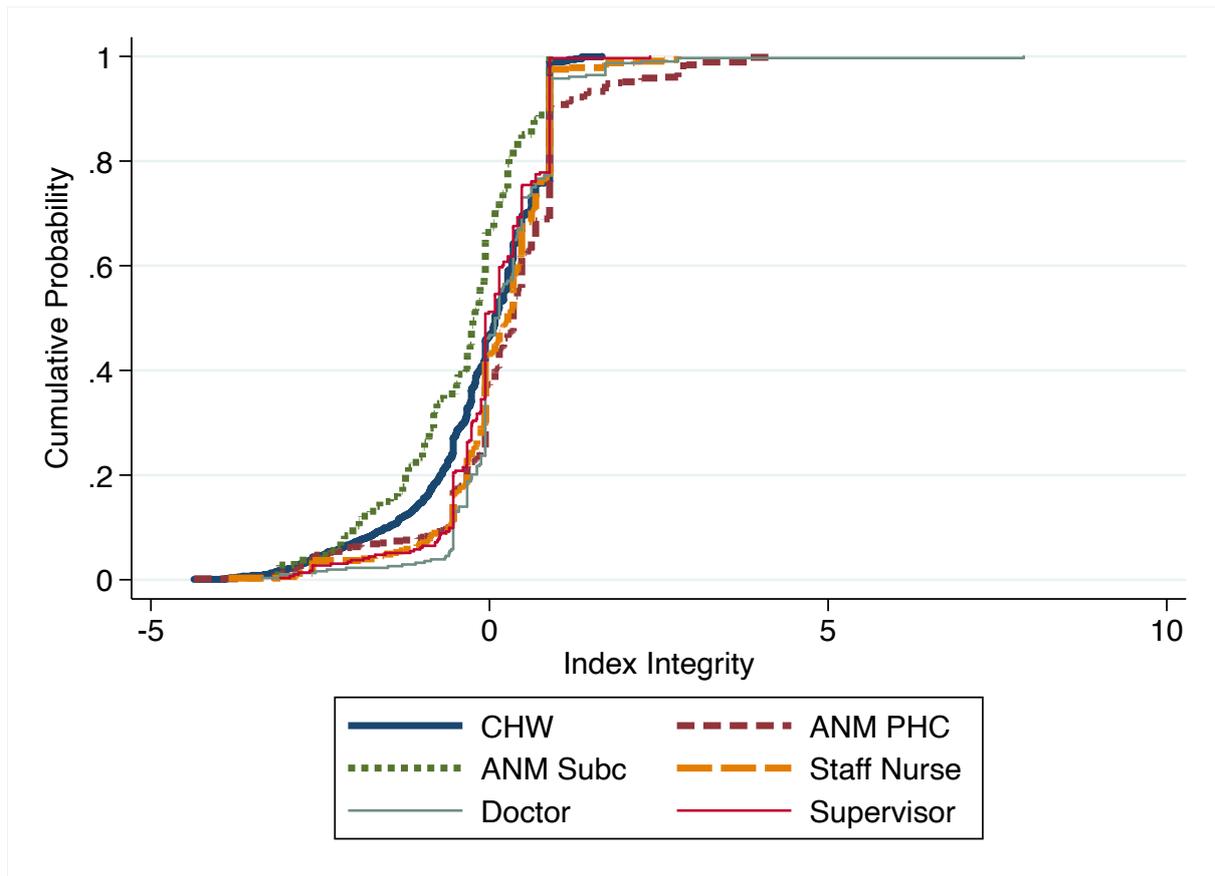


Figure 9: Distribution of Integrity across Health Worker Cadres

Note: This figure reports the cumulative distribution functions (CDF) of the index of Integrity for each respondents' category.

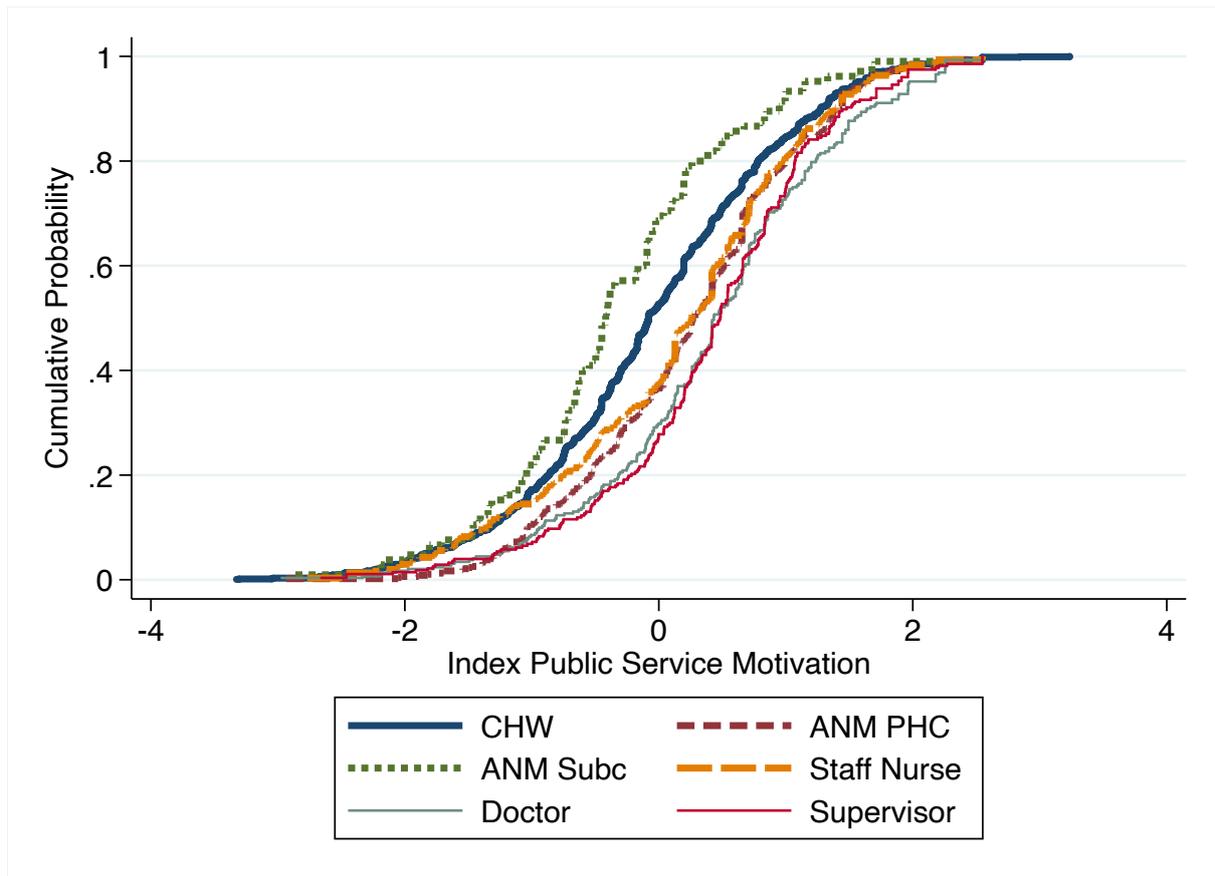


Figure 10: Distribution of Public Service Motivation across Health Worker Cadres

Note: This figure reports the cumulative distribution functions (CDF) of the index of Public Service Motivation for each respondents' category.

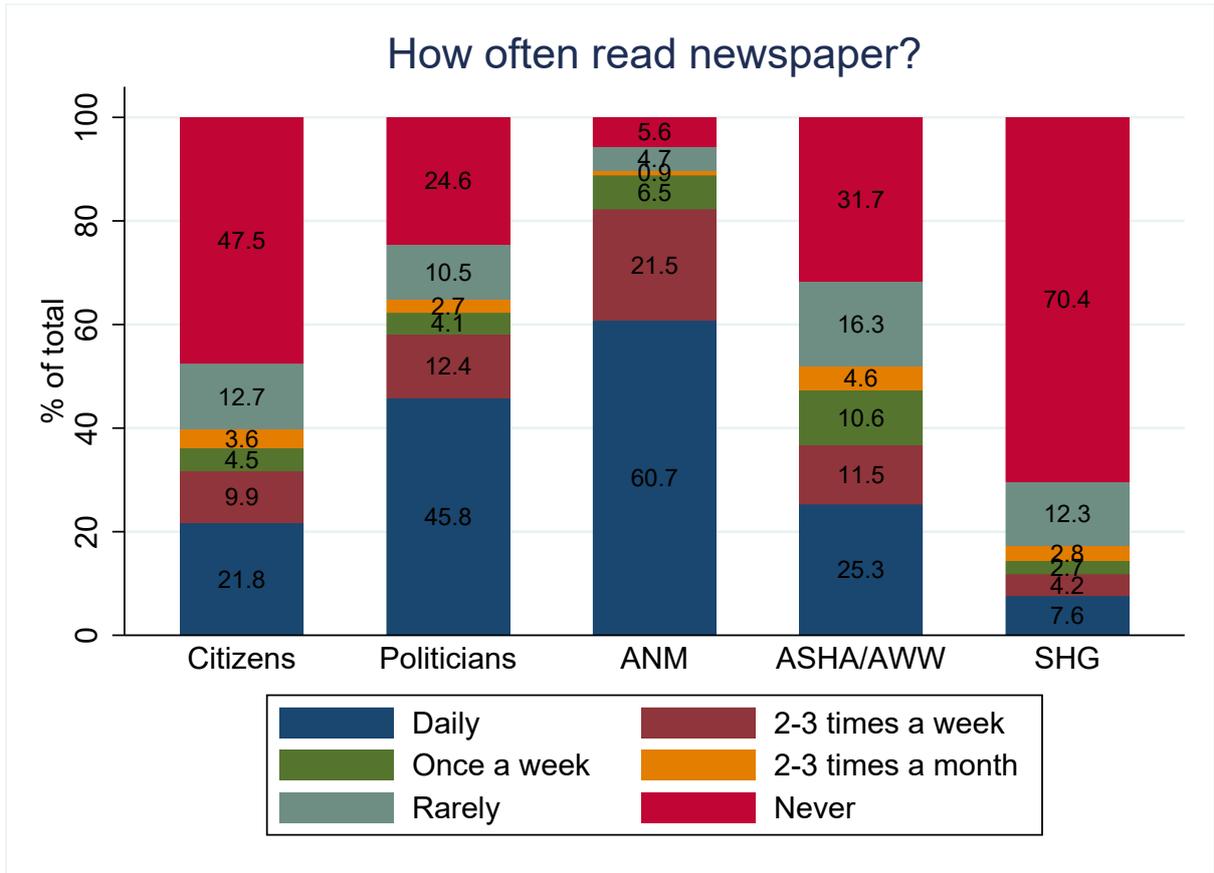


Figure 11

Note: This figure reports the distribution of responses, for each surveyed group, about how often they read the newspapers.

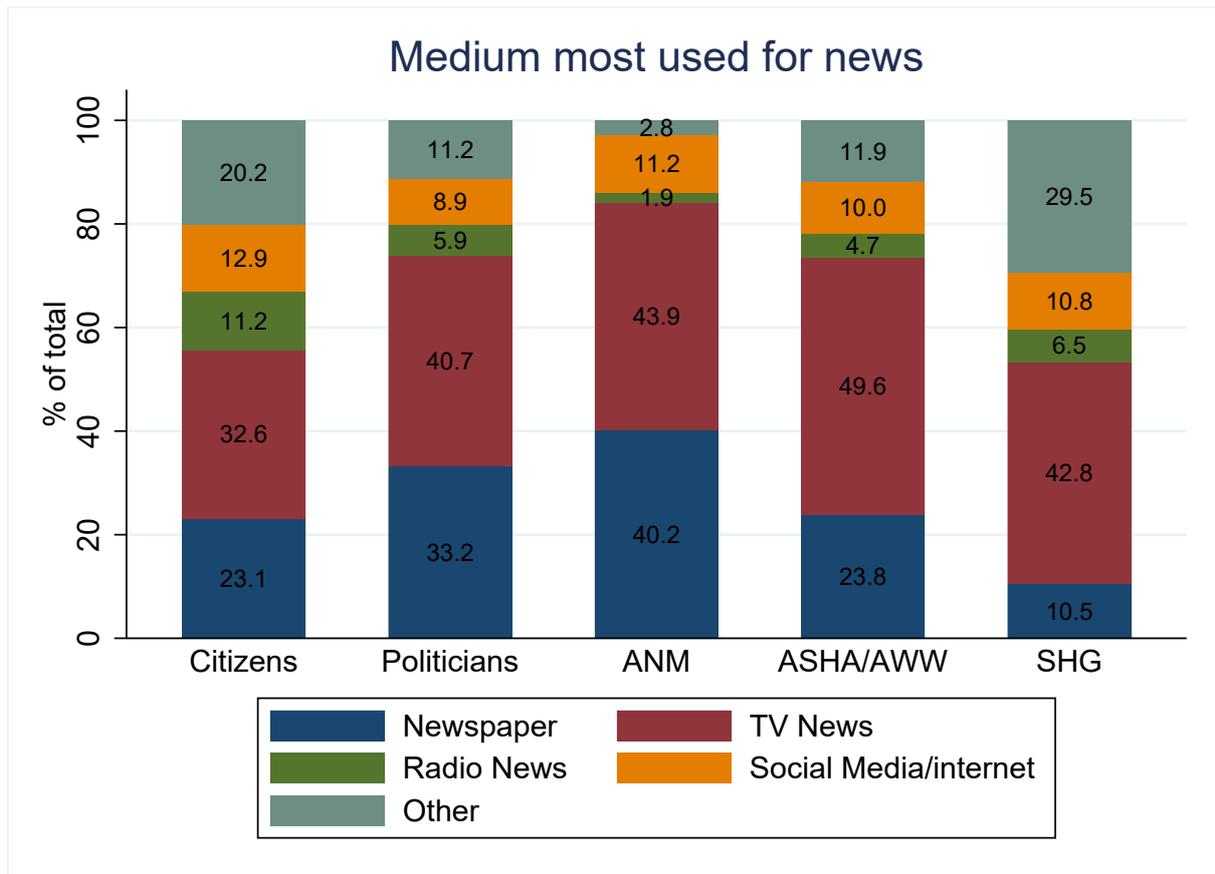


Figure 12

Note: This figure reports the distribution of responses, for each surveyed group, about which medium they use the most to access news.

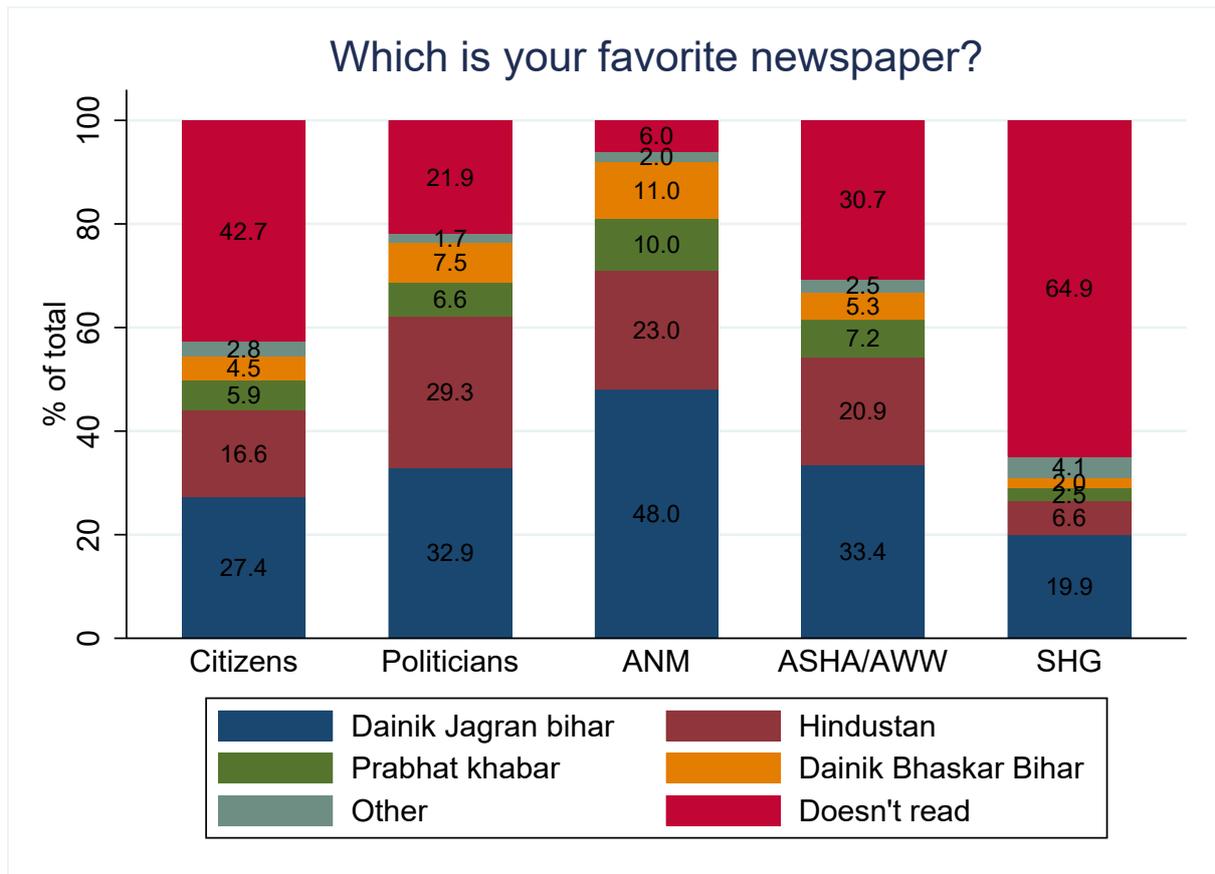


Figure 13

Note: This figure reports the distribution of responses, for each surveyed group, about which is their favorite newspaper.

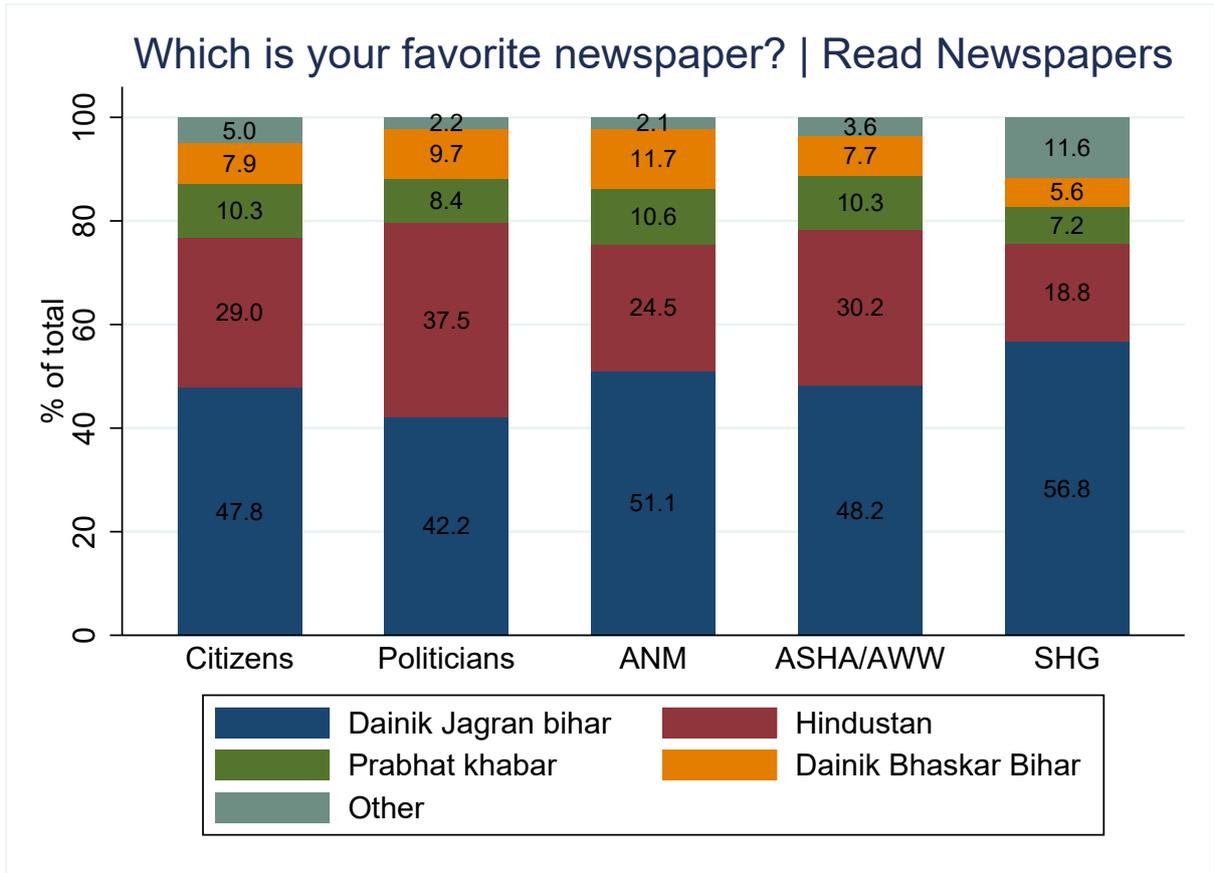


Figure 14

Note: This figure reports the distribution of responses, for each surveyed group, about how often they read the newspapers, conditional on responding they read some newspaper.

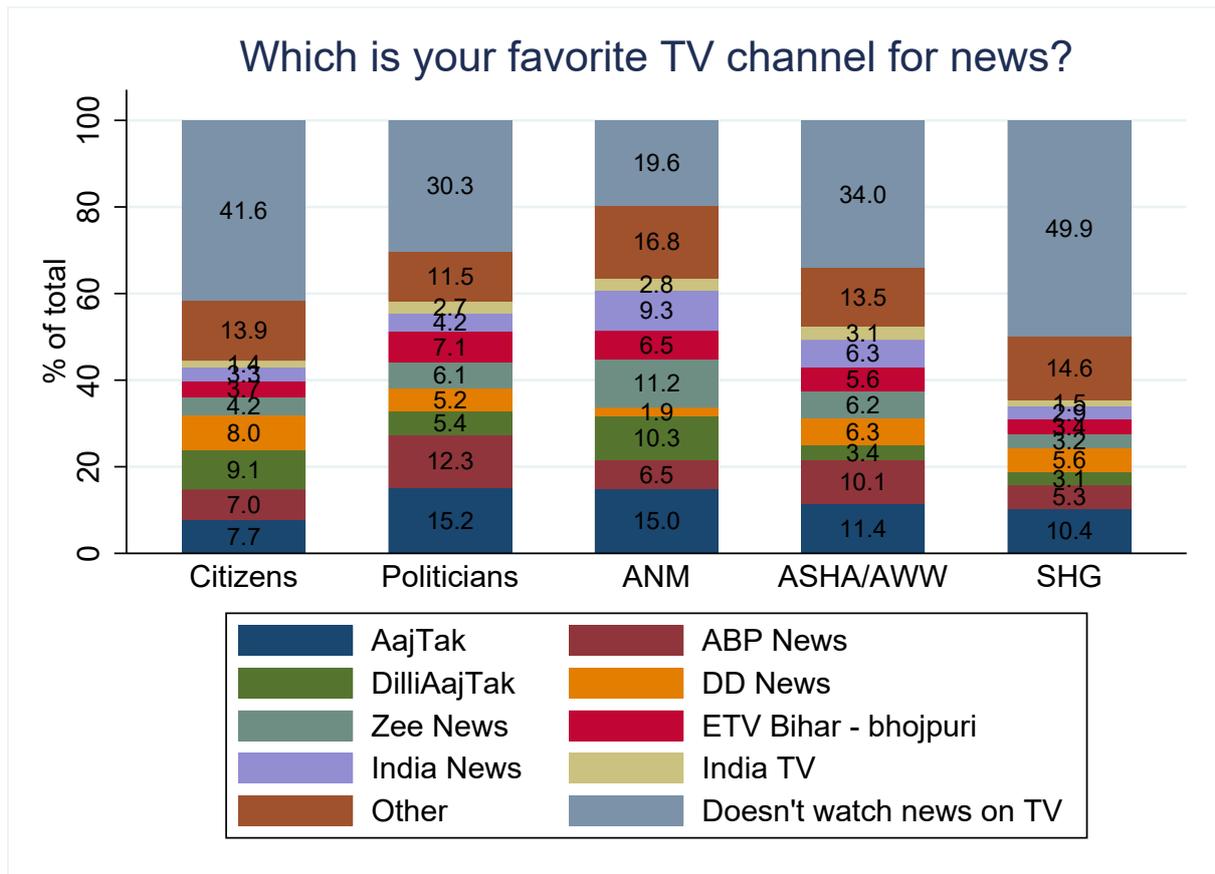


Figure 15

Note: This figure reports the distribution of responses, for each surveyed group, which is their favorite TV channel for news.

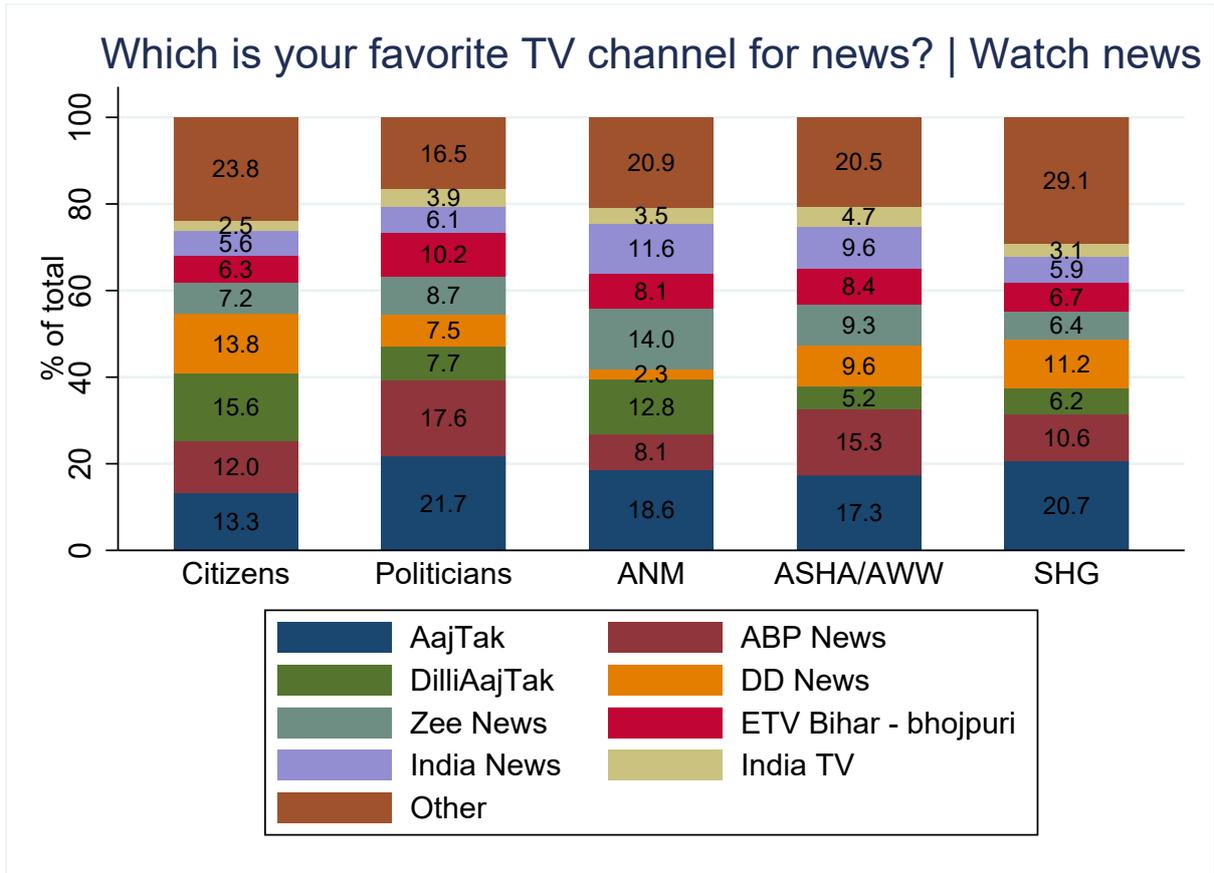


Figure 16

Note: This figure reports the distribution of responses, for each surveyed group, which is their favorite TV channel for news, conditional on watching news on TV.

Table 1: Determinants of Professional Identity and Efficacy

	(1)		(2)		(3)	
	ASHA/AWW		ANM		Pooled	
<i>Demographics</i>						
Married	0.150	[0.139]	-1.144	[0.807]	0.154	[0.134]
ST, ST or OBC	-0.102	[0.110]	-0.054	[0.230]	-0.030	[0.098]
Age	-0.000	[0.005]	0.012	[0.016]	0.000	[0.005]
Have ration card	0.019	[0.066]	0.045	[0.205]	0.014	[0.060]
Uses whatsapp	-0.078	[0.095]	0.077	[0.196]	-0.049	[0.085]
Asset Index (ICW)	-0.049	[0.036]	-0.047	[0.130]	-0.055*	[0.033]
<i>Behavioral traits</i>						
Index Personality Traits	-0.026	[0.052]	-0.112	[0.146]	-0.052	[0.051]
Index Integrity	0.055	[0.040]	0.136	[0.137]	0.070*	[0.038]
Index Public Sector Motivation	0.033	[0.042]	0.107	[0.130]	0.033	[0.040]
Index Entrepreneurship	0.085*	[0.043]	0.284*	[0.146]	0.091**	[0.042]
<i>Supervisors & Peers</i>						
Job tenure in years	-0.004	[0.008]	-0.004	[0.011]	0.001	[0.007]
How many months of salary not received	-0.014	[0.010]	-0.091**	[0.039]	-0.019**	[0.009]
ANM supervisor has good or very good management skills	-0.024	[0.139]	-0.465	[0.398]	-0.006	[0.133]
Sometimes or always supervisor scold peers who don't perform	0.056	[0.086]	0.057	[0.273]	0.099	[0.082]
Supervisor report employees who don't work and they lose job	-0.128*	[0.075]	-0.053	[0.194]	-0.126*	[0.069]
Sometime or always there is recognition for good work	-0.014	[0.070]	-0.043	[0.218]	-0.021	[0.067]
Sometimes or always interact with peers in BPHC meetings	0.320**	[0.143]	0.201	[0.291]	0.258**	[0.119]
Quite a few or all ANM known are hardworking	0.252	[0.240]	1.102**	[0.537]	0.242	[0.218]
Quite a few or all ANM known are honest	-0.140	[0.278]	1.041**	[0.465]	-0.047	[0.252]
Share ANM colleagues hardworkers	0.267	[0.392]	0.764	[1.280]	0.414	[0.378]
Share ANM colleagues honest	-0.039	[0.368]	-2.026	[1.677]	-0.170	[0.355]
<i>Politics</i>						
Politicians often/sometimes create work difficulties	-0.185**	[0.082]	-0.036	[0.237]	-0.186**	[0.076]
Politicians often/sometimes support work	-0.076	[0.084]	0.083	[0.278]	-0.045	[0.080]
Good workers transferred due others feel threatened	-0.125*	[0.066]	0.279	[0.235]	-0.091	[0.062]
Work somewhat or often hampered by delay of funds release	-0.016	[0.073]	-0.229	[0.226]	-0.025	[0.068]
Had to use money or connections to get job	0.054	[0.105]	0.084	[0.336]	0.078	[0.098]
Important to get transfer or promotion: political connections	-0.080	[0.112]	-0.258	[0.342]	-0.153	[0.102]
Important to get transfer or promotion: informal payments	-0.249**	[0.108]	0.291	[0.314]	-0.224**	[0.101]
Important to get transfer or promotion: both	-0.132	[0.120]	0.089	[0.427]	-0.190*	[0.111]
Constant	-0.264	[0.452]	0.358	[1.617]	-0.459	[0.425]
Observations	896		81		979	
Distric FE	Yes		No		Yes	
R-Squared	0.452		0.420		0.434	

Note: Ordinary Least Squares (OLS) regression estimates of the predictors of professional identity and efficacy (dependent variable is the index) among frontline health workers. Robust standard errors in brackets (* p<0.1, ** p<0.05, *** p <0.01)

Table 2: Preferences for Public Spending on Health vs Jobs, Cash or Roads

	(1)	(2)	(3)
	Health Over Jobs	Health Over Cash	Health Over Roads
<i>Indicators for different respondents (omitted category: citizens)</i>			
SHG	-0.047** [0.022]	-0.036** [0.017]	0.007 [0.018]
Contender for Mukhiya	0.049*** [0.018]	0.022* [0.013]	0.022 [0.016]
Ward Member	0.034** [0.018]	-0.010 [0.014]	0.019 [0.016]
Mukhiya	0.048* [0.028]	0.034* [0.020]	-0.005 [0.028]
Panchayat Samiti	-0.090** [0.045]	-0.016 [0.031]	0.117*** [0.024]
Zilla Parishad	0.083 [0.068]	0.105*** [0.010]	0.138*** [0.037]
MLA/MP	-0.364*** [0.073]	-0.110* [0.060]	-0.037 [0.060]
CHW	0.101*** [0.016]	0.049*** [0.012]	0.050*** [0.014]
ANM Subcentre	0.063 [0.042]	0.023 [0.030]	-0.012 [0.039]
ANM PHC	0.071*** [0.022]	0.016 [0.016]	0.117*** [0.015]
Staff Nurse	0.051* [0.027]	0.047*** [0.017]	0.105*** [0.017]
Doctors	0.045* [0.024]	0.066*** [0.014]	0.105*** [0.019]
Supervisors	-0.085*** [0.029]	-0.006 [0.020]	0.096*** [0.019]
<i>Media Access</i>			
Watch TV Daily	0.014 [0.010]	0.034*** [0.007]	0.065*** [0.009]
Receive Newspaper Daily	0.045*** [0.013]	0.009 [0.010]	0.001 [0.011]
Read Newspaper Daily	0.011 [0.014]	0.013 [0.010]	-0.016 [0.012]
Rely on Newspaper for News	0.020* [0.011]	0.007 [0.008]	0.034*** [0.009]
<i>Social Indicators</i>			
Male	0.058*** [0.013]	0.005 [0.010]	-0.022* [0.011]
Married	0.026 [0.020]	-0.017 [0.014]	-0.008 [0.017]
Age	-0.000 [0.000]	-0.000 [0.000]	0.000 [0.000]
Muslim	-0.009 [0.016]	-0.057*** [0.014]	-0.070*** [0.015]
Constant	0.648*** [0.025]	0.878*** [0.018]	0.794*** [0.023]
Observations	9247	9247	9247
R-Squared	0.023	0.018	0.032

Note: OLS estimates to compare the policy preferences (health vs. other uses of public spending) of different respondents to the preferences of citizens, who are the omitted category. Robust standard errors in brackets (* p<0.1, ** p<0.05, *** p <0.01)

Table 3: Respondents NOT Demanding Free Electricity and Loan Waivers

	(1)		(2)	
	No - Free Electricity		No - Farming Loan Waivers	
<i>Indicators for different respondents (omitted category: citizens)</i>				
SHG	-0.036*	[0.020]	-0.036**	[0.017]
Contender for Mukhiya	0.108***	[0.025]	-0.001	[0.018]
Ward Member	0.058**	[0.024]	-0.025	[0.016]
Mukhiya	0.115***	[0.036]	-0.016	[0.023]
Panchayat Samiti	-0.235***	[0.030]	0.261***	[0.046]
Zilla Parishad	-0.182***	[0.066]	0.172**	[0.085]
MLA/MP	-0.320***	[0.038]	0.087	[0.062]
CHW	-0.002	[0.018]	-0.037**	[0.015]
ANM Subcentre	0.103*	[0.057]	0.038	[0.049]
ANM PHC	-0.072***	[0.023]	0.253***	[0.024]
Staff Nurse	-0.080***	[0.027]	0.254***	[0.030]
Doctors	-0.297***	[0.020]	0.056**	[0.025]
Supervisors	-0.260***	[0.023]	0.058**	[0.026]
<i>Media Access</i>				
Watch TV Daily	0.088***	[0.012]	0.006	[0.010]
Receive Newspaper Daily	0.004	[0.016]	0.010	[0.013]
Read Newspaper Daily	0.031*	[0.017]	-0.024*	[0.013]
Rely on Newspaper for News	0.007	[0.013]	-0.008	[0.010]
<i>Social Indicators</i>				
Male	0.073***	[0.014]	0.024*	[0.012]
Married	-0.014	[0.021]	-0.014	[0.020]
Age	0.000	[0.000]	0.001**	[0.000]
Muslim	-0.047***	[0.018]	-0.030***	[0.011]
Constant	0.194***	[0.029]	0.089***	[0.023]
Observations	9247		9247	
R-Squared	0.043		0.042	

Note: OLS estimates to compare the demand for Free Electricity and Loan Waivers among different survey respondents to demand among citizens, who are the omitted category. Robust standard errors in brackets (* p<0.1, ** p<0.05, *** p <0.01)

Table 4: Services Received from Community Health Workers

	(1)		(2)		(3)	
	IFA Received		Mother Received Supp Food		Never Received PNC	
<i>Selection traits : GP (Village) Politicians</i>						
Average PSM Index - GP Level	0.251***	[0.080]	0.097*	[0.058]	-0.089*	[0.047]
Average Personality Index - GP Level	-0.155*	[0.089]	0.010	[0.065]	0.114**	[0.045]
Average Integrity Index - GP Level	-0.051	[0.068]	-0.010	[0.054]	0.054	[0.039]
Average Entrepreneurship Index - GP Level	0.121*	[0.072]	0.039	[0.057]	-0.122***	[0.045]
<i>Selection traits: Community Health Workers (CHW)</i>						
Average PSM Index - GP Level	-0.137**	[0.068]	0.077	[0.058]	0.008	[0.038]
Average Personality Index - GP Level	0.026	[0.078]	-0.011	[0.061]	0.026	[0.041]
Average Integrity Index - GP Level	-0.110*	[0.063]	-0.095**	[0.046]	0.030	[0.032]
Average Entrepreneurship Index - GP Level	0.110*	[0.062]	-0.001	[0.064]	-0.012	[0.034]
Average Efficacy Index - GP Level	0.074	[0.073]	0.046	[0.053]	0.025	[0.040]
<i>Selection traits: Self Help Group (SHG) leaders</i>						
Average PSM Index - GP Level	-0.029	[0.051]	-0.020	[0.043]	0.046*	[0.027]
Average Personality Index - GP Level	0.055	[0.069]	0.038	[0.054]	-0.021	[0.034]
Average Integrity Index - GP Level	0.044	[0.068]	0.016	[0.039]	0.004	[0.027]
Average Entrepreneurship Index - GP Level	-0.032	[0.055]	0.069*	[0.039]	0.037	[0.028]
<i>Political Competition</i>						
Working on health issues can help re-election	-0.494**	[0.225]	0.213	[0.161]	0.250**	[0.101]
Would vote for candidate who bribes	-0.013	[0.083]	0.119*	[0.067]	0.015	[0.046]
<i>Socio-economic Indicators</i>						
Have ration card	0.072	[0.076]	-0.014	[0.059]	-0.006	[0.038]
Asset Index (ICW)	-0.026	[0.026]	0.010	[0.022]	-0.014	[0.015]
SC/ST	0.267**	[0.114]	0.125	[0.094]	-0.086	[0.058]
OBC	0.118	[0.095]	0.093	[0.075]	-0.052	[0.050]
Muslim	-0.257**	[0.105]	-0.061	[0.081]	0.077	[0.062]
Below Primary	0.019	[0.117]	0.128	[0.083]	0.040	[0.063]
Below Secondary	0.066	[0.089]	0.021	[0.071]	0.003	[0.043]
Above Secondary	-0.020	[0.093]	-0.067	[0.070]	-0.029	[0.046]
Above High	-0.156	[0.119]	-0.087	[0.098]	-0.015	[0.053]
No of Adults	0.010	[0.016]	0.014	[0.011]	-0.004	[0.008]
No of Kids	-0.044***	[0.016]	-0.019	[0.012]	-0.003	[0.010]
Landless	-0.064	[0.087]	0.053	[0.077]	-0.072	[0.052]
Small Holder	-0.253***	[0.092]	0.043	[0.084]	-0.036	[0.054]
Low Expenditure	-0.145	[0.096]	-0.072	[0.088]	-0.081	[0.055]
Medium Expenditure	-0.002	[0.076]	-0.006	[0.062]	-0.068*	[0.039]
Constant	0.758***	[0.184]	0.404***	[0.145]	0.465***	[0.116]
Observations	674		705		707	
R-Squared	0.172		0.120		0.113	

Note: OLS regressions estimating predictors of women reporting that they received Iron and Folic Acid, Supplementary Food during their pregnancy, and Never receiving Post Natal Care from Community health workers. All specifications include district fixed effects. Robust standard errors in brackets (* p<0.1, ** p<0.05, *** p <0.01)

Table 5: Use of Government Health Facilities for:

	(1)		(2)	
	Common Illnesses		Hospitalization	
<i>Indicators for respondents in increasing order of political power (omitted category: citizens)</i>				
Contender for Mukhiya	0.035*	[0.019]	0.025	[0.021]
Ward Member	0.095***	[0.018]	0.085***	[0.020]
Mukhiya	0.153***	[0.031]	0.061*	[0.035]
Panchayat Samiti	0.389***	[0.042]	0.260***	[0.046]
Zilla Parishad	0.339***	[0.085]	0.262***	[0.094]
MLA/MP	0.335***	[0.066]	0.172**	[0.074]
<i>Socio-economic Indicators</i>				
Muslim	0.006	[0.019]	0.027	[0.021]
SC/ST	0.047**	[0.019]	0.087***	[0.021]
OBC	0.058***	[0.016]	0.096***	[0.018]
Below Primary	0.014	[0.022]	-0.013	[0.024]
Below Secondary	-0.003	[0.016]	0.022	[0.018]
Above Secondary	-0.000	[0.017]	0.004	[0.019]
Above High	-0.030	[0.022]	0.007	[0.025]
Male	0.019	[0.012]	0.003	[0.014]
Age	0.001**	[0.000]	0.002***	[0.001]
Constant	0.159***	[0.029]	0.239***	[0.032]
Observations	6345		6345	
R-Squared	0.029		0.018	

Note: OLS regressions to estimate differences among respondents with increasing political power, compared to the omitted category of citizens, in accessing government health facilities for curative care. Robust standard errors in brackets (* p<0.1, ** p<0.05, *** p <0.01)