Can Political Alignment be Costly? *

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Abstract

Research on the benefits of political alignment suggests that voters who elect governing party politicians are better off than those who elect other politicians. We examine this claim with regression discontinuity designs that isolate the effect of electing a governing party politician on an important publicly provided service in Pakistan: health. Consistent with existing research, governing party constituents receive a higher quantity of services: more doctors are assigned to work in governing party areas. However, despite many more assigned doctors, there is no increase in doctor attendance. These findings contrast with the literature on political alignment by showing that alignment to the governing party affects voters' welfare ambiguously: higher potential *quantity* of services may come at the cost of lower *quality*.

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1 Introduction

An extensive literature on political connections suggests that those with access to elected officials receive more favors (Albouy, 2013; Ansolabehere and Snyder, 2006; Brollo and Nannicini, 2012; Fisman, 2001). Voters who elect governing party politicians should receive more services than those who elect others.[1] This paper contends that it is not obvious that this is the case. It outlines a simple framework and presents empirical evidence to suggest that while more resources may be directed toward constituents of governing party politicians, there are costs that can come from a corresponding decline in the quality of these services.

We begin by outlining two empirical predictions from a framework that distinguishes governing party politicians from politicians belonging to other parties. The first relates to the total amount of programmatic and non-programmatic goods a politician will deliver (Brusco et al., 2013).[2] Governing party politicians enjoy greater access to public resources, which eases their budget constraint. A larger budget should allow for a higher provision of *both* programmatic and non-programmatic goods. Second, for a *given* budget, politicians select the mix of programmatic and non-programmatic policies that maximizes their chance of re-election. Governing party politicians may employ more non-programmatic policies because greater access to state machinery makes doing so comparatively easier. This means

[1]Governing party politicians are election winners who belong to the party that forms government in the state in the same election.

[2]Shefter (1977) provides a helpful definition for these two types of policies: "A political party may employ one of two basic strategies in its efforts to attract voters, contributors, and activists to support its candidates. It may distribute divisible benefits—patronage of various sorts—to the individuals who support the party. Alternatively, it may distribute collective benefits or appeal to a collective interest in an effort to elicit contributions of money, labor or votes from its supporters." We term goods of the latter sort as 'programmatic' and policies of the former sort as 'non-programmatic.' Section 2 elaborates on these definitions.

that the relative share of non-programmatic policies could be higher in governing party areas.[3]

These predictions carry competing implications for citizen welfare: greater resources to governing party areas may be offset by a policy mix that contains more non-programmatic spending, reducing the value of these services to citizens. Whether citizens are better-off overall will depend on which of these effects dominates.[4]

We test these predictions in the case of Punjab, a province of 100 million in Pakistan. The bureaucratic infrastructure in the country is patterned on the British Northcote-Trevelyan model and as a consequence resembles many developing countries around the world (Bertrand et al., 2015). We examine the state of public health services in the province by using primary survey data on front-line public service providers – doctors – from the first representative panel survey of 850 rural public clinics in Punjab. We combine these survey data with: (i) data from the election prior to this survey; (ii) geo-referenced data on health facility locations and constituency boundaries to estimate the effect of electing a governing party politician on service delivery.

We use two approaches to try to identify this effect. First, we employ a regression discontinuity design based on close elections. Second, we use a regression discontinuity based on the proximity of a clinic to the boundary of a political constituency. We have relatively few close elections involving the governing party, creating some imprecision in our estimates. Estimates from both approaches are, however, broadly consistent.

If prediction 1 is true, then governing party areas should see an increase in both programatic and non-programmatic goods. We present three results in support of this prediction.

[3]We develop this idea formally in Appendix A.

[4]While our data do not allow a definitive statements on the net welfare impact of electing a governing party politician, they do indicate that both considerations may be relevant. See Section 8 for more discussion on welfare consequences.

First, governing party areas have more doctors assigned to rural clinics. Our estimates are consistent with governing party politicians employing the full extent of resources available, assigning a doctor to almost all clinics in their constituency.[5]

According to prediction 2, governing party politicians should engage in relatively more non-programmatic policies. We find some evidence consistent with this prediction. First, there is no increase in the rate at which doctors are present in clinics during an unannounced audit, despite the substantial increase in assignment. Second, doctors report more direct connections to the winning politicians from the governing party, especially in competitive places, signaling the presence of political ties. Finally, interviews with the universe of senior health bureaucrats indicate that politicians routinely interfere in their jobs to prevent sanctions against shirking doctors. Anecdotal evidence suggests that doctors might return the favor by acting as local-level political interlocutors. These results, while more speculative, are consistent with governing party politicians providing relatively more of a divisible benefit to potential supporters, namely government jobs.

Pakistan provides an important context for the study. First, democratic institutions in the country are relatively nascent. The government we study came to power in 2008. It was the first elected government in the history of the country to complete its tenure in office. Studying politicians' choices in a consolidating democracy and their implications for citizen welfare is therefore important. Second, public health is a critical service in developing countries. We leverage a representative panel survey of rural health clinics in the province. These clinics are small facilities spread across rural Punjab, and provide the first stop for health-related issues for a poor population (see Figure 1). The context is therefore similar to that of much of the developing world, where rural bureaucrats provide critical services to the poor, and are frequently absent from their jobs (Chaudhury et al., 2006). Finally, bureaucratic performance in public health in Punjab has recently experienced several large-

[5]In the first survey wave of 850 representative clinics, we find that 35 percent of clinics have no doctor assigned to them across Punjab.

scale failures that have resulted in the death of patients.[6] Understanding the extent to which weaknesses in political institutions explain variations in public health performance is important not just in this context, but also more broadly in developing countries.

This paper makes three contributions. First, it identifies margins on which there can be losses from political alignment. Second, it suggests a political economy reason for persistent and intractable public sector absence across a host of developing countries (Chaudhury et al., 2006). Finally, it shows that even in the presence of high-powered democratic incentives in the form of political competition, citizens can be worse-off because of perverse political incentives. We discuss these contributions in further detail in the context of the results in Section 8.

The rest of this paper is organized as follows: in Section 2, we present a framework that informs the empirics; Section 3 discusses the historical and institutional background; Section 4 describes the data and Section 5 shows the empirical strategy. Section 6 presents results, while Section 7 presents a discussion of these results. We conclude in Section 8.

2 Governing Party Politicians and Policy Choice

This paper studies the impact of electing a politician who belongs to the governing party. This section first describes how governing party politicians may differ from non-governing party politicians. Second, it presents service delivery strategies available to a politician. Finally, it outlines empirical predictions arising from this analysis. We develop some of these insights more formally in Appendix A.

Governing Party Politicians: Governing party politicians have greater access to the machinery of the state once they are elected. There can also be differences along other dimensions. For instance, it is also the primary job of elected politicians to legislate on im-

[6]These include the provision of bad medicine, inadequate preparedness for the spread of the dengue virus, and cases of polio.

portant matters of the state. Governing party politicians carry an advantage in this because a greater share of the legislature belongs to their party. This helps in enacting legislation that suits the constituents of the party. Governing party members can also influence the implementation of state policy through the administrative function of the state, where cabinets are chosen by the governing party. These political appointees make policy-level decisions that can benefit party members. For instance, parties can tailor tax laws to help business in their constituencies. This paper however, examines local variations in service delivery that are explained by elected a governing party politician.

At least four aspects differentiate governing party politicians from others in developing countries: first, governing party politicians have more control over hiring of staff that deliver services at the local level. This is an easy way to divert resources to their constituents. Second, they retain influence over rewards and punishments of local level bureaucrats. This can allow for both effective monitoring of government programs, but also more opportunity for collusion between politicians and bureaucrats to extract resources from government programs (Gulzar and Pasquale, 2017). Third, these politicians can also influence transfers of bureaucrats and can wield this as a device to reward and punish local bureaucrats (Wade, 1985). Finally, governing party politicians can also exert pressure on senior bureaucrats, whose promotions are susceptible to political manipulation (Bertrand et al., 2015), to take their preferred policy action. Through these channels, governing party politicians enjoy a higher ability to influence service delivery at the local level.

Programmatic and Non-Programmatic Politics: An emerging literature points to two broad types of strategies that parties employ to improve the likelihood of reelection. Parties choose a mix of programmatic policies and non-programmatic policies, where the former is characterized by rules of distribution that are public and followed (Brusco et al., 2013).

Programmatic policies improve public goods provision, and should be beneficial for a large group of constituents. These policies include construction of roads and other infrastructure

like hospitals and schools, as well as the provision of personnel to provide services on a day-to-day basis, such as license issuing officers, doctors at clinics, and teachers at schools. Importantly, these policies are characterized by public knowledge of how resources will be distributed. In addition, the policies actually adhere to the stated distribution mechanisms. The focus of this paper is on local level service providers, in particular doctors at rural health clinics, as a means of improving service delivery at the local level. The provision of trained doctors is an important public service in developing countries, with consequences for public health and human development (Chaudhury et al., 2006).

The other strategy employed by parties relates to non-programmatic spending, where either the rules of distribution are not known publicly, or not followed even when known. One example of this is when resources are targeted to a subset of beneficiaries. For instance, benefits may be given out as rewards for a good outcome, such as the election of a governing party politician. They may also take the form of patronage, where a select few receive special benefits from the party, such as public sector jobs. Finally, parties may also give special favors to local level actors who can help raise votes for them (Hicken, 2011). Overall, these policies relate to the provision of private and club goods, where some section of the electorate may be excluded. This paper considers the political economy of local level service provides - public sector doctors - and examines how the allocation of public health can be made non-programmatic by providing jobs based on connections.

A politician can benefit from the first type of policy because its broad-based benefits are likely to increase the chances of reelection. This view is consistent with democratic accountability. In representative democracies, voters expect to receive benefits in exchange for keeping politicians in office. However, employing this strategy can also be wasteful. Public goods are non-exclusionary and do a poor job of targeting services: they provide benefits to voters who are either never going to vote for the party, or are always going to vote for the party regardless of benefits (Stokes, 2005). In contrast, employing the second strategy can allow politicians to target the benefits to places where they are most likely

to get them elected, while using the excess for other reasons, including pilferage (Brierley, 2016).

Empirical Predictions: A politician can provide either of these types of goods in order to get votes, but is subject to a budget constraint. The budget constraint limits the politician's ability to indefinitely employ both strategies and can be thought of as the opportunity cost of the politician's time and resources. Members of the governing party enjoy greater political access to the state machinery. This can be viewed as a loosening of the budget constraint (we derive predictions from such a change formally in Appendix Section A). Governing party politicians can therefore employ more of *both* programmatic and non-programmatic strategies keeping resources fixed.

Prediction 1 (extensive margin): *Areas that elect a governing party politician should receive a greater supply of programmatic* and *non-programmatic services.*

The combination of programmatic and non-programmatic policies that politicians employ will be determined by the net marginal benefit from each. Politicians will employ a mix that equalizes this net marginal benefit from the two strategies, given their budget constraint. As explained above, governing party politicians have a higher ability to employ public sector resources and target them towards non-programmatic goals. In the extreme, we can think of non-governing party politicians as having no access to public sector resources that they can channel in a non-programmatic manner in their constituency. In this case, all their effort will be directed towards programmatic policies. Starting from this baseline of no non-programmatic policies, we can state that the net marginal benefit from an additional unit of resource towards non-programmatic policies is much higher than from programmatic policies. This will be the situation for governing party politicians. We can think of this discontinuous move from no non-programmatic politics to allowance for some non-programmatic politics as the empirical comparison that we draw below.

That is, everything else equal, the net benefit of employing non-programmatic policies on the margin will push governing party politicians to employ more non-programmatic policies.

The observed mix of policies employed by governing party politicians should therefore be more skewed towards non-programmatic policies.[7]

Prediction 2 (intensive margin): *Everything else equal, areas that elect a governing party politician should receive more non-programmatic services relative to programmatic services.*

3 Background

Elections in Punjab: Our analysis focuses on the province of Punjab in Pakistan, home to roughly 100 million people. We consider the time period between the general elections of 2008 and 2013 in Punjab. The province follows a party-based single-member district electoral system. The focus here is on the Punjab Provincial Assembly, a legislative body comprising 371 members, including general and reserved seats.[8] The analysis is based on results from the General Elections of 2008, when the incumbent party, Pakistan Muslim League (Quaid Group) was ousted by the Pakistan Muslim League (Nawaz Group) (PML(N)). PML(N) won about 30 percent of the competitive seats, and held about 37 percent of the overall seats in 2008. Below, we focus on constituencies in Punjab where the PML(N) fielded a candidate in 2008. There were about three effective number of candidates contending in each of these elections on average.[9] Appendix B presents a brief history of electoral politics in Pakistan.

Provincial assembly elections offer the lowest elected political position in Punjab as of

[7]This assumes that there are diminishing marginal returns to employ either of the two policies. This is reasonable because each additional public good that is provided should yield a lower number of voters for the politician, for instance.

[8]"About Assembly", Provincial Assembly of Punjab website, Retrieved on Sep 7, 2013

[9]This is calculated by taking the inverse of the party herfindahl index for each constituency. The herfindahl is a measure of dispersion. It is calculated as the sum of inverse squared vote shares for each candidate.

October 2015, when a new local government system was introduced. Each political assembly member is elected to represent a relatively large population. In our sample of mostly rural constituencies, there were an average of 149,000 registered voters per constituency in 2008. Given that the demography of Pakistan is bottom-heavy in terms of age cohorts, this represents a large number of households who can routinely access public health services on a regular basis.

Public Health in Punjab: Health has been devolved to provincial control under the 18th Amendment to the Constitution. In the Punjab province, public healthcare is managed by the Department of Health, which is based at the provincial headquarters in Lahore. The Minister for Health, part of the governing party's cabinet, oversees the health bureaucracy through the Secretary and the Director General for Health. The budget for health is prepared under the Provincial Finance Commission and leaves substantial control with the province to decide on health related disbursements and personnel management.

The Minister and the Chief Minister of the province are anecdotally the primary conduits for MPAs to influence the bureaucracy in the provincial center. At the district level, it is easier for them to make calls themselves – indeed, as we show below, they frequently interfere in the bureaucracy at the local level. The precise mechanism for interference in resources however is unknown because it is not legal and therefore, hard to observe.

Public Health at the Local Level: The province comprises of 36 districts with three to four Tehsils (counties) in each of them. Each district has on average 8 provincial assembly constituencies. There are five major types of facilities: (1) Basic Health Units (BHU); (2) Rural Health Centers (RHC); (3) Tehsil Headquarter Hospitals (THQ); (4) District Headquarter Hospitals (DHQ); (5) Teaching Hospitals. The focus here is on Basic Health Units (BHUs) - used interchangeably with 'clinic' and 'facility' in the rest of the paper - which are the most local-level public health care units in Pakistan. These are designed to be the first stop for patients seeking medical treatment in government facilities. Clinics are designed to have non-overlapping jurisdictions, and based on other research in Pakistan, it is safe to

assume that patients typically visit clinics closest to them (Cheema et al., 2017). There are 2496 of such clinics in Punjab, and almost all of them are situated in rural areas. These clinics provide several services, including out-patient services, ante-natal and reproductive healthcare, and vaccinations against diseases – making them particularly important for a relatively young population.

Each facility is headed by a doctor, known as the Medical Officer, who is supported by a Dispenser, a Lady Health Visitor, a School Health and Nutrition Supervisor, a Health/Medical Technician, a Mid-wife and other ancillary staff. Officially, clinics are open, and all staff are supposed to be present from 8am to 2pm. All doctors at clinics are certified medical practitioners who have gone through five years of medical school. Appendix C describes the procedure for doctor hiring in Punjab. The procedure for transfers is more opaque. To the best of our knowledge a specific transfer policy did not exist. Three pieces of information suggest that transfers in health are carried out in a more ad-hoc basis. First, according to a government report, there are no human resource departments in the district health setup (Government of the Punjab, 2015). Second, as we point below, there is considerable interference in the way the health bureaucracy is run. A doctor who had her position transferred closer to her hometown told us that while there exist notification procedures for transfers, actual transfers are handled in a case-by-case ad-hoc manner. Finally, official notifications for transfers are still issued at the provincial center, and reported online.[10] This suggests that there is lot of scope for interference.

Politicians and Doctors in Punjab: Local-level bureaucrats, such as doctors and teachers, serve a critical role in developing democracies. They provide the first access to the state for important services. In a country like Pakistan, where infant mortality rates are still relatively high, and the threat of polio an important policy concern, the services provided by

[10]Transfer/Posting/Leave Orders, `http://www.pshealth.punjab.gov.pk/TransferPostingOrders.aspx`, accessed on Jan 26, 2018

rural public sector doctors are critical.[11] A recent documentary on the state of rural public health system in India shows that, consistent with stories from our fieldwork, the absence of state infrastructure can allow private sector unlicensed 'quacks' to proliferate (Banerjee, Banerjee and Sen, 2013). The provision of professional public sector doctors in rural areas is an important public good that the government can provide, and the politicians can push for (Muralidharan and Prakash, 2013).

Local level bureaucrats are also a cheap means of patronage in developing democracies. A continues stream of payment in the form of a public sector salary makes public sector employment a sought after position in rural communities (Robinson and Verdier, 2013). Governing party politicians can influence the process of public service human resource management in at least two ways: first, they can exert political influence to control the process of transfers of public employees. Second, once posted, health officials also appeal to politicians for protection against suspension, transfer, and other sanctions for underperformance.

Many public doctors belong to politically powerful clans and families. They can provide three types of favors to politicians. First, they can activate their networks to mobilize votes. Second, health staff are commonly recruited to assist the election commission with drawing up voter lists and overseeing polling on election day. Third, they can provide preferential care to supporters, or condition care on support. In this way, the public health service can also become an important source of non-programmatic policies by the politicians.

Politicians Exert Influence to Shield Shirking Doctors: As part of the fieldwork, we interviewed the universe of senior level bureaucrats in the health department in Punjab. These include the Executive District Offers (EDOs and DOs), responsible for the overall health setup in each of their districts, as well as the Deputy District Officers (DDO), who operate at the Tehsil (county) level and serve as roving monitors for clinics. There are 36

[11] 78 children in 1000 live births in Pakistan die compared to 48 in Nepal, 57 in India and 65 in Bangladesh. Only 47 percent of 12-23 month olds have all requisite vaccinations in Pakistan, compared to 83 in Nepal, 73 in Bangladesh and 44 in India (DHS Program, 2008).

districts in Punjab, a province of approximately 100 million citizens, and we was able to interview 34 EDOs and 149 DOs and DDOs.

These data allows us to establish some descriptive facts about the political landscape in Punjab. We present some summary statistics on how senior bureaucrats are influenced routinely by politicians in Table 1. This speaks to the fact that bureaucrats operate in a highly politicized environment, where politicians look out for doctors. Importantly however, we cannot estimate treatment effects with these data as outcomes because bureaucratic boundaries are larger than constituency boundaries, with several constituencies within the jurisdiction of these monitors.

The summary statistics in Table 1 are on self-reported incidents of political interference experience by these officers. We asked the respondents to report the number of instances where a person of influence put pressure on the respondent for a) taking action against doctors or other staff that were performing unsatisfactorily in their Tehsil or district or b) not assigning doctors or other staff to their preferred posting. The respondents were also asked to identify the type of people who tried to influence behavior. The results show that about 40 percent of bureaucrats experienced pressure from several kinds of powerful actions and about 32 percent of officers report being pressured by elected politicians in the Provincial Assembly. On average, they face about 15 such incidents in the last two years.

Table 1: Senior Bureaucrats Face Routine Pressure

	Mean	SD	# Officers
Ever influenced by Any Powerful Actor	0.402	0.492	184
Ever Influenced by Provincial Assembly Member	0.322	0.469	183
Instances of Interference by Provincial Assembly Member	15.344	50.399	183

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 monitors in Punjab.

4 Data

Our analysis relies on primary data on public clinics in Punjab and on election data for the 2002 and 2008 general elections.

Primary Health Services Data: We collect primary data on a representative sample of 850 (34 percent) of the 2,496 public rural clinics in Punjab. Enumerators made unannounced visits to these clinics three times, first in November 2011, then in June 2012, and finally in October 2012. All districts in Punjab except Khanewal are represented in the data. To our knowledge, this is the first representative panel survey of Basic Health Units in Punjab. Figure 1 Panel A provides a map of all clinics in the data with Provincial Assembly constituency boundaries in Punjab. To bolster data in places where doctors were not found in all three waves, an additional fourth wave of data collection was conducted where the surveyors set a meeting with doctors so they could be interviewed. We detail this process in Appendix H.

Election Data: We also make use of results from the 2002 and 2008 Punjab Provincial Assembly elections. These data come from Fair et al. (2013) and provide candidate totals by Punjab Provincial Election constituencies for all candidates. We consider the margin of victory for races where PML(N) contested the election. Figure 1 Panel B shows PML(N) winners and runners-up in our data by their absolute margin of victory. We use define candidates' party as that listed on the 2008 election ballot for the duration of the study period to avoid potential endogeneity due to party switching post-election.[12]

[12]Figure A2 plots the vote share of by the margin of victory for the governing party. It can be seen that there is substantial variation in both the share of the total votes that PML(N) secured (between 0 and 70 percent), as well as its victory margin. Victory margin is defined as a ratio of vote difference between the PML(N) candidate and the runner-up if PML(N) won, and between the PML(N) candidate and the winner if a candidate from another party won. It is positive if the PML(N) candidate won, and negative if that candidate was the

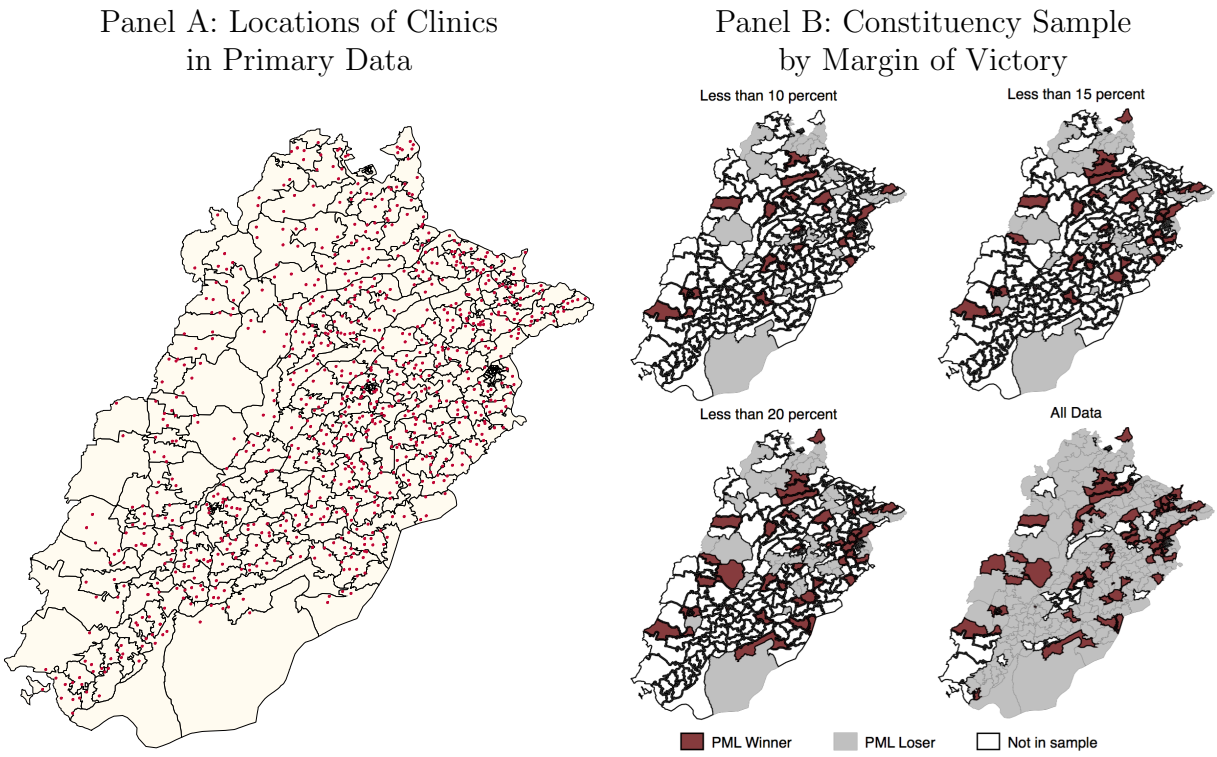

Figure 1: Distribution of Clinics by Margin of Victory

Notes: Polygons represent Provincial Constituency boundaries. Dots in Panel A show location of 850 rural clinics in Punjab. 'Not in Sample' category in Panel B are constituencies where a PML(N) candidate did not participate in the 2008 elections. The 'All Data' map in Panel B is also the relevant sample for the geographic regression discontinuity design we discuss below.

5 Empirical Strategy

Our objective is to estimate the causal effect of having an aligned politician on service delivery. Doing so requires dealing with several confounds as constituencies where governing party politicians secure victory may differ, in many respects, from those where they lose. For example, PML(N), which has a pro-business agenda, relies on the trader middle class as its base and so does better in wealthier areas where this constituency is a larger part of the electorate, which may have direct implications for service delivery.

We use two empirical strategies. First, we leverage the occurrence of Punjab's 2008

runner-up.

Provincial Assembly elections, employing a close elections regression discontinuity. Second, we use a geographic regression discontinuity that uses constituency boundaries as a cut-off. Both approaches require some assumptions to deliver causal identification, which we discuss below.

Close Elections Regression Discontinuity: In an ideal experiment, we would compare politicians when they are in two different parties for the same constituency at the same point in time. This theoretical counterfactual of the *causal* impact of governing party incumbency can be estimated using a regression discontinuity design where the comparison is limited to constituencies that are similar in all ex-ante aspects. We use the the approach suggested by Lee (2008) and Imbens and Lemieux (2008) to study the effect of electing a governing party politician on several outcome variables. This strategy exploits a discontinuity in the assignment of party identity in close elections. We estimate equations of the following form:

$$Y_{icjt} = \beta PML(N)\ Winner_c + f(x_c) + \eta PML(N)\ Winner_c \times f(x_c) + \alpha_t + \gamma_j + \epsilon_{icjt} \quad (1)$$
$$\forall i\ s.t.\ x_c \in (-h, h)$$

where Y_{ijt} refers to the outcome of interest at clinic i in constituency c in Tehsil (county) j at survey wave t. $PML(N)\ Winner_c$ is an indicator variable that equals one if the winning politician that corresponds to clinic i belongs to the governing party, Pakistan Muslim League (Nawaz Group). This is a deterministic function of whether the PML(N) politician won the election in 2008. γ_j refers to Tehsil fixed effects that take care of locational confounders. Similarly, α_t refers to survey wave fixed effects that absorb time-varying confounds. The control function $f(x_c)$ corresponds to a smooth function of the forcing variable x_{ij} which in this context, refers to the victory margin between the winner and the runner up. The forcing variable takes on values between $(-0.98, 0.48)$ in the data. The values are positive for PML(N) winners, and negative for other winners. The interaction of the control function

with $PML(N)\ Winner$ estimates the control function separately for PML(N) winners and other winners on either side of the cutoff. The coefficient of interest is β which estimates the local average treatment effect of governing party winners on Y_{ijt} when the margin of victory is zero. We get causal identification of our estimate of β by using close elections as a mechanism for 'as-if' random assignment of the winner's party.

Approaches to estimating equation (3) rely on changing the control function $f(x_c)$ and varying the bandwidth h to obtain a sample to estimate β. By restricting h to smaller values, that is restricting the analysis to very close elections, we are in a world closer to the 'as-if' randomization of treatment assignment through the reduction of bias in β. "This resembles more closely the empirical counterfactual but comes at the expense of efficiency due to small samples" (Querubin, 2016, p. 13).

We adopt the following strategies to deal with this trade-off: First, we use a local linear control function as suggested by Hahn, Todd and Klaauw (2001). This involves estimating a linear control function in margin of victory separately on both sides of the cutoff. Second, we show results over several bandwidths, including an 'optimal bandwidth' determined by an algorithm proposed in Imbens and Kalyanaraman (2011).[13] Third, we weight observations by a triangular kernel in all specifications. This technique gives observations closer to the cutoff higher weights than observations farther away. This appropriately represents the ideal experiment we are trying to approximate.

As a PML(N) winner is assigned simultaneously to several clinics in a constituency, we cluster standard errors in all models at the constituency level. This clustering strategy should also account for spatial correlation within the constituency.

We also include tehsil (county) and survey wave fixed effects in our close election RD specifications. Including tehsil fixed effects should increase precision, but should not meaningfully change estimates if the regression discontinuity is recovering the causal effect. If

[13]This algorithm selects bandwiths that are much too large to be meaningful in our case, but we report them for completeness.

the party of the winner of a close election is 'as-if' random, then it should not be correlated with any (potentially omitted) covariates. Contrary to this, our estimates are sensitive to the inclusion of tehsil fixed effects. Speculatively, this may be because we use data only from the 2008 general election, which had few close contests. The average victory margin was 12.8 percentage points. Our data are not sufficient to provide precise estimates when restricting to very close elections where the identifying assumption of the close election RD holds without additional controls (i.e. isolating variation within tehsils). At the same time, as shown in Figure 1, political constituencies cover large geographic areas. Including tehsil fixed effects controls for any unobserved local confounds, and estimates the treatment effects between clinics that receive and do not receive the governing party treatment in a relatively small geographic area. However, this comes at the cost of potentially overfitting the data. Because of this potential issue, we use a second empirical approach which takes advantage of the fact that our data on health clinics and constituency boundaries are geocoded.

Finally, this regression discontinuity approach estimates a Local Average Treatment Effect (LATE) that should be interpreted as being local to constituencies where the competition level is very high.

Geographic Regression Discontinuity: We also estimate treatment effects by comparing clinics in PML(N) areas with other clinics that look similar on covariates, but are located in non-PML(N) constituencies. We use the geographic regression discontinuity approach developed in Dell (2010) to study the causal effect of politicians who belongs to the governing party. We estimate equations of the following form:

$$Y_{ibt} = \alpha + \beta PML(N)\ Winner_{ib} + f(x_{ib}, y_{ib}) + \alpha_t + \eta_b + \epsilon_{ibt} \tag{2}$$

$$\forall i\ s.t.\ x_{ib}, y_{ib} \in (-h, h)$$

x_{ib} and y_{ib} are the latitude and longitude of clinic i that lies closest to border b between two provincial constituencies. In this case, the control function $f(x_{ib}, y_{ib})$ is of the form:

$x+y+x^2+y^2+xy+x^3+y^3+x^2y+xy^2$ following Dell (2010). Adding these geographic controls in a flexible way helps the regression absorb spatial trends that might be superfluously driving the results. α_t refers to survey wave fixed effects. h refers to some distance to the nearest border from a clinic. η_b refers to border fixed effects that allow us to compare clinics that are close to one another but on opposite side of the same border. Like before, we limit to clinics within a certain bandwidth which we vary, this time in terms of distance to the nearest provincial constituency border, using a triangular kernel that weighs clinics that are closer to the border more than clinics farther away.

Finally, this regression discontinuity approach estimates a Local Average Treatment Effect (LATE) that should be interpreted as being local to clinics that lie one the boundary of two constituencies.

Summary Statistics: Appendix Tables A1 and A2 presents summary statistics for the data by absolute margin of victory and by distance to the nearest provincial constituency border. The data contain 63 constituencies in a bandwidth of 0.1 margin of victory. Doctors are assigned to 66 percent of clinics in a victor margin bandwidth of 15 percent, while they are present in 29 percent of unannounced visits to clinics. For the geo-RD, there are 109 constituencies in a bandwidth of 1km from the nearest provincial constituency border, with doctors assigned 67 percent of the time and present 29 percent of the time.

Identification and Robustness Checks: Appendix F provides five identification checks testing the validity of our close election regression discontinuity. First, we find no evidence of sorting around the close elections cutoff by using the conditional density test proposed by McCrary (2008). Second, we show that PML(N) winners of close elections in 2008 were no more likely to have been elected in 2002, and thus they do not seem to be able to systematically win elections. Third, using data from FAFEN from over 30,000 election observers for the 2013 national assembly (NA) elections, we show that PML(N) winners of close National Assembly elections were no more likely to engage in observed unlawful practices on election day, including capturing polling stations. Fourth, we conduct placebo

checks using pre-treatment constituency data and do not find evidence of imbalance around the close elections threshold. And finally, we investigate the robustness of our main results with and without tehsil fixed effects.

We also conduct additional robustness checks that are not model-specific in Appendix G. First, to account for potential small sample bias in inference, we carry out a randomization inference exercise based on Fisher's Exact Test (Fisher, 1935). The p-values in this test do not rely on sample size considerations or normally distributed outcomes to be reliable Gerber and Green (2012). We find that observed treatment effects are generally robust. Second, we check the results with various alternative forms of the control functions for both RDs and find that the results remain consistent.

6 Results

Figure 2 plots the main results. The top panel presents close elections RD results, while the bottom panel plots the results from the geographic RD. Appendices D and G reproduces the results in tabular and RD plot form with the exact p-values.

Doctor Assignment: We first examine the impacts of having a governing party politician on the probability of a doctor assigned to clinics in a constituency. The total number of clinics have remained fixed for some time. New clinics typically get built as part of a special program, the last of which was several years before the analysis period for this paper.

The health department has several measures of whether a doctor should be present at the clinic. These include 'doctor sanctioned', which corresponds to budgetary line item for the doctor, and 'doctor filled', which indicates if a doctor has been assigned to the position. Our measure relies on the latter, where we simply note if a doctor should be at the clinic according to official records. This indicator variable of doctor assignment tells us if a doctor has been sanctioned by the the health department. This information is recorded at the clinic during primary data collection.

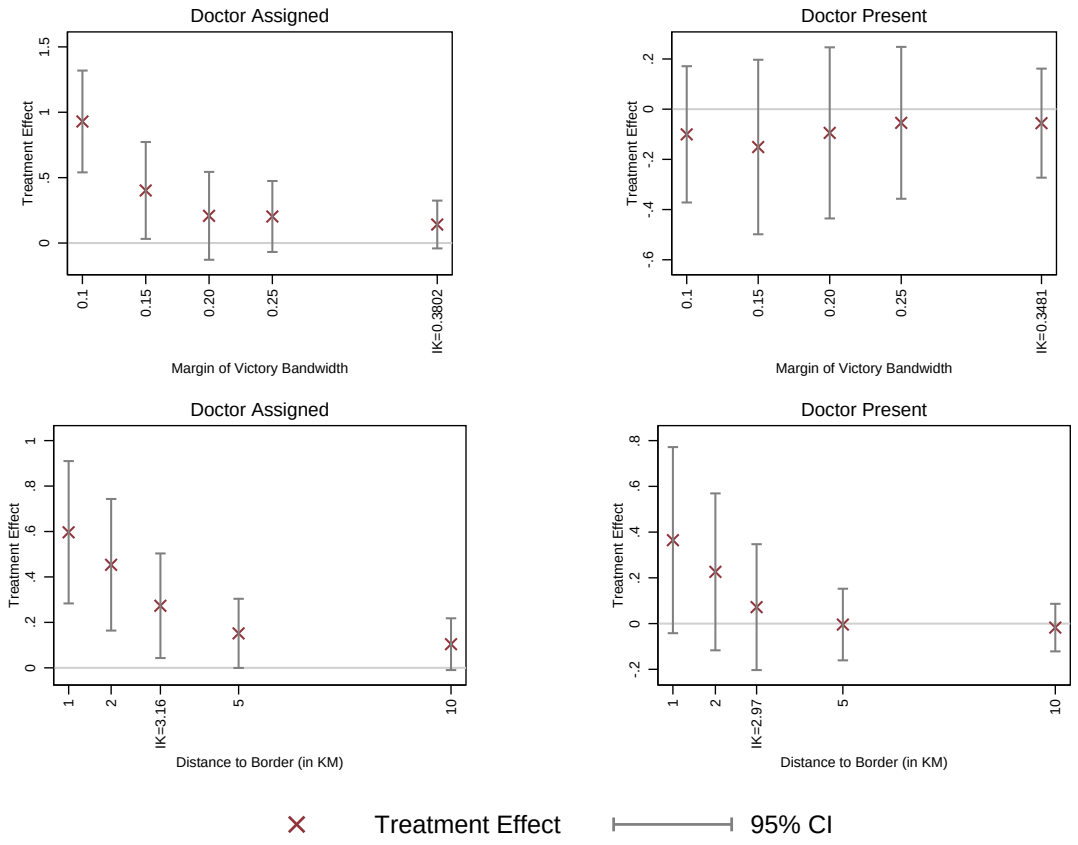

Figure 2: Main Results from Close Elections RD (above) and Geographic RD (below)

If prediction 1 of the framework in Section 2 is correct, governing party areas should have more doctors assigned in their constituencies. Leaving fewer posts vacant improves service delivery by easing access to a doctor in closest clinics to rural citizens. At the same time, public health jobs are also a cheap means of providing patronage and building networks in rural areas, something the PML(N) would have wanted to do after resuming power in 2008. If these jobs are provided as patronage, we can expect the doctors to do a poorer job at work. In this way, greater assignment of staff in rural facilities can signal both programmatic and non-programmatic policy.

Figure 2 and the corresponding estimates in Appendix Table A3 provide evidence that more doctors are assigned in governing party constituencies. This is true for estimates obtained both using a close elections and a spatial regression discontinuity. These estimates

range broadly, but are uniformly large and positive, and, in most cases, statistically significant. Against an unconstrained control mean of about 60 to 70 percent, these results suggest that governing party politicians attempt to fully engage resources available to them by ensuring that doctors are assigned at every rural clinic in their constituency.

These results are supported by more substantive knowledge of the public health sector in Punjab. In our data only 65 percent of the available slots had a doctor assigned to them in wave 1 of data collection. This can be because of several factors, but important ones include delays in bureaucratic processing including budgetary issues and decrees by the country's legal institutions against hiring of staff at various points of time. As a result, it is not possible in this context to make an impact on the extensive margin of service delivery simply by employing more doctors. Since there was a hiring freeze for doctors during our study period, a change in assigned can be interpreted as a transfer of doctors from non-governing party areas to governing party areas.

Doctor Attendance: Next we study impacts on doctor attendance. Our surveys allows us to measure doctor attendance in the three unannounced visits to the clinics in an unbiased manner that mimics how citizens access healthcare. Survey enumerators showed up at clinics during working hours with letters from the Punjab Health Sector Reform Program and requested to interview the staff at the clinic.[14] The enumerators were tasked to fill out an attendance sheet once the survey was complete and they had exited the clinic compound. If the doctor showed up during the surveys, the enumerator was instructed to mark him/her as absent. From a citizen's perspective, the doctor was not present at the clinic when the surveyor arrived unannounced. All places with an absent doctor, including those where a doctor was not assigned, are coded as zero, while places where a doctor was present are coded as one.

The estimated impact of electing an aligned politician on Doctor attendance is negative for all bandwidths with the close elections RD, while the point estimate flips from positive to

[14]This is an agency that reports directly to the Secretary of Health.

negative in the Geographic RD. These estimates are imprecise, and we cannot reject the null of no effect on doctor attendance.[15] However, combined with the prior result, that governing party politicians are filling almost all available slots for doctors, this suggests, speculatively, that the increase in the number of doctors hired is having no effect on their availability. As more doctors are assigned to governing party areas, the probability of finding a doctor at a random visit should also be positive. However, not only do we not observe a significant positive effect, the point estimate we observe is negative throughout. At a minimum, this suggests that the newly assigned doctors are going to work infrequently enough to draw down average attendance. It may also be that electing an aligned politician has a negative effect on the attendance of doctors assigned prior to the election as well.

7 Discussion

Our results in the previous section show that while there is an increase in services on the extensive margin, we do not observe a corresponding increase on the intensive margin. There are several stories consistent with these results. It may be the case that doctors being assigned to governing party areas are of a lower quality which is why they show up to work less often. Another explanation might be that in the governing party areas, doctors are posted to more peripheral areas where they have fewer incentives to show up to work. Finally, it could be the case that doctors in governing party areas are less likely to show up to work because politicians protect them. Below we evaluate these three explanations.

Do governing party areas have lower quality doctors? While we do not have direct measures for doctor quality, we do know how long doctors have served in the health department. This can be a proxy for their experience in health. Alternatively, more expe-

[15]There is one significant point estimate in a 1km bandwidth, but we can see that the point estimate drops down by factor of 4 in the IK bandwidth of 2.97 km suggesting that the geographic RD in 1km might be measuring a LATE specific to outlying areas.

rienced doctors may also make better political intermediaries. Field interviews suggest that experienced doctors may be more likely to command respect in rural areas because they are senior public sector bureaucrats who have gone to medical school. Previous work suggests that doctors can act as important political mediators in rural areas (Thachil, 2011; Larreguy, Marshall and Querubin, 2016). They are influential people in the rural areas in which they operate. Formal education and government service affords them a considerably higher social status in the primarily rural areas. Additionally, if they are connected to politicians, they are more likely to act as interlocutors of demands for services to politicians. In the absence of local elected government in Pakistan during the study period, informal connections such as these may be particularly important for the articulation of local interests. Finally, doctors can also help on election day as polling station staff. Polling stations are often situated in public clinics and schools across Pakistan.

Looking at the results Appendix Table A5, we are unable to reject the null that doctor tenure in governing party areas is the same as tenure in control areas.[16] Though doctor tenure in governing party areas is higher than in non-governing party areas across several bandwidths, it is not consistently statistically significantly different from the control mean.

One interpretation of these results is that doctors in governing party areas are not likely to be worse than doctors in control areas. This is consistent with the assignment results above that suggest that doctors are being transferred from non-governing party areas to governing party areas. The selection of doctors seems to be positively or not correlated with their experience in the health department. The results on attendance are therefore probably explained by factors other than doctor quality.

Do governing party areas have more doctors posted to peripheral areas? Another explanation for the results may be that doctors in governing party areas are transferred to more remote areas. As a result they are less likely to show up to work less often, possibly

[16]Tenure is trimmed at the 99^{th} percentile and logged, counting unassigned doctors as zero and adding one month to tenure. The results are similar otherwise.

because the probability of getting monitored by supervisors is lower. We do not find evidence to suggest that the increase in assignment is concentrated in more marginal areas.

Since we are by definition balanced on distance measures in the geographic RD design, we use the close elections RD specification to study if doctors in governing party areas are indeed transferred to peripheral areas. We also study if they are posted closer to their hometowns. In Appendix Table A6 we do not find evidence to suggest that governing party areas have more doctors posted farther away from the county headquarters – the place where most government offices are located. In addition, we do not find evidence to suggest that doctors are posted closer to their hometown, an explanation that would be consistent with selective placement of doctors.

Are Governing Party Politicians more likely to protect doctors? A final explanation for the main results is that governing party politicians are more likely to protect doctors from administrative sanctioning. As a result they are not likely to show up to work more even though there are more of them posted to governing party areas.

Evaluating this claim directly is hard as the direct observation of interference in the bureaucracy is difficult. While we showed in Table 1 that politicians routinely interfere in the bureaucracy, we are unable to directly measure impacts on this variable because bureaucratic areas are much larger, and intersect unevenly, with political constituencies.[17] Instead, we study treatment effects on doctor connections with politicians.

During the survey, doctors were asked if they knew the politician of the provincial assembly personally. We create a dummy variable equal to one for the doctors know who politicians directly or personally. We report results on these doctor connections with politicians in Appendix Tables A7 and A8. First, we find no consistent effect on connectedness of doctors in the geographic RD model suggesting that in the overall sample, doctors are not more likely to be connected to politicians in governing party areas. Second, we find that doctors report more *direct* connections with politicians in governing party areas if we consider close elec-

[17]This allows us to put county fixed effects in the close elections model.

tions. Though the point estimate becomes significantly different from zero at a bandwidth of 0.15, it is similar in magnitude in the 0.1-0.2 range. We find that doctors about about 30-40 percent points more likely to report connections with politicians during our survey. Interestingly, we do not observe any effects on a broader definition of connectedness – those that also occur through family and friends. These results suggest that doctors are likely to be more connected with governing party politicians particularly in more competitive areas – the LATE for the close elections RD model.

These results can be interpreted at least four ways: first, governing party politicians may transfer doctors they already know to their constituencies (where it is easy for them to shield them when they are absent); second, they may bring in doctors and get to know them; and third, the newly transferred doctors may themselves make efforts to build connections with doctors; finally, and, in our view, less plausibly, doctors could be more inclined to misrepresent their connection when they are in a constituency with an aligned politician.[18]

One final piece of anecdotal data that we present here is from the subsequent elections of 2013. The Free and Fair Elections Network (FAFEN), an independent non-governmental election monitoring organization tweeted infractions to the elections code prior to the General Election of May 2013. Figure 3 shows evidence of doctors and health staff behavior during the 2013 election. These suggest that health staff in rural areas may provide a good avenue for political networks and vote mobilization. In Figure A4 we show evidence on how government bureaucrats in general help may politicians during election season.

While we are unable to directly show evidence of politicians protecting doctors, the three

[18]We do not think this a particularly plausible story for a few reasons. First, for this to be an experimenter demand effect, doctors would have had to anticipate the purpose of our survey. We asked about many issues related to health service delivery, and also about connections to a range of different actors. Second, the magnitude of the effect would imply that is highly socially desired to know a politician connected to the ruling party, but not to other politicians.

Figure 3: Doctors as Political Workers in 2013 Elections

pieces of evidence presented here speculatively points to a patronage explanation of our results.

8 Conclusion

Prior research, appropriately, focuses on the total quantity of favors and services when looking at the effects of political alignment. However, another potentially important aspect is the quality of the services given out as a consequence of alignment. We argue that, on balance, political alignment can carry some countervailing costs.

We examine this argument as it applies to public health in Punjab, Pakistan. We show that in areas where elected representatives belong to the governing party, public doctors are more likely to be assigned and that this does not translate to a clear increase in doctor availability. The data also show that politicians routinely interfere in the health department to protect doctors, and anecdotal evidence indicates that doctors can act as political workers for parties. From a citizen's perspective, being in a governing party area can therefore carry a mixed blessing—more services may come at the cost of absent doctors who may be giving out services selectively.

Discussion of Main Results: Making a definitive statement on how political alignment affects citizen welfare is hard. We have a more modest aim: to document that in addition to the benefits of political alignment documented in the literature, there are some potential costs. Citizens may be better off in terms of total services being delivered, but there is uncertainty with regard to whether the average quality of services falls. One test that speaks to the overall effect on citizens are the results on doctor attendance, where in spite

of more doctors being assigned to a governing party areas, we see that the treatment has no statistically discernible effect on the doctor attendance. While the estimates are imprecise, in some cases they are even negative. This suggests that, at the very least, the positive effect of additional doctors are being washed out by more absence in governing party areas.

More generally, we can outline cases when citizens can be better off when electing governing party politicians. First, the availability of services can improve in areas previously unserved by the government. This is true in the present setting where governing party areas had more doctors transferred to them. In similar instances where the quality of services is less important than their mere availability, citizens in governing party areas stand to benefit. Second, many government services are provided through a one-off expenditure. These include roads, for instance, where maintenance costs and administration are often left to local communities. In such cases, the results from prediction 2 matter less in spite of potential pilferage during the provision of the service. We can say that citizen welfare improves by electing governing party politicians because the quantity dimension is significantly more important than quality.

However, there can also be cases where citizens end up worse off in electing governing party politicians. Doctors in governing party areas can exploit their connections with politicians to shirk more often. For instance, they can delegate their job to their subordinates, such as the clinic dispenser, without fear of sanction. During field visits to clinics, our survey team often encountered dispensers acting as official doctors. Third, emerging literature shows that issues of *access* are of primary importance in take-up of services, particularly in South Asia.

Consistent with this, if doctors are only sporadically available, citizens may have to make several trips to the clinic to find a doctor, compete with increased demand when the doctor is available at his/her post, and potentially be forced to use more expensive private care. These costs can be significant. For instance, in the development literature, health outcomes that are seen to respond quickly to changes service delivery are infant mortality and stunting

(Fujiwara, 2015). These variables are likely to be affected by the performance of the clinics in our sample, whose primary responsibilities include providing ante and post-natal check-ups.

Finally, together with the results on patronage, it is possible that doctors in governing party areas are in fact targeting their services to a subset of people based on some political criteria. They may provide services to the weakly undecided voters in swing constituencies for example (Brusco et al., 2013). Targeting services based on political criteria will come at the cost of sacrificing overall welfare of citizens in governing party areas.

Answers to whether political alignment is a net benefit hinges on a few questions: first, how many new areas are serviced? Second, is the service easily transferable from one area to another? Third, what are the impacts on the extent, and quality, of the service employed? Fourth, is the service given out in a more targeted manner at the expense of general welfare?

Contributions and External Validity: The findings in this paper carry implications for several literatures. First, a large literature in political science and economics identifies the value and consequences of political connections (Albouy, 2013; Ansolabehere and Snyder, 2006; Brollo and Nannicini, 2012; Fisman, 2001). The literature overwhelmingly indicates that political connections are valuable. In contrast, the results in this paper show that under certain conditions, citizens may be worse off when electing a governing party politician. At the very least, that research should consider the costs of alignment.

Second, this paper connects a large development literature that identifies public worker absence as a key obstacle to delivering services to the poor, with the literature on patronage jobs. During unannounced visits in the first wave of data collection, we find that there is a 68.5 percent chance of a doctor being absent at a representative clinic. This compares with an average of 35 percent across Bangladesh, Ecuador, India, Indonesia, Peru and Uganda (Chaudhury et al., 2006), arguably comparable developing countries. Governments jobs are ideal currency for patronage; they can be targeted to individuals, provide a credible stream of benefits, and are reversible (Robinson and Verdier, 2013). Historically, public sector jobs have been used in Italy (Chubb, 1983; Golden, 2003), West Germany (Mayntz and

Derlien, 1989), Hungary (Meyer-Sahling, 2006), India (Wade, 1985), and the United States (Sorauf, 1956; Johnston, 1979; Wilson, 1989) to name a few. This paper shows how pervasive public sector absence in many developing countries can in fact be a result of patronage jobs provided by ruling parties. Programs that aim to reduce corruption and improve government efficiency would benefit from understanding instances where the incentives of politicians and service providers align, such that they lead to a decline in service delivery and development outcomes.

Third, research suggests that, regardless of party affiliation, we should expect a higher provision of public goods in the presence of high-powered electability concerns (Brierley, 2016; Dewan and Shepsle, 2011; Stasavage, 2005; Baum and Lake, 2003; Martinez-bravo et al., 2013; Ross, 2006; Bueno de Mesquita et al., 2005; Keefer, 2007; Harding and Stasavage, 2014). If this is true, then conditional on competition, governing party politicians should pursue policies that deliver programmatic policies the same way as other politicians. However, the results here show that democratic accountability may not be enough to guarantee better services. Ruling parties may in fact *prefer* to employ non-programmatic policies in highly competitive places since the marginal return from these policies may be higher than adopting more programmatic policies. This is consistent with several recent papers that show how democratic incentives may in fact skew political behavior in favor of non-programmatic concerns (Stokes, 2005; Bueno de Mesquita et al., 2005; Vicente, 2014; Gonzalez-Ocantos et al., 2012; Nelson, 2007). Higher access to the government's resources may allow governing party politicians the opportunity to engage in non-programmatic policies (such as patronage, or delivery of club goods). This paper contends that the ambiguous effects of welfare may arise because of this tradeoff.

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Online Appendix (Not for Publication)

A Model

Imagine the total number of votes that a politician receives v is increasing both in the quantity of programmatic goods x_p and in the quantity of non-programmatic goods x_{np}. The politician has E to spend providing these goods to potential supporters, and faces the prices p_p and p_{np} for each of the goods respectively.

Then the politician solves the problem

$$max_{x_p, x_{np}} v(x_p, x_{np})$$
$$s.t.\ p_p x_p + p_{np} x_{np} = E.$$

If we assume that v, the vote 'production function' takes the following Stone-Geary formulation $v = (x_p - \gamma_p)^{\beta_p} \cdot (x_{np} - \gamma_{np})^{\beta_{np}}$ and further assume that $\beta_{np} > \frac{p_{np} x_{np}}{E}$, then it is straightforward to show that an increase in the amount of resources to spend E will result both in increases in x_{np} and x_p (prediction 1) and will increase the ratio of x_{np} and x_p.

We select a Stone-Geary function because it is non-homothetic (that is, it is ideally suited to modeling non-linear expansion paths). Stone-Geary utility functions close resemble Cobb-Douglas functions, although they model the value of some good relative to some threshold, reflected by the γ_i parameters. This would be the case if a candidate needed to provide more than γ_p programmatic goods and γ_{np} non-programmatic goods in order to get any votes at all. This may not be an unreasonable assumption in this case; voters must receive at least some programmatic or non-programmatic goods in order to vote for a candidate, and may be unwilling to vote for a candidate if it is below an unacceptable threshold.

We introduce the additional assumption that $\beta_{np} > \frac{p_{np} x_{np}}{E}$ in order to make the non-programmatic good a luxury good.

To obtain the predictions stated in the paper, note that the politician will supply:

$$x_p = \gamma_p + \beta_p \frac{E - (p_p\gamma_p + p_{np}\gamma_{np})}{p_p}$$

and

$$x_{np} = \gamma_{np} + \beta_{np} \frac{E - (p_p\gamma_p + p_{np}\gamma_{np})}{p_{np}}$$

Prediction 1 follows directly from the fact that both solution functions are increasing in E.

Prediction 2 argues that the ratio of x_p to x_{np} will increase. To show this, it is sufficient to show that the elasticity of x_{np} with respect to E, which we denote $\varepsilon_{np,m}$ is greater than 1. To see this, note that

$$\varepsilon_{np,m} = \frac{\partial x_{np}}{\partial E}\frac{E}{x_{np}} = \frac{E\beta_{np}}{p_{np}x_{np}} > 1$$

This is simply showing that using a Stone-Geary function for v, it is easily possible to have non-programmatic goods be 'luxury' goods in terms of the votes that they return for a politician. Indeed, for any function v satisfying $\varepsilon_{np,m} > 1$ this would be the case, by definition.

Figure 2, Panel A depicts the case of a politician aligned with the ruling party. For a given increase in resources (specifically, this is the additional resources they have above that available to a non-aligned politician), both the total number of goods provided to voters increases, and the ratio $\frac{x_{np}}{x_p}$ increases. Panel B depicts a purely hypothetical scenario, outside of the model, of what might happen if a politician with a different vote production technology received an increase in resources. The comparison between Panel A and Panel

B is instructive, however, as in Panel B the relative transition away from programmatic to non-programmatic goods is not present. The comparison therefore highlights the specific costs of aligned politicians having a production technology that favors non-programmatic goods along the expansion path.

There are a number of ways one could write a model to obtain predictions 1 and 2 in this paper. Here, we have chosen a vote production function that favors a move toward non-programmatic policies. In practice, this would mean that as a politician's access to the budget expands (modeled as an increase in E), they should shift toward providing relatively more non-programmatic goods because they will get more votes by doing so. An alternative might be that a politician in the governing party, relative to any other politician, has both a higher E and faces lower prices for delivering non-programmatic goods x_{np}. Taking the second approach (which involves an additional degree of freedom), a very broad set of v functions would deliver the same two predictions. We take the approach of using a Stone-Geary function as our prediction requires only shifting one variable. Of course, as this discussion points out, there are a broad set of models consistent with the findings in our data.

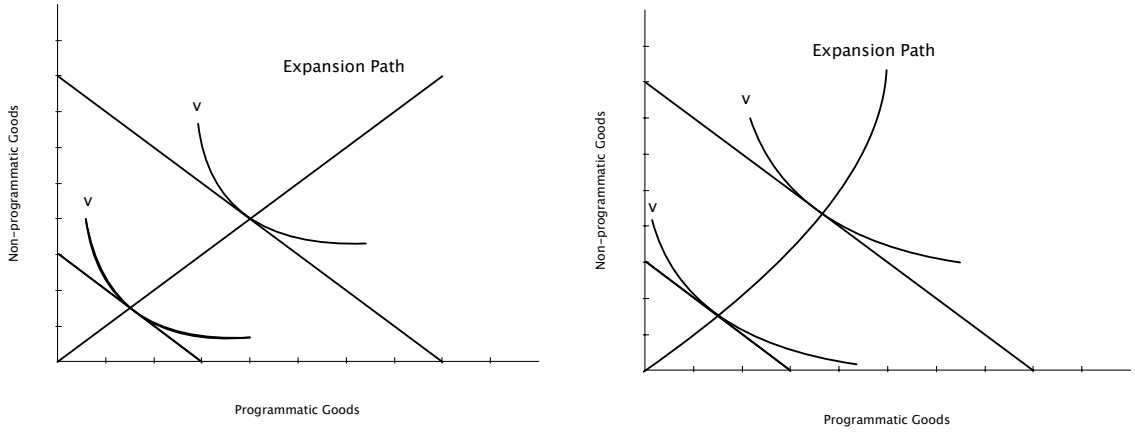

Figure A1: Homothetic versus Luxury

B Recent Electoral History

On 12 October 1999, General Musharraf deposed Prime Minister Nawaz Sharif of PML(N) in a coup d'état.[19] To consolidate his position, Musharraf introduced non-partisan local elections between 2001 and 2002 across Pakistan. "Mainstream political parties have historically seen non-partisan local governments as instruments of military regimes for creating a class of collaborative politicians to displace the parties' organization at the local level." In addition, "elected local government[s] have helped military regimes to legitimize and strengthen their control over the state" (Cheema, Khan and Myerson, 2014). This was complemented by General Elections in 2002 that brought Musharraf's preferred party, PML(Q), to power in Punjab and the Federal government. After Musharraf was deposed by a popular uprising by lawyers, General Elections were held in 2008 and 2013, where the 2013 elections marked the first time in Pakistan's history that a sitting parliament was able to complete its tenure in office. This summary of recent political history of Punjab allows for the appreciation of the relatively weak local political network that PML(N) started out with in 2008.

C Doctor Hiring

There are two different hiring processes for the doctors. The first process of hiring is through Punjab Provincial Service Commission (PPSC). Through this route a doctor becomes part of the bureaucracy either temporarily or permanently depending on the nature of positions that are being filled. PPSC is a statuary body tasked with hiring of human resources for

[19]Nawaz Sharif, the Prime Minister in 1999, and the then and current chairman of PML(N), tried removing General Musharraf from his position as the Chief of the Armed Forces, while Musharraf was away from the country. Musharraf was able to circumvent the threat, and in doing so, successfully launched a coup against the government. Nawaz Sharif, and group of close party members were forced to go in exile.

several arms of the provincial government. The commission floats an advertisement with details of the hiring process. Individuals who have passed the doctor certifications, and are registered with Pakistan Medical and Dental Council, are eligible to apply to these positions. The top candidates are called in for a test and further shortlisted candidates are interviewed by a selection committee. The committee consists of senior officials from PPSC, the Health Department, and the Director General Health Services office, and a senior medical expert. Merit lists generated based on performance in the interview are then communicated to the Health Department by PPSC. The department then decides on the postings based on these lists. The second process for hiring doctors is devolved at the district level. The Executive District Officer (EDO) health office advertises vacant positions locally, and shortlisted applicants are interviewed by the EDO himself. The candidates might also be given a test designed by the EDO on the same day. Recommendations of the EDO are conveyed to the Establishment Division of the Health Department, which then issues offer letters to the successful applicants. However, these doctors are only hired on a contractual basis. In order to become permanent employees, long term contractual doctors have to clear a promotion exam at PPSC. EDOs also have the power to hire and appoint temporary doctors during times of high demand of services, such as in the case of an outbreak of the Dengue virus, or flood prone epidemics. Some of these doctors can be considered preferentially for filling vacancies once the demand normalizes. However, temporary doctors also have to clear a test at PPSC in order to become permanent employees.

D Tables

D.1 Summary Statistics

Table A1: Summary Statistics for Close Elections RD data

Variable	Mean	Std. Dev.	Min.	Max.	N
Absolute Margin of Victory ≤ 0.10					
Constituencies					45
Clinics					168
Doctor Assigned	0.73	0.44	0	1	488
Distance to District Headquarters (km)	55.95	28.82	10	155	550
Doctor Tenure (Logged)	1.63	2.06	0	5.75	517
Doctor Present	0.35	0.48	0	1	486
Doctor Knows Politician Directly	0.1	0.3	0	1	517
Doctor Knows Politician	0.12	0.33	0	1	517
Absolute Margin of Victory ≤ 0.15					
Constituencies					63
Clinics					235
Distance to District Headquarters (km)	52.6	28.38	5	155	761
Doctor Tenure (Logged)	1.62	2.05	0	5.75	713
Doctor Present	0.34	0.47	0	1	671
Doctor Knows Politician Directly	0.1	0.3	0	1	713
Doctor Knows Politician	0.12	0.33	0	1	713
Absolute Margin of Victory (All Data with Gov Party Winner or Runner-up)					
Constituencies					233
Clinics					772
Doctor Assigned	0.65	0.48	0	1	2214
Distance to District Headquarters (km)	48.16	29.35	4	198	2460
Doctor Tenure (Logged)	1.59	2.07	0	5.95	2351
Doctor Present	0.31	0.46	0	1	2202
Doctor Knows Politician Directly	0.08	0.27	0	1	2349
Doctor Knows Politician	0.11	0.31	0	1	2349

Table A2: Summary Statistics for Geographic RD data

Variable	Mean	Std. Dev.	Min.	Max.	N
Absolute Dist to Boundary ≤ 1 km					
Constituencies					109
Clinics					156
Doctor Assigned	0.67	0.47	0	1	448
Distance to District Headquarters (km)	41.39	25.09	5	125	514
Doctor Tenure (Logged)	1.71	2.11	0	5.95	481
Doctor Present	0.29	0.45	0	1	442
Doctor Knows Politician Directly	0.07	0.25	0	1	481
Doctor Knows Politician	0.09	0.28	0	1	481
Absolute Dist to Boundary ≤ 5 km					
Constituencies					209
Clinics					554
Doctor Assigned	0.66	0.47	0	1	1587
Distance to District Headquarters (km)	45.08	27.82	4	145	1773
Doctor Tenure (Logged)	1.66	2.1	0	5.95	1689
Doctor Present	0.31	0.46	0	1	1577
Doctor Knows Politician Directly	0.07	0.26	0	1	1687
Doctor Knows Politician	0.1	0.3	0	1	1687
All data					
Constituencies					224
Clinics					767
Doctor Assigned	0.65	0.48	0	1	2201
Distance to District Headquarters (km)	47.9	28.91	4	155	2444
Doctor Tenure (Logged)	1.6	2.07	0	5.95	2338
Doctor Present	0.31	0.46	0	1	2188
Doctor Knows Politician Directly	0.08	0.27	0	1	2336
Doctor Knows Politician	0.11	0.31	0	1	2336

Notes: Note that we are missing GPS coordinates for 5 clinics and thus are unable to assign them a boundary distance.

D.2 Main Results Tables

Table A3: Impacts on Doctor Assignment

	(1)	(2)	(3)	(4)	(5)
Panel A: Close Elections RD					
Bandwidth in Vic Margin (+/-)	0.1	0.15	0.20	0.25	IK=.3802
PML(N) Winner	0.930***	0.402**	0.208	0.203	0.141
	(0.19)	(0.19)	(0.17)	(0.14)	(0.09)
Exact p-value	0.00	0.08	0.29	0.24	0.26
Mean Control Dep. Var.	0.755	0.744	0.744	0.754	0.719
# Constituencies	45	63	82	100	133
# Clinics	168	235	310	359	454
# Observations	488	674	895	1035	1306
Panel B: Geographic RD					
Bandwidth in KM (+/-)	1	2	IK=3.16	5	10
PML(N) Winner	0.597***	0.454***	0.273**	0.152*	0.104*
	(0.16)	(0.15)	(0.12)	(0.08)	(0.06)
Mean Control Dep. Var.	0.706	0.674	0.672	0.665	0.668
# Constituencies	109	147	190	208	222
# Clinics	156	267	395	552	732
# Observations	448	773	1137	1582	2105

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome is an indicator variable for whether a doctor was assigned to the clinic at the time of the survey. Standard errors clustered at the constituency level reported in parentheses. In Panel A: All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects. In Panel B: All regressions have a control function in latitudes and longitudes as described in the text. All regressions weigh observations by a triangular kernel. All models contain Border and Survey Wave fixed effects.

Table A4: Impacts on Doctor Attendance

	(1)	(2)	(3)	(4)	(5)
Panel A: Close Elections RD					
Bandwidth in Vic Margin (+/-)	0.1	0.15	0.20	0.25	IK=.3481
PML(N) Winner	-0.100	-0.151	-0.095	-0.054	-0.056
	(0.13)	(0.17)	(0.17)	(0.15)	(0.11)
Exact p-value	0.93	0.71	0.74	0.85	0.75
Mean Control Dep. Var.	0.357	0.365	0.375	0.371	0.353
# Constituencies	45	63	82	100	128
# Clinics	168	235	310	359	440
# Observations	486	671	890	1027	1255
Panel B: Geographic RD					
Bandwidth in KM (+/-)	1	2	IK=2.97	5	10
PML(N) Winner	0.365*	0.226	0.072	-0.004	-0.017
	(0.21)	(0.17)	(0.14)	(0.08)	(0.05)
Mean Control Dep. Var.	0.306	0.302	0.324	0.323	0.324
# Constituencies	109	147	182	208	222
# Clinics	156	267	379	552	732
# Observations	442	766	1082	1573	2093

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome is an indicator variable measuring verified doctor attendance at the time of the survey. Standard errors clustered at the constituency level reported in parentheses. In Panel A: All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects. In Panel B: All regressions have a control function in latitudes and longitudes as described in the text. All regressions weigh observations by a triangular kernel. All models contain Border and Survey Wave fixed effects.

Table A5: Impacts on Logged Doctor Tenure

	(1)	(2)	(3)	(4)	(5)
Panel A: Close Elections RD					
Bandwidth in Vic Margin (+/-)	0.1	0.15	0.20	0.25	IK=.4459
PML(N) Winner	3.817**	1.456	0.545	0.352	0.010
	(1.48)	(1.11)	(0.94)	(0.76)	(0.43)
Exact p-value	0.04	0.17	0.50	0.61	0.95
Mean Control Dep. Var.	1.506	1.501	1.535	1.595	1.542
# Constituencies	45	63	82	100	151
# Clinics	168	235	310	359	515
# Observations	488	674	895	1036	1482
Panel B: Geographic RD					
Bandwidth in KM (+/-)	1	2	IK=2.62	5	10
PML(N) Winner	0.043	0.267	0.511**	0.281	0.065
	(0.49)	(0.33)	(0.25)	(0.24)	(0.21)
Mean Control Dep. Var.	1.778	1.677	1.617	1.548	1.516
# Constituencies	109	147	170	208	222
# Clinics	156	267	333	552	732
# Observations	448	773	960	1584	2107

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome is a logged variable measure the doctors tenure in the health service in months plus one at the time of the survey. Clinics with no doctors assigned are coded as zeros. Standard errors clustered at the constituency level reported in parentheses. In Panel A: All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects. In Panel B: All regressions have a control function in latitudes and longitudes as described in the text. All regressions weigh observations by a triangular kernel. All models contain Border and Survey Wave fixed effects.

Table A6: Are doctors sent to marginal areas?

	(1)	(2)	(3)	(4)	(5)
Panel A: Distance to Tehsil (county) Headquarters (in KM)					
Bandwidth	0.1	0.15	0.20	0.25	IK=.269
PML(N) Winner	-13.180	-5.694	-5.465	-4.856	-5.029
	(21.47)	(10.97)	(10.71)	(9.76)	(9.44)
Exact p-value	0.75	0.84	0.74	0.75	0.71
Mean Control Dep. Var.	64.816	59.062	52.883	49.409	49.230
# Constituencies	44	60	78	91	96
# Clinics	144	195	253	289	302
# Observations	358	481	620	709	739
Panel B: Travel Time to Doctors Hometown (Logged +1 Hours)					
Bandwidth	0.1	0.15	0.20	0.25	IK=.2797
PML(N) Winner	-0.319	0.042	0.278	0.938	1.081
	(0.92)	(1.16)	(0.97)	(0.95)	(0.93)
Exact p-value	0.80	0.98	0.76	0.28	0.20
Mean Control Dep. Var.	3.669	3.587	3.645	3.676	3.671
# Constituencies	38	54	70	82	89
# Clinics	99	137	175	201	217
# Observations	124	167	215	248	266

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcomes are in in kilometers. All analysis is conditional on doctor assignment. Standard errors clustered at the constituency level reported in parentheses. All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects.

Table A7: Impact on Doctor Connections with Politicians Close Elections RD

	(1)	(2)	(3)	(4)	(5)
Panel A: Doctor Knows Politicians Directly (=1)					
Bandwidth in Vic Margin (+/-)	0.1	0.15	0.20	0.25	IK=.3015
PML(N) Winner	0.256	0.398*	0.293*	0.205	0.057
	(0.24)	(0.22)	(0.17)	(0.14)	(0.12)
Exact p-value	0.14	0.08	0.09	0.13	0.60
Mean Control Dep. Var.	0.236	0.252	0.215	0.198	0.175
# Constituencies	41	57	74	89	107
# Clinics	117	161	208	244	283
# Observations	187	252	328	390	454
Panel B: Doctor Knows Politician (=1)					
Bandwidth in Vic Margin (+/-)	0.1	15	20	25	IK=.3296
PML(N) Winner	0.089	0.055	0.094	0.039	-0.012
	(0.11)	(0.18)	(0.20)	(0.17)	(0.13)
Exact p-value	0.58	0.67	0.54	0.73	0.98
Mean Control Dep. Var.	0.311	0.328	0.282	0.259	0.234
# Constituencies	41	57	74	89	110
# Clinics	117	161	208	244	287
# Observations	187	252	328	390	464

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome in Panel A is an indicator variable measuring if the doctor reports connections with the MPA directly. Panel B measures the same but also allows for connections through family and the doctor's social circle. Standard errors clustered at the constituency level reported in parentheses. All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects.

Table A8: Impact on Doctor Connections with Politicians Geographic RD

	(1)	(2)	(3)	(4)	(5)
Panel A: Doctor Knows Politicians Directly (=1)					
Bandwidth in KM (+/-)	1	2	IK=3.31	5	10
PML(N) Winner	-0.001	-0.041*	-0.010	0.012	0.020
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Mean Control Dep. Var.	0.070	0.063	0.068	0.066	0.072
# Constituencies	109	147	191	208	222
# Clinics	156	267	405	552	732
# Observations	448	773	1166	1582	2105
Panel B: Doctor Knows Politician (=1)					
Bandwidth in KM (+/-)	1	2	IK=3.13	5	10
PML(N) Winner	-0.010	-0.028	0.006	0.018	0.016
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
Mean Control Dep. Var.	0.096	0.089	0.092	0.095	0.107
# Constituencies	109	147	189	208	222
# Clinics	156	267	393	552	732
# Observations	448	773	1131	1582	2105

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome in Panel A is an indicator variable measuring if the doctor reports connections with the MPA directly. Panel B measures the same but also allows for connections through family and the doctor's social circle. Standard errors clustered at the constituency level reported in parentheses. All regressions have a control function in latitudes and longitudes as described in the text. All regressions weigh observations by a triangular kernel. All models contain Border and Survey Wave fixed effects.

E Additional Figures

E.1 Victory Margin by Vote Share

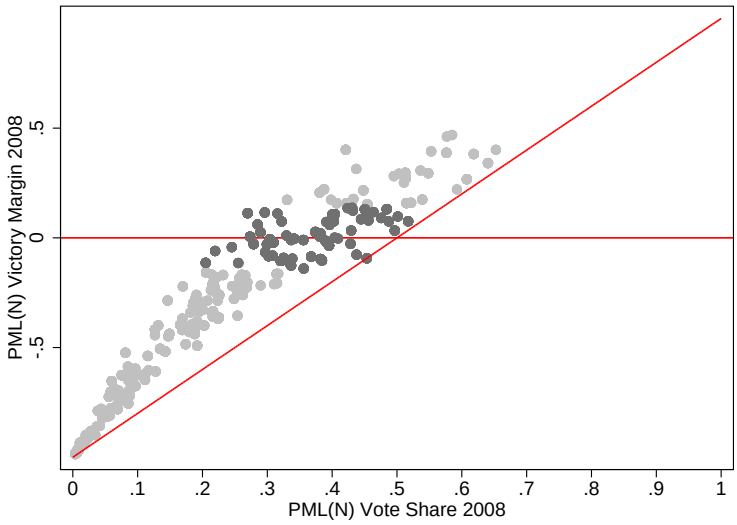

Figure A2: PML(N) Victory Margin by Vote Share

E.2 RD plots

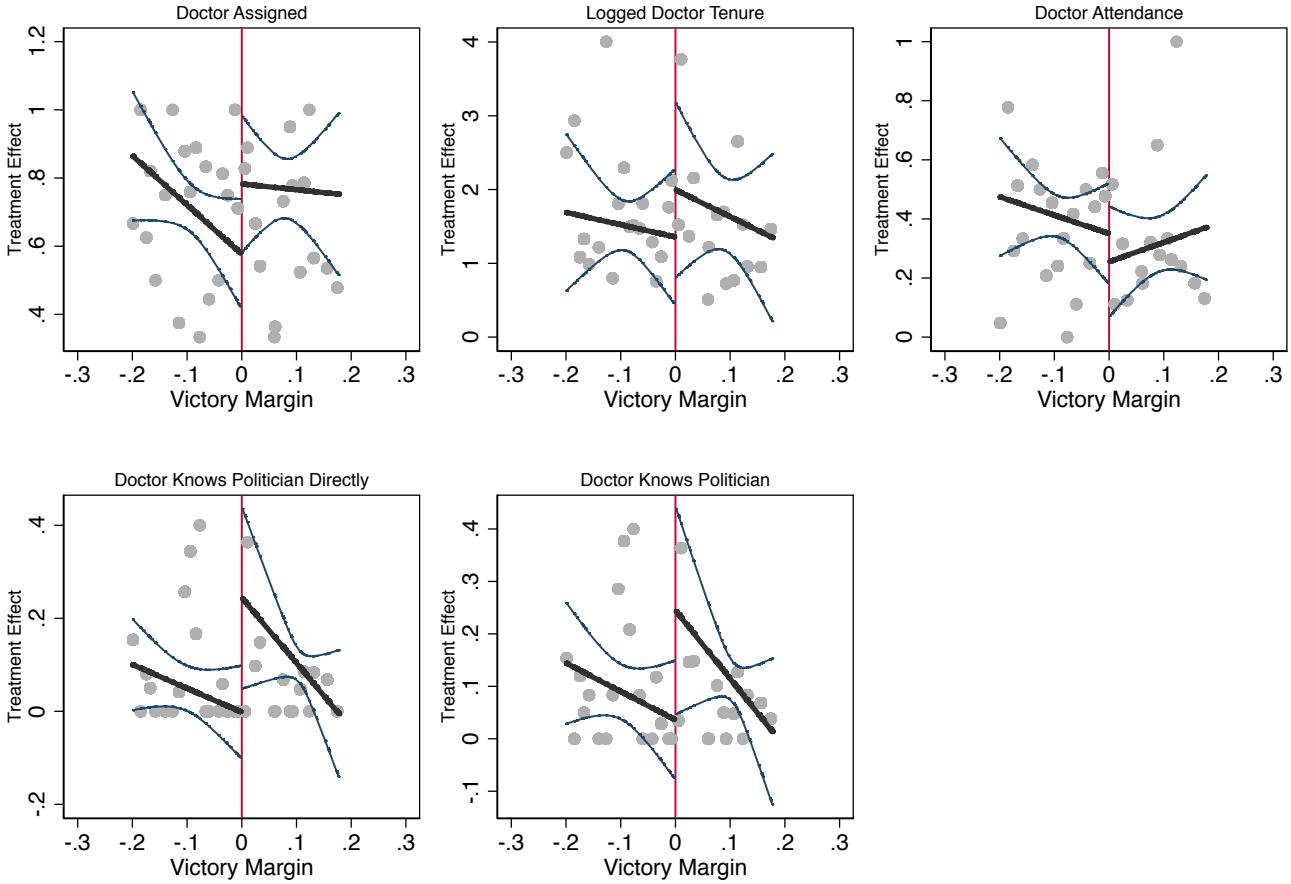

Figure A3: Treatment Effects with Close RD

Notes: The central line is a spline second-order polynomial in victory margin, fitted separately on each side of the cutoff. The lateral lines are 95 percent. Scatter points are averaged over 0.01 unit intervals in victory margin. Observations in Doctor Knows figures are weighed by a triangular kernel.

E.3 Doctors as Political Workers

Figure A4: Selected Tweets from Free and Fair Elections Network before 2013 Elections

F Identification Checks

The regression discontinuity results are only valid if identifying assumptions are satisfied. One assumption that is crucial to this analysis is that in close elections, the only difference between governing party incumbents and those belonging to other parties, is their party membership. In other words, the differences in outcomes of interest are only generated by plausibly exogenous variation in victory, instead of underlying characteristics of the candidates, all of which are assumed continuous at over the threshold. This section analyzes some checks of these assumption.We present two identification checks: sorting of observations around the cutoff, and placebo regressions.

Sorting

McCrary (2008) presents a framework for testing the existence of manipulation of the treatment assignment mechanism. If it is indeed the case that the treatment assignment is randomly assigned, then the density of units who are assigned the treatment at the threshold, should equal the density of units that are not. In other words, there must be continuity in the density of this function at the discontinuity. If politicians whose party actually wins are able to manipulate their probability of victory by affecting electoral outcomes in their favor, then we should see a break in this density.

This sorting of units is a threat to identification because it disables the 'as-if' random variation in treatment assignment. In Figure A5, we plot the density of constituencies, averaged over equal bin size. The overlapping confidence intervals suggest that there exists no 'break' in the distribution. A more formal test also reveals that there is no statistically significant break in the distribution at the threshold. The test statistic for the difference is estimated at -0.19, with the associated standard error of 0.44.

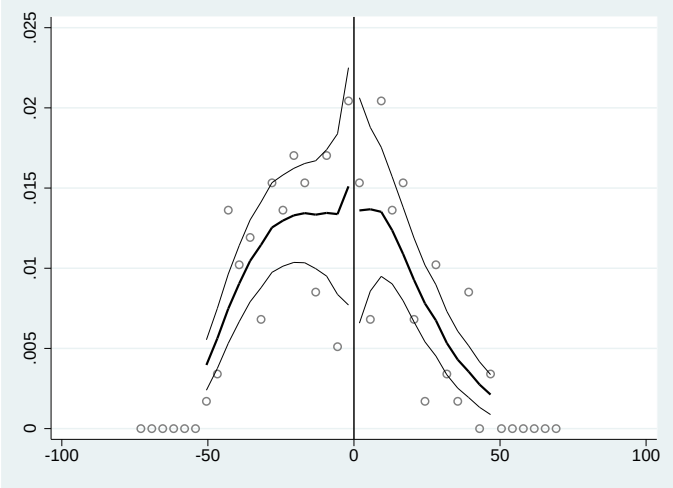

Figure A5: Conditional Density Plot to Check for Sorting

Do PML(N) legislators manipulate elections?

A concern for identification is that PML(N) candidates who are more engaged in non-programmatic politics are more likely to win close elections through fraud. In considering this potential threat, it is helpful to categorize the types of election fraud that would allow for the very precise amount of fraud necessary to guarantee a close election win in a setting with a large amount of uncertainty. Candidates can rig an election by: (i) ensuring opponents are not able to contest an election, (ii) buying votes, (iii) suppressing votes, and (iv) manipulating the counting and aggregation process. In the cases of (i) - (iii), it is unlikely that a candidate could commit fraud with the precision required to win a close election, given that there will be uncertainty about the number of voters in total and the votes of those being bought or suppressed. Thus we will focus on (iv), which easily allow candidates to rig their way to a close election.

We take two empirical strategies to test whether those PML(N) candidates winning close elections might be manipulating vote counting and aggregation. First, we compare PML(N) winners with non-PML(N) winners in 2008, using the same close-election regression discontinuity design as our main results, along an important dimension—whether or not the candidates contested and won election in 2002. If PML(N) candidates were conducting fraud

in 2008, we might expect that they were also doing so in 2002 and that they would thus be more likely to win than non-PML(N) candidates. We present results from this analysis in Table A9. While the point estimates of the impact of being a close PML(N) winner in 2008 on winning the 2002 elections are large, they are insignificant and are even negative (i.e. PML(N) winners in 2008 were less likely to win close elections in 2002).

Table A9: 2008 PML(N) Winner Correlations with 2002 Election Wins

	(1)	(2)	(3)	(4)	(5)
	0.1	0.15	0.20	0.25	IK=.2619
PML(N) Winner	-0.220	-0.264	-0.332	-0.385**	-0.385**
	(0.27)	(0.24)	(0.21)	(0.19)	(0.19)
Exact p-value	0.49	0.34	0.20	0.09	0.08
Mean Control Dep. Var.	0.478	0.433	0.375	0.352	0.351
# MPAs	45	63	82	100	104

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a provincial politician who won an election in which either the PLM(N) candidate won or was the first runner up in 2008. The outcome is a dummy variable equal to one if that same politician was elected in 2002. Standard errors clustered at the constituency level reported in parentheses. All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel.

Second, we turn to a more direct measure of election fraud on a different but comparable sample. We obtained detailed polling station observation records from The Free and Fair Elections Network (FAFEN) for Pakistan's 2013 National Assembly elections (an election spanning all of Pakistan). These records include over 30,000 polling booths across Pakistan. For each booth, observers recorded 76 indicators for whether or not polling stations followed proper election procedures, 48 of which were activities consistent with a free and fair election (i.e.the presiding officer collects all polling agent authority letters, the polling officer is applying indelible ink to the back of each voter's thumb, polling officials put NA materials in special NA tamper evident bag, etc.) and 28 of which are activities that should not happen in a fair election (i.e. party / candidate camps are within 400 yards of the polling station, polling agents / candidates are going behind secrecy screen with voters, polling is

suspended in this polling booth, polling station closes before 5:00 pm, etc.). The data also include an indicator for whether "this polling station has been captured. Only voters for one candidate/party are allowed to enter." To test whether PML(N) candidates who win close elections are more likely than non-PML(N) candidates to conduct election fraud, we again use the same close-election regression discontinuity design, now predicting (a) the number of law-abiding indicators minus the number of law-breaking indicators that were checked off and (b) whether an election observer marked a polling station as captured. Table A10 presents our results. In both cases, we find no evidence that PML(N) winners were more likely to be engaged in activities we would associate with potential fraud, including vote counting and aggregation fraud. While this is on a different sample of politicians in a different election, this supports the idea that near the close election discontinuity, the candidate that wins is as good as random.

Of course, it is also possible that some candidates are better at running campaigns (and collecting info about voters to do so) and are able to ensure a victory in a close election through non-fraudulent means. We think this is unlikely in this scenario given the large amounts of uncertainty and very high costs of information collection in Pakistan in 2008. But we cannot rule this out conclusively.

Placebo Regressions

As suggested in Imbens and Lemieux (2008), one other check for validity is to see if there is balance in pre-treatment covariates around the threshold. If the estimation technique is valid, then we must only observe a treatment effect on variables that were measured after PML(N) assumed office. Additionally, there must be a theoretical reason for the observed effect in the post-treatment variable. With these two conditions in mind, we show the difference in pre-treatment election outcomes from the 2002 and 2008 General Election in Figure A6. It can be seen that indeed there is good balance on these pre-treatment variables.

Next, we conduct a test of joint significance of all these pre-treatment factors and use the

Table A10: 2013 PML(N) National Assembly Winner Correlations with Polling Station Observation

	(1)	(2)	(3)	(4)	(5)
Panel A: Polling Booth Law-abiding minus Law-breaking Indicators					
Bandwidth (+/-)	0.1	0.15	0.20	0.25	IK=.3249
PML(N) Winner	-0.676	-0.324	0.343	0.662	0.864
	(0.93)	(0.80)	(0.74)	(0.70)	(0.64)
Mean Control Dep. Var.	32.228	32.457	32.602	32.563	32.617
# Polling Booths	4976	7780	10829	12097	14681
# MNA Constituencies	38	60	85	95	119
Panel B: Election Observer Marked Polling Station as Captured (=1)					
Bandwidth (+/-)	0.1	0.15	0.20	0.25	IK=.3126
PML(N) Winner	-0.001	-0.000	0.001	0.003	0.003
	(0.01)	(0.01)	(0.00)	(0.00)	(0.00)
Mean Control Dep. Var.	0.005	0.005	0.008	0.008	0.008
# Polling Booths	4976	7780	10829	12097	14489
# MNA Constituencies	38	60	85	95	116

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a polling booth in the 2013 national elections which had a FAFEN election observer present. The outcome in panel A is a variable equal to the number of law-abiding indicators selected by observers for the polling booth on election day (out of 48 maximum) minus the number of law-breaking indicators selected by observers for the polling booth on election day (out of 28 maximum). The outcome in Panel B is a dummy variable equal to one if the observer indicated that the polling station was captured by one candidate on election day. Standard errors clustered at the MNA constituency level reported in parentheses. All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel.

randomization inference technique described in this paper to see how 'surprising' the p-value on this test is. Specifically, we run the following regression:

$$PML(N)\ Winner_c = \theta^{'}\beta + \epsilon_c \tag{3}$$

where $\theta^{'}$ is a vector of all covariates in Figure A3. Then we conduct an F-test to see if all variables in this vector are jointly statistically different from zero.We retrieve the p-value on this test and compare it to a vector of 1000 p-values from a similar test where $PML(N)\ Winner_c$ is randomly permuted.

We plot these p-values in Figure A7. We can see that the observed p-value lies within the 90 percent confidence interval.

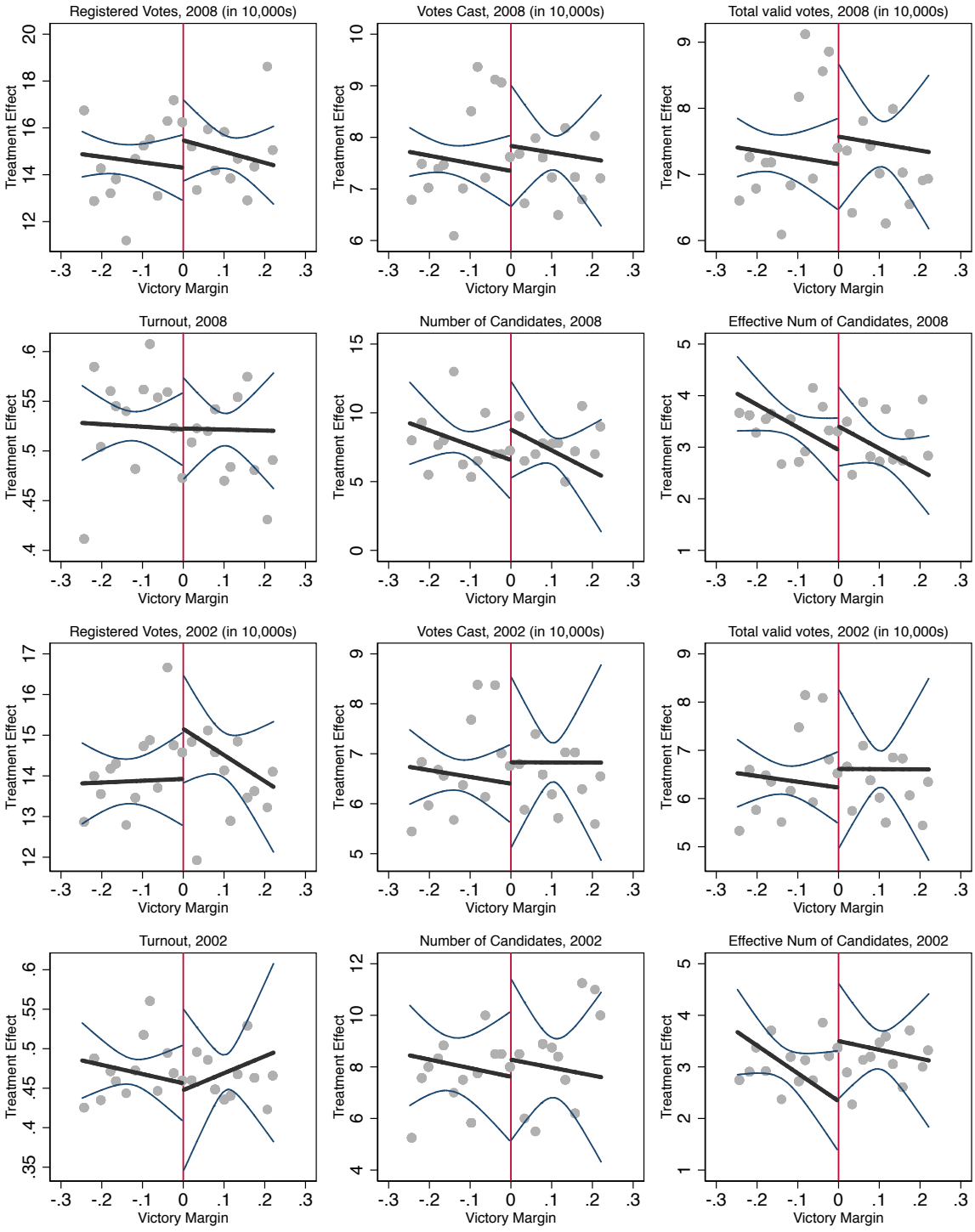

Figure A6: Placebo Treatment Effects

Notes: The central line is a spline second-order polynomial in victory margin, fitted separately on each side of the cutoff. The lateral lines are 95 percent. Scatter points are averaged over 0.02 unit intervals in victory margin.

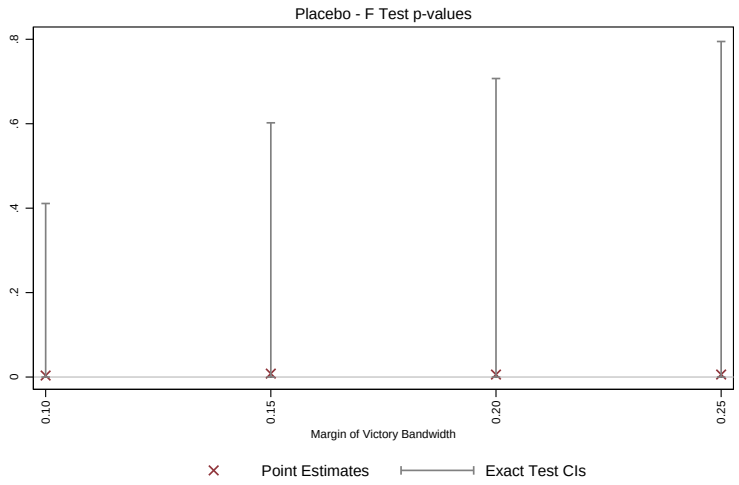

Figure A7: Placebo Treatment Effects

Excluding Tehsil Fixed Effects

All of our primary close election RD specifications include tehsil fixed effects. While these fixed effects could plausibly improve the precision of our estimates, they should not be necessary to estimate a causal relationship between electing governing party politicians and clinic outcomes if our close election RD is properly specified. That is to say if the party of the winner of a close election is 'as-if' random, it should not be correlated with any covariates, including tehsil, and thus including them in regressions should not change our estimated coefficient on PML(N) winners. In Table A11, we check for robustness of our estimates with and without tehsil fixed effects. Comparing columns (5) and (7), we see that our main result on doctor assignment is very sensitive to the inclusion of tehsil fixed effects at a bandwidth of .10. We also see, however, that at lower bandwidths of .01-.05, we obtain fairly large positive coefficients but they are not precisely estimated. We do not see these results as at odds with each other if there is a true causal relationship. At low bandwidths, we are more likely to have 'as-if' random elections that satisfy all of the identification checks we've conducted. But we are underpowered to conduct hypothesis testing at these low bandwidths because we are only able to use results from one election and that there were few close elections in Punjab in 2008—the average victory margin was 12.8 percentage points for the winner versus first runnerup. As we then increase our bandwidth to make use of more data, the plausibility of the 'as-if' random assumption holding unconditionally decreases. At these greater bandwidths, adding in fixed effects for geographic location allows us to control for unobserved local confounders and plausibly to have local causal identification. Of course, we could also be overfitting the data which is why we conduct analysis using the complementary geo-RD specification as well.

Table A11: Robustness of Doctor Assignment Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bandwidth (+/-)	.01	.02	.03	.05	.10	.10	.10
PML(N) Winner	0.342	0.142	0.137	0.189	0.025	0.231*	0.930***
	(0.44)	(0.29)	(0.20)	(0.16)	(0.13)	(0.12)	(0.19)
Mean Control Dep. Var.	0.711	0.759	0.754	0.750	0.755	0.755	0.755
District FEs?	No	No	No	No	No	Yes	No
Tehsil (county) FEs?	No	No	No	No	No	No	Yes
# Constituencies	8	10	18	22	45	45	45
# Clinics	26	32	70	86	168	168	168
# Observations	74	92	199	245	488	488	488

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. The unit of observation is a clinic by survey wave. The outcome is an indicator variable for whether a doctor was assigned to the clinic at the time of the survey. Standard errors clustered at the constituency level reported in parentheses. All regressions estimate a local linear OLS model with a linear control function of either side of the discontinuity. All regressions weigh observations by a triangular kernel. All models contain Survey Wave fixed effects.

G Robustness Checks

G.1 Robustness Check for Small Samples in Close Elections RD

In narrow bandwidths (h), estimating equation 3 involves an efficiency-bias trade-off. In small bandwidths, the analysis below will sometimes cover outcomes with only 40 constituencies, which is on the margin in terms of the number of clusters required to made robust inference.

To account for this, we rely on the use of Fisher's Exact p-values to construct confidence intervals and exact p-values. The objective of this test is to characterize the degree to which an observed treatment effect is 'surprising'. This is done by understanding if each unit in the data would display the same potential outcomes regardless of the treatment assigned to it. This essentially involves testing the null hypothesis of unit-by-unit no treatment effect. It is often called the "Fisher's Exact Test" (Fisher, 1935).

In our case, as well as usual experimental work, we cannot observe potential outcomes of the same unit under alternate treatment assignments. Instead, we use a permutation based procedure to approximate this. To do this, we generate a vector of treatment assignments using a random number generator. For each treatment assignment, a 'fake' treatment effect is generated. If done enough times, this yield's a vector of these fake treatment effects whose distribution can be compared to the actual treatment effect like a standard hypothesis test. If indeed the observed treatment effect is not because of random chance, then it must lie sufficiently on the trail of the distribution of the fake treatment effects. If this is the case we can deem the actual treatment effect 'surprising' and reject the null hypothesis of unit-by-unit no treatment effect.

In the analysis that follows, we construct exact p-values and confidence intervals by creating these 'fake' treatment vectors and estimating the corresponding treatment effects with 1000 randomly generated treatment vectors.

The following procedure was adopted to construct these:

1. The baseline specification is run and the point estimate is stored. This is the actual point estimate observed in the data.

2. To construct the degree to which the actual point estimate is surprising, the treatment vector, in this case PML(N) winners, is randomly permuted. That is, a random number generator is used to assign treatment status to the constituencies. This means that the probably of being assigned treatment for *every* permutation is 0.5 for each constituency.

3. For each permutation of the treatment vector, the baseline specification is run, and the point estimate is stored. This repeated 1000 times.

4. 90 percent confidence intervals are constructed for the permuted vector of point estimates.

5. If the actual treatment effect lies outside this confidence interval, it is deemed 'surprising'.

Figure A8 presents the main outcomes of the paper with 90 percent confidence intervals for the distribution of treatment effects with the 'fake' treatment vectors. The treatment effects are very robust to hypothesis testing using the exact p-value.

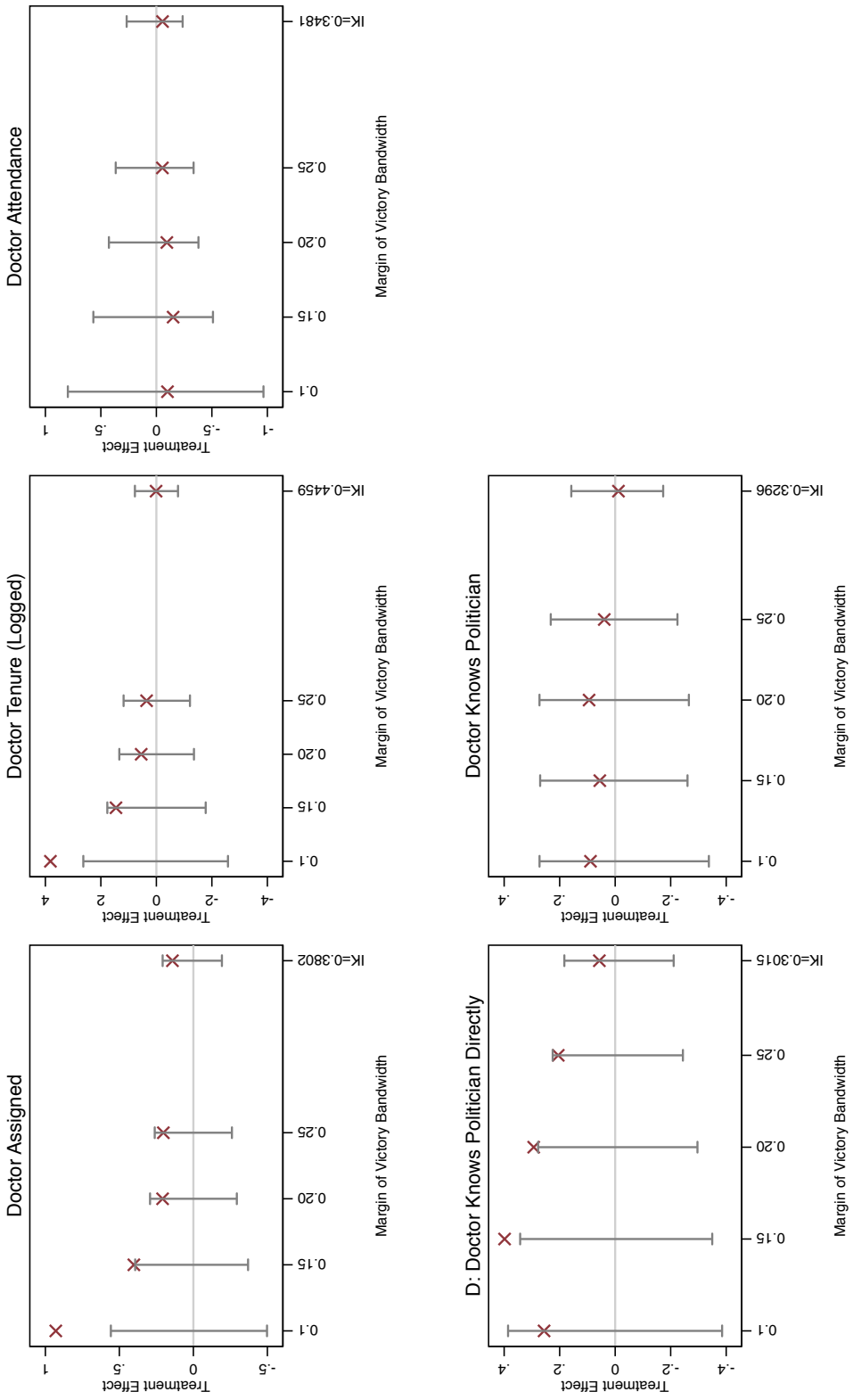

Figure A8: Results with Exact Test Confidence Intervals

G.2 Robustness to Parametric Control Function

We also check to see if the main treatment effects are robust to including a quadratic and cubic control function that is estimated separately on either side of the cut-off in the case of the close elections RD. For the geographic RD, we follow Dell (2010) and reproduce results with linear and cubic control functions. Results are similar with quadratic and quartic control functions. We present these results in Table A12 and A13 and find that they are very robust to the alternate specifications.

Table A12: Robustness to Parametric Control Function for Close RD

	Quadratic Control Function					Cubic Control Function				
Outcomes	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
bandwidth	0.10	0.15	0.20	0.25	IK=0.3802	0.10	0.15	0.20	0.25	IK=0.3802
Doctor Assigned	1.231***	0.631***	0.479***	0.345**	0.270**	0.134	0.757***	0.563***	0.539***	0.270**
	(0.37)	(0.19)	(0.16)	(0.16)	(0.13)	(0.26)	(0.23)	(0.17)	(0.14)	(0.13)
bandwidth	0.10	0.15	0.20	0.25	IK=0.4459	0.10	0.15	0.20	0.25	IK=0.4459
Logged Doctor Tenure	3.824*	1.817	1.574	1.148	0.329	-4.830***	1.576	1.180	1.613	0.329
	(2.25)	(1.30)	(1.04)	(0.98)	(0.63)	(1.12)	(1.44)	(1.21)	(1.07)	(0.63)
bandwidth	0.10	0.15	0.20	0.25	IK=0.3481	0.10	0.15	0.20	0.25	IK=0.3481
Doctor Attendance	0.472	-0.190	-0.161	-0.140	-0.062	-0.355	-0.003	-0.215	-0.224	-0.062
	(0.34)	(0.17)	(0.16)	(0.18)	(0.16)	(0.42)	(0.31)	(0.21)	(0.17)	(0.16)
bandwidth	0.10	0.15	0.20	0.25	IK=0.32	0.10	0.15	0.20	0.25	IK=0.32
Doctor Knows Directly	0.908***	0.468**	0.351*	0.291	0.215	-0.046	0.492**	0.406*	0.362*	0.215
	(0.30)	(0.23)	(0.19)	(0.18)	(0.14)	(0.24)	(0.24)	(0.22)	(0.21)	(0.14)
bandwidth	0.10	0.15	0.20	0.25	IK=0.3296	0.10	0.15	0.20	0.25	IK=0.3296
Doctor Knows	1.004***	0.421*	0.304	0.252	0.190	-0.014	0.442*	0.359	0.315	0.190
	(0.33)	(0.24)	(0.20)	(0.18)	(0.15)	(0.24)	(0.25)	(0.23)	(0.22)	(0.15)

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors clustered at the constituency level reported in parentheses. Control functions are estimated separately on either side of the cut-off. All regressions weigh observations by a triangular kernel. All models contain Tehsil and Survey Wave fixed effects. Quadratic (cubic) control function includes a quadratic (cubic) term for victory margin, as well as its interaction with an indicator variable for PML (N) Winner.

Table A13: Robustness to Parametric Control Function for Geographic RD

	Linear Control Function					Cubic Control Function				
Outcomes	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
bandwidth	1	2	IK=3.16	5	10	1	2	IK=3.16	5	10
Doctor Assigned	0.601***	0.486***	0.283**	0.164**	0.110*	0.597***	0.454***	0.273**	0.152*	0.104*
	(0.22)	(0.16)	(0.12)	(0.08)	(0.06)	(0.16)	(0.15)	(0.12)	(0.08)	(0.06)
bandwidth	1	2	IK=2.97	5	10	1	2	IK=2.97	5	10
Doctor Attendance	0.385**	0.242	0.079	-0.000	-0.022	0.365*	0.226	0.072	-0.004	-0.018
	(0.19)	(0.17)	(0.13)	(0.08)	(0.05)	(0.21)	(0.17)	(0.14)	(0.08)	(0.05)
bandwidth	1	2	IK=2.62	5	10	1	2	IK=2.62	5	10
Logged Doctor Tenure	0.074	0.321	0.529**	0.286	0.069	0.043	0.267	0.511**	0.280	0.065
	(0.49)	(0.32)	(0.23)	(0.24)	(0.20)	(0.49)	(0.33)	(0.25)	(0.24)	(0.21)
bandwidth	1	2	IK=3.31	5	10	1	2	IK=3.31	5	10
Doctor Knows Directly	-0.001	-0.014	0.007	0.025	0.027	-0.001	-0.041*	-0.010	0.012	0.020
	(0.00)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
bandwidth	1	2	IK=3.13	5	10	1	2	IK=3.13	5	10
Doctor Knows	0.011	0.017	0.033	0.034*	0.026	-0.010	-0.028	0.006	0.018	0.016
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)

Notes: *Level of significance*:*$p < 0.1$, **$p < 0.05$, ***$p < 0.01$. Standard errors clustered at the constituency level reported in parentheses. Control functions are estimated separately on either side of the cut-off. All regressions weigh observations by a triangular kernel. All regressions have a control function in latitudes and longitudes as described in the text. The linear control function takes the form of: $x + y$. The cubic control function takes the form of: $x + y + x^2 + y^2 + xy + x^3 + y^3 + x^2y + xy^2$. Results are similar with a quadratic or a quartic control function (available upon request). All regressions weigh observations by a triangular kernel. All models contain Border and Survey Wave fixed effects.

H Finding Doctors

Doctors were frequently absent during our unannounced visits. Consequently, we had to make a concerted effort to find all of the doctors assigned in our sample. We tracked down 541 doctors after the completion of our three unannounced field visits and an additional announced visit that was specifically carried out to interview doctors that were absent in the previous waves. Table A14 describes the breakdown of our sample.

Table A14: Breakdown of Doctor Surveys

	Wave 1	Wave 2	Wave 3	Wave 4	Total
Doctors Assigned in Sample	537	509	488		
Total Interviews	266	252	226	141	885
Number of New Doctors Interviewed	266	128	60	87	541
Balance	271	115	34		

I Matching Clinics to Political Constituencies

Matching clinics to political constituencies is not straightforward. We followed a two pronged strategy to place the clinics in their relevant electoral constituencies. The two identification strategies require data to be set up in different ways. As a results there is a difference between the two strategies that we discuss below.

During the second round of our survey onwards, we asked all responders in a clinic to identify the constituency where the clinic is located. In cases where respondents did not know the constituency number, we asked them to name the elected representative from the area. To corroborate this further, we asked the most senior official present at the clinic to identify the political constituency in consultation with colleagues during the third round of the surveys.

I manually compared the names of elected politicians provided by the clinic staff with official lists available on the website of Punjab Assembly. We assigned a constituency number if the name matched with information on the website. At the end of this exercise we had constituency information from multiple responders. We proceeded by taking the mode of these responses to assign clinics to political constituencies. In cases with disagreements, we manually compared the data with official lists of district-wise constituencies and corrected cases with obvious typos. For instance, a district with a constituency number 191 had a reported constituency number of 91, which we corrected.

Through this procedure, we was able to match all but a few clinics to constituencies.