Journal of Public Economics 218 (2023) 104787

Contents lists available at ScienceDirect

Journal of Public Economics

journal homepage: www.elsevier.com/locate/jpube

The political economy of public sector absence ☆

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ARTICLE INFO

Article history:
Received 11 August 2021
Revised 4 October 2022
Accepted 21 November 2022

Keywords:
Health sector reforms
Absenteeism
Information Communication Technology

ABSTRACT

The paper examines how politics relates to public sector absenteeism, a chronic and intractable public service delivery problem in many developing countries. In Punjab, Pakistan, we document that political interference routinely protects doctors from bureaucratic sanction, while personal connections between doctors and politicians and a lack of political competition are associated with more doctor absence. We then examine how politics impacts the success of an at-scale policy reform to combat absenteeism. We find that the reform was more effective at increasing doctor attendance in politically competitive constituencies, both through increased monitoring and through senior health officials being able to respond more effectively to the data gathered on poor performing clinics. Our results demonstrate that politics can block the success of reform; instead of lifting poor performers up, the reform only improved places that had already been performing better. The evidence collectively points to the fundamental importance of accounting for political incentives in policy design and implementation.

1. Introduction

Addressing public worker absenteeism remains a critical policy challenge across much of the developing world (Banerjee et al., 2004; Kremer et al., 2005; World Health Organization, 2022). The problem is substantial and persistent: in the early 2000s, one in three educators and one in five health workers were absent from their jobs across Bangladesh, Ecuador, India, Indonesia, Peru, and Uganda (Chaudhury et al., 2006); more recently, 30 percent of all health workers were absent across 10 African countries (Laura et al., 2020). In our setting (Punjab, Pakistan), doctors were absent over two thirds of the time. Many governments are now targeting absenteeism, primarily through monitoring and incentivizing attendance (Banerjee and Duflo, 2006; Banerjee et al., 2008; Olken and Pande, 2012; Dhaliwal and Hanna, 2017; Finan, 2017; Muralidharan et al., 2019; Callen et al., 2020a) to mixed effect.

This paper studies *why* the problem is so challenging, focusing on the use of public sector jobs as patronage. We report on a randomized controlled evaluation of a province-wide reform in Punjab, a province of over 100 million in Pakistan that spans 297 electoral constituencies and so includes a rich variety of local political situations. From the outset, we designed our evaluation both to collect data and to operate at a scale that would allow us to understand how local politics affects absenteeism and the potential for reform. We join an active and growing area of research (Gulzar and Pasquale, 2017; Ornaghi, 2019; Rogger, 2014; Colonnelli et al., 2020; Brierley, 2021; Oliveros, 2021), but our focus is on the links between patronage jobs and absenteeism. Doctor absence in Punjab is exceptionally high, even relative to comparative countries, and these clinics provide essential preventative health care, antenatal services, and outpatient services for tens of millions of rural Pakistanis.

☆ *Authors' Note*: We thank Farasat Iqbal for championing and implementing the project and Asim Fayaz and Zubair Bhatti for designing the smartphone monitoring program. Support is generously provided by the International Growth Centre (IGC) political economy program, the IGC Pakistan Country Office, and the University of California Office of the President Lab Fees Research Program Grant #235855. Callen was supported by grant #FA9550-09-1-0314 from the Air Force Office of Scientific Research. We thank Erlend Berg, Eli Berman, Leonardo Bursztyn, Ali Cheema, Melissa Dell, Ruben Enikolopov, Barbara Geddes, Naved Hamid, Gordon Hanson, Michael Kremer, Asim Ijaz Khwaja, Craig McIntosh, Ijaz Nabi, Aprajit Mahajan, Monica Martinez-Bravo, Benjamin A. Olken, Gerard Padró-i-Miquel, Karthik Muralidharan, Rohini Pande, Daniel N. Posner, Ronald Rogowski, Jacob N. Shapiro, Christopher Woodruff, Oliver Vanden Eynde, David Yanagizawa-Drott, Ekaterina Zhuravskaya and various seminar participants for insightful comments. Excellent research assistance was provided by Muhammad Zia Mehmood and Haseeb Ali. We thank Ali Cheema and Farooq Naseer for kindly sharing their data on election outcomes.

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https://doi.org/10.1016/j.jpubeco.2022.104787
0047-2727/

We conduct four separate analyses. First, we interview all 34 of the most senior district health officials in the province (who are only junior to the health secretary), each managing health systems that serve millions, as well as 116 of the deputies who work for them. Respondents consistently report that politicians' desire to protect doctors from accountability is a major reason for absence. Forty percent of these officials report a politician having interfered in their decision to sanction an underperforming employee in the previous year. Moreover, such interference is even more common in less competitive electoral constituencies. In the least-competitive tercile of Punjab's 297 Provincial Assembly constituencies, health inspectors report an average of 6.03 instances of interference (s.e. = 2.5), while in the most competitive tercile, they report 1.41 instances (s.e. = 0.8).

Second, we use a geographic regression discontinuity to study how political competition relates to doctor attendance.[1] Importantly, in our setting, electoral constituencies cut across administrative health boundaries, limiting changes at geographic thresholds to those directly linked to politics. Moving from the most competitive third of constituencies to the least competitive third reduces doctor attendance by 20 percentage points (s.e. = 8.5 pp). While this result does not tell us exactly *why* the degree of political competition matters, it does indicate that it affects doctor attendance. Moreover, doctors who are connected to their local politician are 17.7 percentage points less likely to be at work during a random audit (s.e. = 7.6 pp). Finally, doctors who are both politically connected and who serve in political strongholds (the least competitive tercile of constituencies) are 25.6 percentage points less likely to be found at the clinic (s.e. = 12.6 pp).

Third, we check whether the impact of the smartphone monitoring technology described in Callen et al. (2020a) varies with the degree of local political competition across these 297 constituencies using a province-wide randomized control trial. The reform compelled hospital inspectors to carry smartphones that geocode and time-stamp inspections on a dashboard visible to senior managers, thereby sharpening incentives for health inspectors to monitor clinics and to report data accurately. In Callen et al. (2020a), we report that the reform successfully increased health clinic inspection rates, but not average doctor attendance.[2] There is, however, suggestive evidence that increased monitoring did, in turn, increase doctor attendance in the most politically competitive tercile of constituencies by 10.2 percentage points (s.e. = 6.3 pp). Moreover, in these same constituencies, doctors without connections to a politician are estimated to increase attendance by 26.6 percentage points (s.e. = 10.8 pp).

Fourth, we study the impact of communicating attendance records via the dashboard on subsequent doctor behavior and whether it varies with political competition and with doctors' political connections. Specifically, we manipulate the salience of doctor absence through visualizations that select an arbitrary threshold at which facilities are 'flagged' in bright red to emphasize low levels of attendance. All health reports that meet this threshold are highlighted in a web portal (henceforth termed a 'dashboard') where data are summarized and presented to senior officials. Flagging a facility increases subsequent doctor attendance by 27 percentage points (Callen et al., 2020a). In this paper, we show that the efficacy of the senior bureaucracy is constrained by the political environment: senior bureaucrats are only able to boost doctor attendance in highly politically competitive areas and, there too, only for doctors without connections to local politicians.

All four analyses provide evidence consistent with politicians shielding doctors from accountability to the bureaucrats who manage them.

These results have antecedents in a substantial literature on interactions between politicians and bureaucrats. This literature provides several reasons a politician may seek to interfere when reforms affect public sector jobs. First, government jobs are ideal for patronage: they can be targeted to individuals, provide a credible stream of benefits, and the terms of the job—such as the wage, posting, and reporting requirements—can often be changed easily (Robinson and Verdier, 2013; Hollibaugh et al., 2014; Callen et al., 2020b; Xu, 2018). Doctors also can 'moonlight' in private clinics, where they often refer clients obtained at public clinics and where doctors generally provide higher quality service (Das et al., 2016). These observations have a long history in political economy (Brassiolo et al., 2020; Brusco et al., 2013; Calvo and Murillo, 2004; Chandra, 2007; Chubb, 1983; Colonnelli et al., 2020; Fafchamps and Labonne, 2017; Golden, 2003; Johnston, 1979; Larreguy et al., 2016, 2017; Lehne et al., 2018; Meyer-Sahling, 2006; Sorauf, 1956; Weaver, 2021; Wilson, 1961; Akhtari et al., Forthcoming; Brollo et al., 2017; Kitschelt and Wilkinson, 2007).

The use of public jobs as patronage is also often a key vote-buying strategy (Gans-Morse et al., 2014; Folke et al., 2011). Interference can undermine reforms and negatively impact bureaucratic performance (Stokes, 2005; Lewis, 2007; Lewis, 2011; Brusco et al., 2013; Muralidharan et al., 2017). Naturally, politicians' incentives to engage in such practices are shaped by and will carry implications for the degree of local political competition (Lindbeck and Weibull, 1987; Besley and Burgess, 2002; Careaga and Weingast, 2003; Rodden, 2006; Gordon and Huber, 2007; Kitschelt and Wilkinson, 2007; Raffler, 2022; Grossman and Michelitch, 2018; Cruz et al., 2018). These practices may be particularly problematic in South Asia (Chandra, 2007; Mohmand, 2011; Mohmand, 2014), where our study is carried out. Indeed, in our setting, we find using a close elections regression discontinuity that more doctors are assigned to work in areas aligned with the governing party, but that despite more assigned doctors, there is no increase in doctor attendance (Callen et al., 2020b). Recent evidence also clearly documents that public health positions can be obtained by bribing supervisors in charge of hiring (Weaver, 2021).

These results also accord with much recent work arguing that patronage jobs interfere with service delivery. We add to this by drawing a link between local politics, absenteeism *per se,* and the potential for reforms to fix the problem. We do so in the context of a large-scale randomized evaluation where data collection mainly focused on the links between patronage jobs and absenteeism. The focus on absence is important: reducing it is necessary to achieve health-focused Sustainable Development Goals, restore child vaccination programs in the wake of the Covid-19 health pandemic, and return to a trajectory of generally improving health indicators. Despite nearly 20 years of rigorous documentation of the degree of absence, it still remains intractable. Absent staff are a drain on public resources, with many development and public sector agencies spending considerable effort trying to improve the situation (Muralidharan et al., 2017). The results reported here point toward an underlying political equilibrium that persists in yielding high rates of absence, with results from all three analyses consistent with the argument that politicians seek to shield doctors from accountability for absence. We are not the first to show that patronage leads to service delivery issues, but we are able to make an empirical argument regarding the important issue of doctor absenteeism.

[1] Doctor attendance was measured through independent, unannounced visits to health facilities during open hours. Enumerators physically verified doctor presence. Note doctors are officially required to be present and see patients at the health clinic during open hours. An unannounced visit therefore captures the official work assigned to doctors.

[2] In Callen et al. (2020a), some specifications indicate an *average* and statistically significant increase in doctor attendance, while others are consistent with no impact.

A substantial body of recent empirical research examines reforms aimed to make states more effective by reforming selection, incentive, and management policies.[3] Such reforms only happen in a political context, and politicians may be particularly interested in retaining *de facto* control of the incentives public employees face. Our central contribution is to provide a set of results linking patronage jobs to the persistence of absenteeism.

The paper proceeds as follows: Section 2 provides essential background information related to the reform. Section 3 presents our primary and secondary data. Section 4.1 presents results on political interference pre-policy reform, followed by an analysis of how political connections correlate with doctor attendance in Section 4.2. Section 4.3 then presents our smartphone monitoring experiment and corresponding heterogeneous treatment effects based on political competition and connections. Section 4.4 then presents results from the dashboard experiment. Finally, Section 5 concludes the paper.

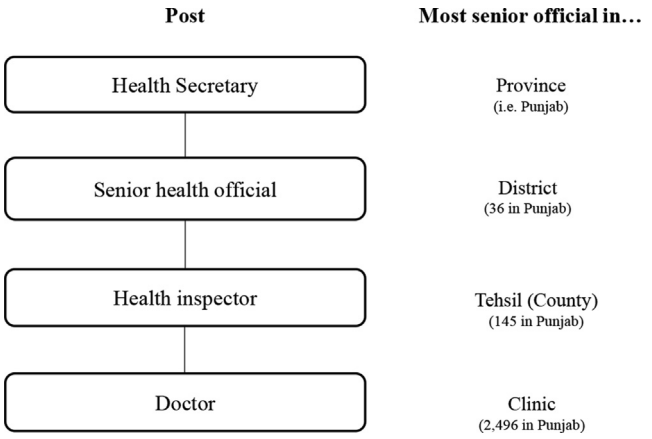

Fig. 1. Health Sector Administration in Punjab.

2. Background

In the province of Punjab, Pakistan, the provision of health care services is managed by the Department of Health, based at the provincial headquarters in Lahore. There are five major types of health facilities, and we focus on the lowest tier, Basic Health Units (BHUs), which we refer to as 'clinics' hereafter. There are 2,496 such clinics in Punjab, almost all of which operate in rural and peri-urban areas. Each clinic serves approximately one Union Council, which is the smallest administrative unit in Pakistan.

These clinics are designed to be the first stop for patients seeking medical treatment in a government facility. They provide several services including vaccinations, outpatient treatments, and neonatal and reproductive healthcare. Each clinic has a doctor, known as the Medical Officer, who is supported by a team including a Dispenser, a Lady Health Visitor, a School Health and Nutrition Supervisor, a Health/Medical Technician, a Midwife, and other ancillary staff. Officially, clinics are to be open with all staff from 8am to 2pm, Monday through Saturday.

We study Medical Officers who head these rural clinics. These doctors are general practitioners who have completed five years of medical school, and are almost always the most trained health professionals in rural areas. Doctors are either hired as permanent employees of the province by the Health Department of Punjab, or on a contractual basis at the District level by a senior bureaucrat.[4] While doctors receive a higher income with rising seniority, their portfolio of duties does not tend to increase significantly. Very few of these doctors rise through the ranks to become Deputy District Officers (described below): compared to the 2,496 Medical Officer posts in clinics, there are only about 120 such senior positions.

Under the umbrella of the Provincial Health Department, district governments are responsible for managing public clinics. The District Health Department is headed by an Executive District Officer (EDO), referred to as a 'senior health official' hereafter, who reports to the Director General of Health Services and the Secretary of the Health Department – the health leadership in Lahore. There are only 36 senior health officials in Punjab, one for each district. These officials are supported by several Deputy District Officers, typically one for each county (along with other staff excluded for brevity). Fig. 1 depicts this simplified health administration hierarchy in Punjab.

The Deputy District Officers, hereon referred to as 'inspectors', occupy the lowest position in the officer cadre of the district health administration. Inspectors have the authority to punish absent clinic staff by issuing a show-cause notice, requiring staff to explain their absence to the senior health official. The senior health official can formally suspend and deny pay to any contract staff, including doctors, in severe cases of persistent absence under the Punjab Employees Efficiency, Discipline and Accountability Act 2006. They can also informally punish the absent staff by transferring them to less desirable locations. The senior health official relies entirely on these inspectors to ensure staff presence.

Inspectors have, on average, 21 clinics in their jurisdiction and are expected to visit them once per month. During these visits, inspectors record their findings on a standard form, collecting data on utilization, resource availability, and worker absence. These forms are provided in Appendix C. Once collected, these reports are brought to a central district facility, manually entered into a spreadsheet, and aggregated into a monthly report for senior health officials.

This inspection system limits the ability of senior health officials to monitor their inspectors. Compounding this problem, senior health officials also have only two ineffective means of sanctioning an inspector: issuing a verbal reprimand or, in serious cases, sending a written request for investigation to provincial authorities. The investigation process is long, highly bureaucratic, and prone to interference by elected politicians, though it can lead to more serious consequences.

The career concerns of senior health officials and inspectors are also fundamentally different. The senior health official reports directly to senior provincial authorities who face few bureaucratic hurdles to sanctioning and holding the senior health officials directly accountable for service delivery in their district. Performance for the senior health official is commonly rewarded with appointment to a higher office, and yet, in contrast, inspectors are neither officially nor practically accountable for health service delivery. Appointees to this lower position have to serve for several years before they are considered for promotion to the next level in the district, and rarely ascend to leadership positions.

These considerations bear critically on how we should expect health officials to react to new technologies which make monitoring easier. First, senior health officials might embrace a smartphone monitoring system because it makes it easier for them to deliver services effectively, and they benefit professionally from getting their inspectors to perform better. Correspondingly, additional monitoring could lead to an increase in the rate of inspections. It also provides a logic for why senior health officials might respond to reports of absence by encouraging doctors to go to work.

[3] See for instance: Muralidharan and Sundararaman (2011); Muralidharan and Sundararaman (2013); Ashraf et al. (2014); Ashraf et al. (2015); Bertrand et al. (2020); Bloom et al. (2015); Finan et al. (2015); de Ree et al. (2016); Khan et al. (2016); Khwaja et al. (2016); Rasul and Rogger (2018).

[4] Appendix B details the hiring process.

3. Data

We use three sources of data: (1) interviews with the universe of senior health officials and inspectors; (2) attendance audits and interviews of doctors in a representative sample of clinics; and (3) data on election outcomes.

3.1. Interviews of senior health officials and inspectors

We interviewed all senior health officials and inspectors in Punjab. These included 34 of the 36 Senior Health Officials in Punjab,[5] as well as the 116 posted health inspectors. All staff were interviewed at their offices or the district headquarters to ensure a high response rate. The interview focused on questions about day-to-day activities of senior health officials and inspectors, and included questions on political interference in the health bureaucracy.

3.2. Representative survey of clinics

We collected primary data on a representative sample of 850 of the 2,496 clinics in Punjab. Clinics were selected randomly using an Equal Probability of Selection (EPS) design, stratified on district and distance from the district headquarters. Our estimates of absence are thus self-weighting, and no sampling corrections are used in the analysis.[6] All districts in Punjab except Khanewal are represented in our data. Fig. 2, Panel A, provides a map of the clinics in our experimental sample along with the different Provincial Assembly constituencies in Punjab.

Surveyors made three unannounced visits to these facilities: first in November 2011, then in June 2012, and finally in October 2012. During the unannounced visits, our team collected information on doctor absenteeism. Each enumerator was asked to fill an attendance sheet for the staff at the clinic at the end of the interview *and* in private. Doctors are officially required to be present and see patients at the clinic. An unannounced visit therefore captures the official work assigned to doctors. This measure was vetted by our government partners.

Importantly, during our doctor interviews, we collected data on doctors' tenure in their post, the distance of their post from their hometown, and whether they know the local Member of the Provincial Assembly (MPA) personally.[7] To ensure sampling of doctors who were not present at their clinics during any of our three visits, we pursued the absent doctors until we could find them and interview them. We detail this process in Appendix Table A1.

3.3. Election data

We study elections for seats in the Punjab Provincial Assembly, a legislative body comprising 371 members, including general and reserved seats. Punjab, a province of over 100 million citizens, follows a party-based single-member district electoral system. We make use of election data for the 2008 Punjab Provincial Assembly elections. These data provide vote totals by constituency for all candidates running in the election. In cases of by-elections, we consider data from the election that most immediately preceded our program. Appendix D describes the protocol for identifying the constituency corresponding to each clinic. There are 371 seats in the Punjab Provincial Assembly. Of these, 66 are reserved for women and eight for non-Muslims, leaving 297 elected seats. We draw a representative sample of 850 clinics from the universe of 2,496 facilities in Punjab. As a result, we have data from 240 constituencies that ends up in our analysis.

Fig. 2, Panel B, shows the degree of political competition, as measured by the Party Herfindahl index, across Punjab. Higher values of the index correspond to lower political competition. Appendix E explores the appropriateness of the Herfindahl index as a measure of political competition, and the robustness of our results to alternative measures. In Punjab, despite being a First Past the Post electoral system, more than two parties often get significant shares of the vote. As such, the Herfindahl index, and several other related measures of political competition, are conceptually useful in Punjab. Focusing on the provincial legislature is appropriate because many services, including public health, were devolved to the provincial level under the Eighteenth Amendment to the Constitution of Pakistan which was approved on April 8, 2010.

4. Results

4.1. Political interference in bureaucratic management

Political interference in the bureaucracy in Pakistan can work in at least two ways. First, politicians can help officials obtain postings in their region of choice, which is often their home county. Speculatively, we show in Appendix Table A2 that doctors who know politicians are more likely to be posted closer to their hometowns. Second, once posted, doctors and clinic staff are also known to appeal to politicians for protection against suspension, transfer, and other sanctions for underperformance.

Often, staff members at the clinics belong to politically powerful clans and families. These staff can provide at least two types of favors to politicians. First, they can activate their networks to mobilize votes (Wade, 1985). Although we do not measure this mobilization directly, various experts interviewed for this project independently confirmed that this is a relevant channel in our context. Indeed, there is evidence that doctors campaign directly for the candidates while serving in their official capacity.[8] Second, clinic staff are commonly recruited to assist the election commission with drawing up voter lists and overseeing polling on election day. They can therefore significantly aid or hinder a politician's election campaign by biasing voter lists or by turning a blind eye to vote-rigging. Consistent with this, we find a strong positive relationship between the share of doctors in a constituency who report knowing their politician in 2011 and whether the incumbent wins re-election in 2013. This is true even when we control for the degree of competition during the 2008 election. Appendix Table A3 reports these results.

Politicians may also want to provide sinecures to doctors without expectation of any direct reciprocal benefits. In background interviews, three former senior bureaucrats with experience in Punjab's health sector described how candidates needed to publicly demonstrate influence over the local state machinery to garner voters' confidence. The local police, courts, and bureaucracy are viewed as being susceptible to elite figures' influence. Politicians' ability to influence state machinery, including affecting the posting and promotion of government officials, affects voters' perception of the candidate. In Punjab, citizens are aware that politicians face limited executive constraints. Consequently, even if doctors do not directly reciprocate, directing a posting to a doctor

[5] The senior health official of Khanewal was not interviewed as Khanewal was the pilot district for our study, while the senior health official of Faisalabad was not available for interview.

[6] We sampled an equal proportion of clinics within each stratum to preserve an equal probability of selection.

[7] Connections to politicians are less likely for other staff posted at the clinic. For the empirical analysis, we generate a time invariant indicator variable that equals 0 unless doctors report they know the local politician in all the waves where this question is answered, in which case, it is coded as 1.

[8] Appendix Figs. A1 and A2 provide tweets by an election monitoring organization, the Free and Fair Elections Network (FAFEN), of doctors campaigning in their official capacity on behalf of politicians.

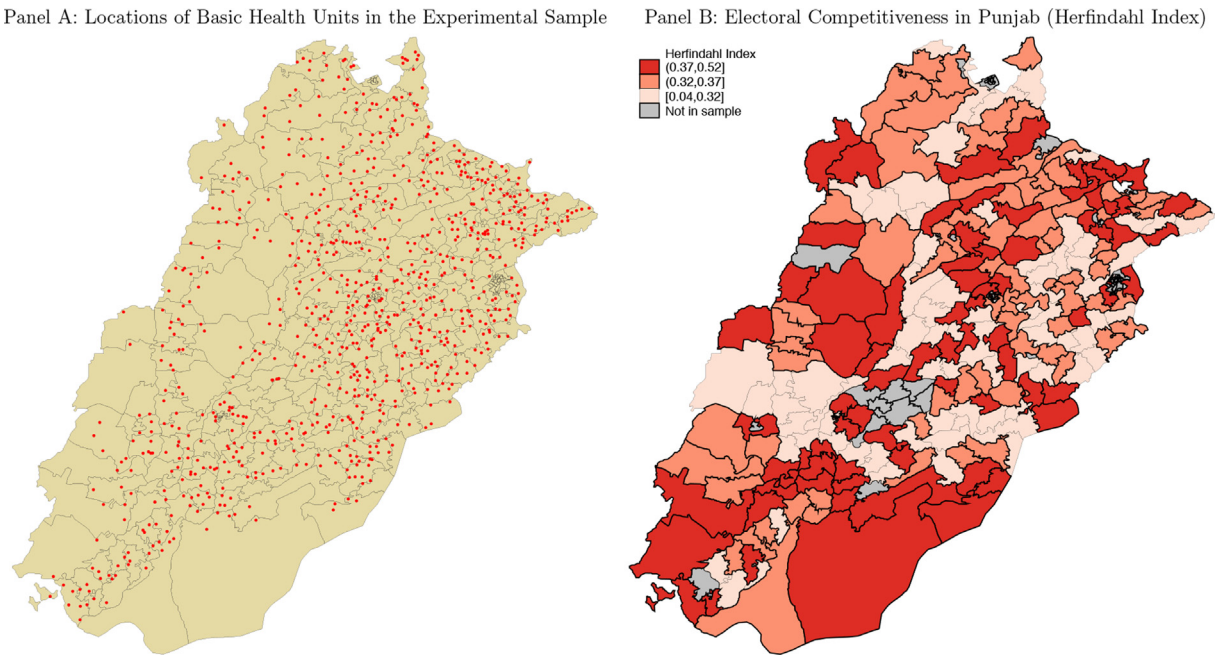

Fig. 2. Experimental Sample and 2008 Political Outcomes by Constituency. *Notes:* Drawn borders demarcate Provincial Assembly constituencies in Punjab. The Herfindahl index in Panel B is computed as the sum of squared candidate vote shares in each provincial assembly constituency during 2008 elections.

provides politicians with an important means of indicating their power and competence.

Table 1 reports summary statistics on self-reported incidents of pressure experienced by inspectors and senior health officials. We asked the respondents to report the number of instances where a person of influence pressured either their colleague or themselves into a) not taking action against doctors or other staff that were performing unsatisfactorily in their county or district, or b) assigning doctors or other staff to their preferred posting (see Appendix Section F for English translations of these questions). Forty percent of officials report experiencing this type of interference and 32 percent of all respondents report pressure coming from elected Members of Provincial Assemblies, politicians whose behavior we focus on in this paper.

Table 1
Political interference in the health bureaucracy.

Variable	Mean	SD	N
Panel A: Senior Health Officials and Inspectors			
Ever Influenced by Any Powerful Actor	0.4	0.492	150
Ever Influenced by Provincial Assembly Member	0.322	0.469	149
Instances of Interference by Provincial Assembly Member	2.786	6.158	140
Panel B: Senior Health Officials Only			
Ever Influenced by Any Powerful Actor	0.441	0.504	34
Ever Influenced by Provincial Assembly Member	0.441	0.504	34
Instances of Interference by Provincial Assembly Member	4.000	7.141	29
Panel C: Health Inspectors Only			
Ever Influenced by Any Powerful Actor	0.388	0.489	116
Ever Influenced by Provincial Assembly Member	0.287	0.454	115
Instances of Interference by Provincial Assembly Member	2.468	5.87	111

Notes: This table reports the frequency of interference by politicians in decisions of senior health bureaucrats. Data come from a survey of the universe of senior health bureaucrats and inspectors in Punjab. For each panel, the first variable is an indicator variable for whether the bureaucrat was influenced by any powerful actor to either (a) not take action against doctors or other staff who were performing unsatisfactorily in their jurisdiction (county) or (b) assign doctors to their preferred posting in the previous two years. The second variable measures the same, but restricts attention to influence by provincial assembly politicians, the focus of our study. The third variable is a count of the number of times that bureaucrats report that Members of the Provincial Assembly pressured them to either (a) not take action against doctors or other staff that were performing unsatisfactorily in their jurisdiction or (b) assign doctors to their preferred posting in the previous two years. Of the 150 Senior Officials and Inspectors in our sample, 149 provided responses to this question. We drop nine reports which indicate more than 100 instances of interference (95th percentile). Table A7 presents the data without this restriction.

More speculatively, in Appendix G we find that political interference occurs more often in less politically competitive constituencies. Broadly, this suggests that politicians who have carved out strongholds are more likely to try to influence health officials. There are a number of reasons such a correlation might exist, but it suggests the possibility that politicians might exert control over bureaucrats as part of a political strategy.

4.2. Connections, political competition, and doctor attendance under the status quo

Next, we examine whether political competition and doctors' political connections correlate with doctor attendance. For this analysis, we restrict ourselves to control districts to avoid reporting correlations induced by the experiment.

Appendix Table A4 summarizes the data. We can see that doctor attendance in our control districts is low. While unannounced enumerator visits took place during normal operating hours, we were able to locate doctors in only 22.5 percent of our visits. All clinics are supposed to have doctors posted. However, because of a combination of shortage of doctors, a lack of interest in rural postings, and perhaps misreporting to disguise absence, we find that only 53.1 percent of clinics officially have doctors posted. Even accounting for this low rate, doctors are present at only 42.1 percent of actual postings. Of the set of doctors we observe, 25.3 percent report knowing the MPA personally (Lehne et al., 2018).[9]

[9] Appendix Table A5 tests whether doctors strategically misreport their connections to politicians by examining whether the smartphone monitoring program created any changes in how doctors respond to this question. We find that doctors did not change their responses, allaying concerns that these connections are misreported.

We now test whether the degree of political competition in a constituency affects doctor attendance. We do so using an OLS with fixed effects, as well as a geographic regression discontinuity approach. Our approach relies on the following specification:

$$\begin{aligned} Present_{ckw} =& \beta_1 MedPol\ Comp_c + \beta_2 LowPol\ Comp_c + \beta_3 Knows\ MP_{ck} \\ &+ \beta_3 Knows\ MP_{ck} \times MedPol\ Comp_c \\ &+ \beta_4 Knows\ MP_{ck} \times LowPol\ Comp_c \\ &+ \beta_5 \mathbf{X}_{ckw} + f(X_k, Y_k) + \gamma_w + \varepsilon_{ckw} \end{aligned}$$

$$\forall\ k\ \ s.t.\ \ X_k, Y_k \in (-h, h)$$

where $Present_{ckw}$ is an indicator variable that equals 1 if an assigned doctor at clinic k in constituency c is present during an unannounced inspection in survey wave w. $Knows\ MP_{ck}$ is a dummy variable that equals 1 if a doctor reports knowing their provincial assembly member personally, $Pol\ Comp_c$ variables are constituency-level Herfindahl index terciles proxying for low, medium, or high (omitted) political competition, and $\mathbf{X}_{ckw}$ is a vector of additional covariates, including distance to the county headquarters, as well as one of county, or constituency, fixed effects, to exploit local variation in doctor attendance. All models also include survey wave fixed effects, denoted by γ_w.

For a geographic regression discontinuity model, we also use $f(X_k, Y_k)$, a flexible function in two dimensions, latitudes (X) and longitudes (Y) for every clinic k. We follow Dell (2010) in including a smooth function in longitudes X and latitudes Y.[10] Adding these geographic controls in a flexible way helps the regression absorb spatial trends that might bias estimates. We further assign the closest constituency boundary to each clinic in our data so that we compare clinics that provide the closest approximation to random assignment. For each clinic in the data, h refers to the distance to the nearest constituency boundary in kilometers. Finally, to improve precision, clinics are weighted in the regression based on a triangular kernel, where weights increase as the distance to the constituency boundary decreases.

We report results in Table 2. Column (1) shows the correlation between political competition and doctor attendance. Relative to places with high political competition, constituencies where political competition was low are 9.3 percentage points less likely to have a doctor present during an unannounced visit, a difference of almost 50 percent. Column (2) shows that this effect is robust to the addition of a flexible function in latitudes and in longitudes. Column (3) reports the geographic RD results. We restrict attention to a bandwidth of 5 km and weight observations closer to this boundary higher with a triangular kernel, which leads the estimated effect of political competition to increase. This result holds in Column (4) when we include additional controls for the number of registered voters and whether the PML-N (ruling party) provincial candidate won or was the runner up in the last election (2008).[11]

We also report OLS correlations between doctor connections with the local Member of the Provincial Assembly and doctor attendance. Columns (5) and (6) show that doctor attendance is 17.7 and 16.7 percentage points lower respectively for doctors that are connected to their local MPA.

Finally, we also interact political competition and doctor connections in Columns (7) and (8). Consistent with the evidence above, doctors who are personally connected to politicians and serve in areas where political competition is low are precisely the ones who are least likely to be present at work during an unannounced visit by our enumerators.

Based on the recommendations in Cattaneo et al. (2019), we subject the spatial RD estimates in Table 2 Columns (3) and (4) to a number of robustness checks. Cattaneo et al. (2019) specifically recommend five so-called validation and falsification tests: (i) examining balance around the cutoff in terms of observable characteristics not affected by 'treatment' (in this case high political competition can be considered treatment, low as control), (ii) examining whether the number of observations below the cutoff is surprisingly different from the number of observations above it, (iii) examining treatment effects at artificial or placebo cutoff values, (iv) examining sensitivity to observations near the cutoff, and (v) examining sensitivity to bandwidth choice. We present Appendix Figures for all recommended tests except (iii). We do not attempt to construct placebo cutoffs.[12]

First, Appendix Fig. A3 presents balance at the cutoff for nine time-invariant or pre-treatment covariates. For each covariate we present balance at bandwidths of two through ten kilometers and for linear through quadratical spatial control functions. For five of nine variables we are balanced in almost all cases. For three variables we find imbalances at low bandwidths (slope, registered voters 2008, and turnout 2008). For one variable we find imbalances at high bandwidths (ruggedness). We are not surprised to find imbalances in some election variables as these variables are correlated with political competition. This is why in Table 2 Column 4 we add these additional election variables as controls. If we additionally include slope and ruggedness as controls in this regression, the coefficient on low political competition becomes -.180 (p-value 0.036).[13]

Second, in Appendix Fig. A4 we examine the number of observations in high vs low political competition at a range of bandwidths. We cannot reject that the observations are split 50/50 using a Bernoulli test at any bandwidth.

Third, in Appendix Fig. A5 we examine whether throwing out BHUs within 0.1 to 0.5 km of a constituency boundary affects our results. While we find it hard to believe there was manipulation in BHU placement by political competition, Cattaneo et al. (2019) also motivate this test saying, "Even when manipulation of the score is not suspected, this strategy is also useful to assess the sensitivity of the results to the unavoidable extrapolation involved in local polynomial estimation, as the few observations closest to the cutoff are likely to be the most influential when fitting the local polynomials." We do not find evidence of such a sensitivity.

Lastly, in Appendix Fig. A6 we show that our primary results from Table 2 Columns (3) and (4) are robust to changes in bandwidths and functional form. We do not run our model with a bandwidth below two kilometers as our sample becomes too small relative to the number of constituencies. Note that Cattaneo et al. (2019) recommend optimal bandwidth selection and bias correction formulas for standard regression discontinuity designs. However, these formulas are not appropriate for our geographic RD design (Dell, 2010). As such, we opt to show that our main results do not depend on our choice of bandwidth.

These robustness checks support the idea that our spatial RD estimates to plausibly isolate causal variation, especially when

[10] Here, we set $f(X_k, Y_k) = x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$.

[11] Note there is no difference between high and medium political competition in any of these models nor in those in Columns (5) and (6). We find similar results when using a linear measure of political competition, or if we split our sample above/below median political competition or by quartiles instead of terciles. See Appendix Table A6 for this analysis for Column (3).

[12] If we redrew constituency boundaries arbitrarily, we would then need to assign the degree of political competition in each placebo constituency arbitrarily as well.

[13] In Appendix Fig. A3, we standardized all variables for comparability. The two non-election variables (slope and ruggedness) have relatively small imbalances (within +/- 0.2 standard deviations). Neither of these vary much in our sample, so these amount to small geographic differences.

Table 2
Political connections, competition, and doctor attendance.

Dependent Variable:	Doctor Present (=1)							
Model:	OLS	OLS	GEO	GEO	OLS	OLS	OLS	OLS
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Med Political Competition	0.002	−0.014	−0.089	−0.112			−0.120*	−0.140*
	(0.044)	(0.045)	(0.102)	(0.105)			(0.072)	(0.078)
Low Political Competition	−0.093**	−0.105**	−0.181**	−0.200**			−0.077	−0.113
	(0.047)	(0.048)	(0.085)	(0.085)			(0.068)	(0.069)
Doctor Knows Local MPA Personally (=1)					−0.177**	−0.163*	−0.116	−0.125
					(0.076)	(0.083)	(0.110)	(0.108)
Doctor Knows × Med Political Competition							−0.002	−0.001
							(0.134)	(0.134)
Doctor Knows × Low Political Competition							−0.256**	−0.246*
							(0.126)	(0.126)
Distance to District Center (in minutes)		−0.002***	−0.001	−0.002		−0.001		−0.000
		(0.001)	(0.001)	(0.001)		(0.002)		(0.001)
Mean, High Competition	0.204	0.204	0.205	0.205			0.444	0.444
Mean, Doctor Knows = 0					0.463	0.463	0.460	0.460
High Comp & Mean, Doctor Knows = 0							0.456	0.456
# Constituencies	121	121	115	115	93	93	91	91
# Observations	1173	1173	924	924	613	613	608	608
R-Squared	0.158	0.167	0.331	0.335	0.221	0.235	0.167	0.177
County Fixed Effects	Yes	Yes	-	-	-	-	Yes	Yes
Constituency Fixed Effects	-	-	-	-	Yes	Yes	-	-
Spatial Controls	-	Yes	Yes	Yes	-	Yes	-	Yes
Election Controls	-	-	-	Yes	-	-	-	-
Boundary Fixed Effects	-	-	Yes	Yes	-	-	-	-
Triangular Kernel	-	-	Yes	Yes	-	-	-	-
Bandwidth	All data	All data	5 km	5 km	All data	All data	All data	All data

Notes: This table reports on the relationship between doctor attendance and interactions between the political connections of doctors and the degree of political competition. The dependent variable is a dummy equal to 1 if a doctor is present during an unannounced facility inspection performed by our survey team. The political competition index is a Herfindahl index computed as the sum of squared candidate vote shares in each provincial assembly constituency during 2008 elections. It varies between 0.040 and 0.52 and we split it into its terciles to indicate High (omitted), Medium, or Low competition. All specification samples are restricted to Basic Health Unit facilities in control districts. All models include survey wave fixed effects. Indicated estimates include a triangular kernel and a geographic control function in longitudes (x) and latitudes (y) of the form $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$. Election controls include counts of the number of registered voters, election turnout, and the number of candidates in each provincial constituency in 2008 and a dummy for whether the PML-N (the ruling party) provincial candidate won in 2008. Standard errors clustered at the constituency level reported in parentheses. *Levels of significance*: $^*p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

we consider the specification in Column (4) with election controls.[14] In order for an omitted variable to bias our estimate, it would need to be correlated with both political competition and doctor absence and it would need to vary exactly at the constituency boundary. Administrative boundaries in Punjab are not aligned with constituency boundaries so bureaucratic variation is accounted for by spatial controls. Election controls further account for many potential omitted variables related to the party in power and general electoral engagement, such as differences in patronage, and thus public service delivery outcomes, by ruling party that are documented in Callen et al. (2020b) and that would also vary at the constituency boundary.

The results on political competition and political connectedness in the first three columns of Table 2 are broadly consistent with two separate arguments. First, it may be that in highly competitive constituencies, politicians face stronger incentives to make sure health services are effectively delivered. Second, it may be that politicians who can capture constituencies are more likely to interfere in the bureaucracy on the doctors' behalf. Doctors in protected jobs may be expected to work less. These are not mutually exclusive theories, and our estimates suggest both may have some relevance in this context. Critically, however, the survey evidence indicating frequent interference by politicians, coupled with the evidence that doctors connected to politicians work less in Columns (4) and (5), as well as the evidence in Columns (6) and (7) that connected doctors in low competition areas are particularly susceptible to absenteeism, provides reason to believe that second channel might most accurately characterize this environment.

These results carry implications for the effectiveness of our experiment. Politically connected doctors could be less sensitive to monitoring. While monitoring innovations increase the probability of shirking doctors being detected, they may matter less for doctors and bureaucrats who seek protection from local politicians. We will turn to this now.

4.3. The Monitoring the Monitors program

We partnered with the government to design and evaluate the "Monitoring the Monitors" program. The policy objectives of this program were to collect actionable data and improve inspector compliance with monitoring duties. Under this program the government replaced the existing paper-based monitoring system with an Android-based smartphone application, which collected the same data as the paper forms and transmitted them instantly to a central online dashboard.

The dashboard provided summary statistics, charts, and graphs in a format designed in collaboration with senior health officials. Inspections were also geotagged, timestamped, and required photos of the inspector and all facility staff marked present to check for reliability. The geotagging and time-stamping features were designed to increase monitoring of inspectors while the facility staff photos were intended to increase monitoring of doctors.

Our experimental sample comprises all health facilities in 35 of the 36 districts in Punjab. We remove Khanewal from the experi-

[14] Though not a check of internal validity like these others, a final check we conduct on our spatial RD estimate is whether our result is sensitive to the choice to split political competition into terciles. While this seems natural for our interpretation, it is ad hoc. In Appendix Table A6, we repeat our primary result from Table 2 Column (3) with three different models: a linear political competition variable (the party Herfindahl index), a model splitting competition above/below the median, and a model splitting political competition into quartiles. The results are consistent across all models.

mental sample as that district served as the location for our pilot. We randomly implemented the smartphone program in 18 of the 35 districts in our experimental sample. See Callen et al. (2020a) for more information on Monitoring the Monitors and on the experimental design.

4.3.1. Heterogeneity in the success of Monitoring the Monitors by political competition

The links between doctor attendance, relationships to politicians, and the degree of local political competition, reported in Sections 4.1 and 4.2 above, suggest potential heterogeneity in the impact of the smartphone monitoring program. We use the large degree of variation in competitiveness across the 240 constituencies in our sample to check for impact heterogeneity.

Table 3 reports these results. Column (1) indicates no average impact on doctor attendance. However, consistent with the results in Section 4.2, results in Column (2) suggest that the program increased doctor attendance in the most competitive tercile of constituencies (with a $p = 0.06$ using Fisher's exact test). By contrast, while not statistically significant, the point estimates suggest that, if anything, the program decreased attendance for doctors in constituencies with low degrees of political competition. One way monitoring might reduce doctor attendance, measured during our independent inspections (which are not coordinated with the smartphone inspections), is by allowing inspectors and doctors to collude on both being present during the smartphone inspection. If, prior to the introduction of the smartphone monitoring system, inspectors and doctors did not communicate regarding inspection schedules, but started doing so because of the program, this might explain the point estimate.[15]

Column (3) checks for differences in impact by whether doctors are connected to their local politician. In the above analysis, we found that connected doctors are less likely to work. This suggests both that there is greater room for improvement for these doctors, but also that they may be less likely to react to, and perhaps more likely to try to undermine, the monitoring system. The estimates indicate this may be the case. The point estimates, while not statistically significant, suggest a modest positive impact on attendance for unconnected doctors and a negative impact for connected doctors. We explore this further in Column (4) which reports the double interaction of the policy reform with doctor connections and political competition. Though we are cutting the data into small bins, we note that it is unconnected doctors serving in the most politically competitive areas who are most likely improve their attendance in response to the reform.

4.4. Highlighting absence to senior bureaucrats

The Monitoring the Monitors program was designed to increase the flow of information from doctors and inspectors to senior officials. The program therefore provides information that is essential for senior bureaucrats to improve the performance of doctors and inspectors. Increasing the flow of such information is viewed as holding promise for service delivery in developing countries (Finan et al., 2015). In this case, we can check whether senior bureaucrats' ability to correct attendance problems is related to the degree of political competition and doctor connections in the constituency in which a clinic is located. In this sense, we can evaluate how political interference in decision-making of senior health officials may carry consequences for service delivery.

Data collected via the smartphones are aggregated and presented to senior health officials on an online dashboard. In addition to these officials, this dashboard is visible to the Health Secretary and the Director General of Health for Punjab.

To test whether actions by senior health officials affect absence, we directly manipulated data on the dashboard to make certain inspection reports salient. Specifically, we highlighted in red inspection reports on the dashboard that reported three or more staff (of seven generally) as absent during an unannounced visit to the clinic. The exact formula for this arbitrary threshold was not known to anyone but the research team.

We examine whether this manipulation affected subsequent doctor absence in our primary data with the following specification:

$$Present\ Survey_{jt} = \alpha + \beta_1 Flagged_{jt-1} + \sum_{i=1}^{3} \delta_t + \eta_{jt} \quad (1)$$

$Present\ Survey_{jt}$ is equal to 1 if the doctor j was absent during an unannounced visit by our enumerator in wave t. $Flagged_{it-1}$ is a dummy variable that equals 1 if the facility was flagged in red on the dashboard in a window of time prior to the primary survey wave t. For our primary analysis, we define this window as 11 to 25 days before an unannounced visit by our field enumerators. Senior health officials only looked at the web dashboard every week or two, so we would not expect an immediate response from flagging. However, if the window is made too long, virtually every facility will become flagged and we will lose variation.[16]

To minimize possible different trends in absence between facilities that were flagged and not flagged, and thus to isolate the effect of the flagging itself, we restrict our sample to only facility reports in which either two or three staff were absent.[17] Causal identification requires that facilities just below the cutoff (those with two staff absent during a health inspector's visit) and facilities just above the cutoff (those with three staff absent) share potential outcomes in the absence of the flagging. In Callen et al. (2020a), we show our "flagging" result (not the heterogeneity results in this paper, but simply the average effect) is isolated to the exact threshold we set for flagging (going from 2 to 3 staff absent) and that we do not see any effect at placebo thresholds of 1 to 2 staff absent, 4 to 5, etc. Also in that paper, we perform five validity checks of this identification strategy. These include: (i) checking alternative thresholds; (ii) checking whether absence flagged on the dashboard predicts attendance in surveys performed prior to the appearance on the dashboard; (iii) controlling for the entire history of flagging on the dashboard; (iv) checking whether impacts realize after a plausible delay (10 to 20 days after the report appears on the dashboard).

Columns (1) and (2) reproduces unconditional flagging results from Callen et al. (2020a). Column (3) examines directly whether the impact of flagging underperformance depends on the degree of political competition in the constituency from which the report originates. It may be that senior health officials can work to correct doctor attendance at a clinic when that facility is in a competitive constituency as political interference there is likely to be low. The results suggest that doctor attendance is indeed higher as a result of flagging in high competition areas. Flagging a clinic on the dashboard in a highly competitive constituency increases subsequent doctor attendance by 35.9 percentage points. By contrast, flagging a clinic in an uncompetitive constituency reduces attendance, though the estimate is not statistically significant. The difference in estimated impacts is, however, statistically significant at the 5 percent level. Speculatively, district health officials have reported

[15] See Callen et al. (2017) for a more thorough discussion of collusion in this context.

[16] We report robustness in all of our flagging results to the choice of the time window, in Appendix Fig. A7.

[17] This also means we cannot generalize the results here to understand how dashboard flagging would have affected clinics that always have fewer than two or three or more staff absent. In this sense this section reports Local Average Treatment Effects, localized to those right around the cutoff.

Table 3
Hetereogeneous treatment effects on doctors by political competition and doctor connections.

Dependent Var.	Doctor Present (=1)			
	(1)	(2)	(3)	(4)
Monitoring	−0.010			
	(0.043)			
	[0.645]			
Monitoring x High Political Competition		0.102		
		(0.063)		
		[0.057]		
Monitoring x Med Political Competition		−0.059		
		(0.067)		
		[0.873]		
Monitoring x Low Political Competition		−0.066		
		(0.060)		
		[0.900]		
Monitoring x Doctor Does Not Know Politician			0.010	
			(0.074)	
			[0.495]	
Monitoring x Doctor Knows Politician			−0.104	
			(0.150)	
			[0.699]	
Monitoring x High Comp X Not Know				0.266**
				(0.108)
				[0.017]
Monitoring x High Comp X Knows				0.099
				(0.421)
				[0.441]
Monitoring x Med Comp X Not Know				−0.102
				(0.111)
				[0.853]
Monitoring x Med Comp X Knows				−0.111
				(0.141)
				[0.776]
Monitoring x Low Comp X Not Know				−0.094
				(0.107)
				[0.876]
Monitoring x Low Comp X Knows				−0.180
				(0.135)
				[0.864]
Constant	0.326***	0.324***	0.503***	0.498***
	(0.014)	(0.014)	(0.023)	(0.022)
Mean, Controls	0.227			
High Comp Mean, Controls		0.202		0.202
Med Comp Mean, Controls		0.234		0.234
Low Comp Mean, Control		0.240		0.240
Does Not Know Mean, Control			0.462	0.462
Knows Mean, Control			0.225	0.225
Mon. x (High vs Med Comp) (p-value)		0.079		
Mon x (High vs Low Comp) (p-value)		0.027		
Mon. x (Does Not Know vs Knows) (p-value)			0.502	
Mon. x High x (Not Know vs Knows) (p-value)				0.715
Mon. x Med x (Not Know vs Knows) (p-value)				0.962
Mon. x Low x (Not Know vs Knows) (p-value)				0.642
# Districts	35	35	34	34
# Clinics	852	842	538	533
# Observations	2422	2398	1544	1532
R-Squared	0.006	0.010	0.017	0.029

Notes: This table reports on the effects of the Monitoring the Monitors program on the attendance of doctors. Columns (2) and (3) look at heterogeneous impacts by the degree of political competition in the constituency where the reform is implemented and Columns (4) and (5) look at heterogeneity by whether the doctor reports being connected to their local politician. These estimates correspond to specification (2) in the paper, replacing the dependent variable with an indicator equal to one if a doctor is found to be present during an independent inspection. All regressions include clinic and survey wave fixed effects. Standard errors clustered at the district level are reported in parentheses. Fisher exact test p-values are reported in brackets. This test places the 'true' treatment assignment p-values in the distribution of p-values obtained from 1,000 random draws of the treatment assignment.

facing pressure and obstacles from influential persons to sanction underperforming health staff. In our survey, 44 percent of the senior health officials and 39 percent of the inspectors reported having faced such pressure. If senior health officials face more political obstacles to sanctioning absent doctors with stronger patrons, this would explain why the effect of highlighting a facility as underperforming could be localized to competitive districts.

Column (4) tests whether flagging also has differential impacts depending on whether doctors know their local politician. Mirroring the broader pattern of results, doctors who do not know their politician are more likely to be at work following an instance of their facility being flagged on the dashboard, while connected doctors are less likely. The difference between these two estimated effects is significant at the 10 percent level.

Finally, though we are cutting the sample a lot, Column (5) shows the effect of flagging by competition and doctor connections. We find that the senior bureaucracy is most able to improve doctor attendance in high competition areas and for doctors who

do not report knowing the politician personally. We see no equivalent increase for doctors that know the politician even in high competition areas.

We probe the robustness of our result in Columns (3) and (4) of Table 4 in Appendix Fig. A7. We do this by running the same regression 1,300 times, varying the window for which we define a clinic as flagged prior to a primary unannounced visit to a clinic along two dimensions: we vary the length of the window being used along the x-axis and the delay from when a clinic is highlighted in red to when the window begins along the y-axis (for example, a length of 30 and delay of 15 corresponds to considering a clinic as flagged if it was highlighted in red anytime 15 to 45 days prior to an unannounced visit). Panel A reports p-values for the hypothesis test in Column (3) that Flagged x High Comp. = Flagged x Low Comp. Panel B reports the p-value for the hypothesis test in Column (4) that Flagged x Doctor Does Not Know = Flagged x Doctor Knows. We observe a robust and significant treatment effect of flagging a clinic across a wide range of windows. We see our political competition result is extremely robust. Our differential effects by whether doctors know their local politician are less robust, which is in line with previous results.

4.5. Alternative explanations

Sections 4.1–4.4 present four results linking politics to absenteeism. Each of them is subject to several concerns and alternative explanations, which we discuss here.

Our first result is that bureaucrats report that politicians routinely interfere when they try to sanction absent employees. The result is descriptive and the data are self-reported. As such, the result is subject to standard concerns. We cannot make precise statements about the share of absence that is caused by political interference. Nor can we rule out that bureaucrats are overstating the degree of the problem. Some assurance that these responses are genuine is given by the fact that inspectors who are one standard deviation above the mean in their conscientiousness, using a standard Big Five Personality measure (conditional on district fixed effects), are 11.4 percentage points (s.e. = 4.89 pp) more likely to report political interference by a provincial assembly member (35 percent of the unconditional mean in Table 1), indicating that those who are likely to work harder to improve matters encounter more interference.

Next, our geographic regression discontinuity indicates that doctor attendance is higher in more competitive constituencies, and corresponding regressions show this is especially so for politically-connected doctors. One advantage of our setting is that administrative units mostly do not line up with political constituencies. As such, the treatment effect the RD attempts to recover is the impact of moving from a low to a high competition constituency, leaving room for wide interpretation. Our design and data do not directly document *why* political competition improves attendance. In addition, any result that uses doctors' connections to politicians as an explanatory variable could be biased; political connections likely correlate with other doctor attributes.

Turning to the smartphone monitoring technology, we see that directionally, though not significantly, increased monitoring leads to better attendance in competitive constituencies. Again, this is principally for politically-connected doctors, which is significant.

Table 4
Effect of flagging underperformance on the dashboard.

	Doctor Present in Unannounced Visit (=1)				
	(1)	(2)	(3)	(4)	(5)
Flagged	0.079	0.177**			
	(0.054)	(0.082)			
Flagged x High Competition			0.359***		
			(0.118)		
Flagged x Med Competition			0.004		
			(0.165)		
Flagged x Low Competition			−0.087		
			(0.134)		
Flagged x Doctor Does Not Know Politician				0.201*	
				(0.109)	
Flagged x Doctor Knows Politician				−0.250	
				(0.249)	
Flagged x High Comp x Does Not Know					0.454***
					(0.130)
Flagged x High Comp x Knows					−0.565*
					(0.288)
Flagged x Med Low Comp x Does Not Know					−0.129
					(0.188)
Flagged x Med Low Comp x Knows					−0.063
					(0.169)
DV Control Mean	0.281	0.236	0.236	0.354	0.354
Flagged x High Comp = Flagged x Med Comp (p-value)			0.090		
Flagged x High Comp = Flagged x Low Comp (p-value)			0.014		
Flagged x Doctor Does Not Know = Flagged x Doctor Knows (p-value)				0.072	
Flagged x Doctor Does Not Know vs (High vs Med Low Comp) (p-value)					0.016
Flagged x Doctor Knows vs (High vs Med Low Comp) (p-value)					0.136
# Clinics	268	112	112	80	80
# Reports	376	130	130	91	91
R-Squared	0.156	0.298	0.352	0.347	0.418
District Fixed Effects	Yes	Yes	Yes	Yes	Yes
Sample	Full	Discontinuity	Discontinuity	Discontinuity	Discontinuity

Notes: This table reports the effect on subsequent doctor attendance of flagging on an online dashboard to a senior policymaker the fact that a clinic had three or more staff absent. Clinics were flagged in red on an online dashboard if three or more of the seven staff were absent in one or more health inspections of the clinic 11 to 25 days prior to an unannounced visit by our survey enumerators. The discontinuity sample limits to facility reports in which either two or three staff were absent (the threshold to trigger the underreporting red flag). Column 5 combines Medium and High competition because of sparsity of data by doctor connections in the Medium competition bin. In addition, the sample in all columns is limited to Monitoring the Monitors treatment districts due to the necessity of the web dashboard for flagging clinics. All regressions include survey wave fixed effects. Standard errors clustered at the clinic level are reported in parentheses. $^{*}p < 0.1$, $^{**}p < 0.05$, $^{***}p < 0.01$.

Both political competition and doctor connections could plausibly be affected by confounds.

Last, we find that when the dashboard flags attendance as problematic in a specific facility, then senior managers take action and succeed in increasing attendance. These efforts succeed in competitive constituencies and for doctors who do not have connections to politicians, which, again, are not randomly assigned.

Importantly, the pattern of results is consistent across the three non-descriptive exercises in this paper. Absence is lower and more responsive to reform for doctors who are in competitive constituencies and when they are not politically connected. Any alternative explanation for these results would need to account for the consistent relevance of political competition and political connections as meaningful dimensions of heterogeneity.

5. Discussion and conclusion

Absenteeism among civil servants is a highly persistent problem in developing countries. Appropriately, current research focuses on the technical aspects of this issue, seeing its roots in an information asymmetry between principals and the agents being monitored. If absence is a result of agency problems between senior bureaucrats and local level civil servants, then improving monitoring should be an effective policy response. Correspondingly, a substantial body of recent empirical research explores the potential for monitoring to improve public service delivery. These studies provide mixed results, drawing attention to the critical nature of understanding whether the political environment can sustain such reforms.

Our results highlight the importance of political economy considerations in determining whether monitoring initiatives will be effective. We find evidence that the effect of monitoring follows a predictable pattern; it has impacts both in competitive constituencies and for employees with limited political connections.

This exercise provides insight for why public doctors are often absent and for why reforms aimed at solving the problem meet with mixed success. First, politicians routinely interfere with bureaucrats who would like to increase attendance. Second, doctors work less (in public facilities) where politics is not competitive, and especially when they share connections with politicians. This is consistent with a view that low levels of competition mark constituencies in a patronage equilibrium where doctor postings provide political currency. Third, we find that the increase in inspections driven by the new technology only raised doctor attendance for doctors in competitive constituencies who were not politically connected. Again, this points toward a system where doctors do not feel a need to respond to more regular visits by an inspector. Fourth, senior bureaucrats can reduce absence when monitoring information is presented to them in an actionable format. However, their ability to make a difference is similarly limited to areas of high political competition and to doctors unconnected with politicians. Once again, this suggests that politically-connected doctors working in uncompetitive constituencies do not respond when bureaucrat managers learn about their absence.

Our data cannot fully capture how this works, but these findings suggest the following are important elements in a model characterizing the political reasons that absence is both high and resistant to reform. First, at least some senior bureaucrats want to address the problem, and will effectively use new technologies to do so. Second, politicians regularly interfere with bureaucrats' attempts to increase attendance. Third, doctors with connections to politicians understand that they are protected and so attend work less and are less responsive to increases in monitoring. And last, the problem of absence – and of politicians constraining bureaucratic efforts to reduce it – will concentrate in constituencies marked by low levels of political competition.

While this description leaves gaps, it points toward a broader set of interventions to combat absenteeism. First, professionalizing the civil service – and eliminating politicians' involvement in decisions related to bureaucratic hiring, firing, promotion, and posting – would remove the opportunity to use these positions as patronage. Such policy reform, however, is hard to implement in practice, and an alternate set of solutions may prove more promising: reform should leverage political incentives in policy design. For instance, increasing voter awareness of public worker absence might amplify the political costs from voters not motivated by patronage. This could be done through public facing information portals, such as making the smartphone inspection dashboard available publicly – which politicians objected to in the context of this experiment – rather than just to senior health officials.

More broadly, the tremendous investments that researchers, philanthropists, and aid organizations are making to enable and promote evidence-based policy naturally raises questions. Are data and evidence alone enough to sustainably improve policy? How do political considerations affect the potential for data to improve service delivery? When will policymakers act on data? Our view is that questions such as these provide fertile and important ground for a discussion between applied researchers who have been focusing on identifying what works in international development, and political economists who study interactions between politicians, bureaucrats, and citizens. We hope that our results provide suggestive answers to these questions. In particular, our findings that reforms fail to succeed and data have limited impact when attempting to change the status quo in political settings where power is highly concentrated speak to these questions.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary material

Supplementary data associated with this article can be found, in the online version, at https://doi.org/10.1016/j.jpubeco.2022.104787.

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