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Political Dynasties and Service Delivery: Evidence from Rural Health Clinics in Punjab Pakistan

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Abstract: Research suggests that politics plays a pivotal role in public service provision in contexts of scarce resources. However, there is limited evidence available on how dynastic politicians influence public service delivery. We examine this question in the context of the health sector in Punjab, Pakistan. By employing a representative sample of rural health clinics, we develop measures to capture doctors' outcomes at the clinic level. These data are then matched with provincial constituency-level data to study the impact of having a dynastic member of the parliament (MP) on doctors' assignment, attendance, and tenure in their respective constituencies. Our findings show that having a dynastic MP has no discernible impact on the assignment and attendance of doctors. However, clinics in constituencies with a dynastic MP have relatively experienced doctors. Furthermore, our suggestive evidence from the Pakistan Household and Living Measurement Survey (PSLM) shows that individuals living in districts with a higher proportion of dynastic MPs report lower improvements in clinic services and are less satisfied with those services. Our main findings remain robust to various alternative explanations.

Keywords: Political Dynasties, Public Goods Provision, Pakistan, PSLM

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1. Introduction

In the developing world, the public looks to the government to provide basic public goods (Devarajan & Reinikka, 2004). However, these governments are perpetually constrained by resources, which is why public expenditures on public goods, as a percentage of GDP, are historically low. Low government spending leads to spatial inequality in the distribution of public goods across regions of a country. The relevant question in this scenario is: what explains why a specific region receives more public services than others?

The political economy literature argues that politics plays a pivotal role in shaping public goods provision. For instance, one strand of literature shows that political competition affects public goods provision and local development (Besley et al., 2010; Boulding & Brown, 2014; Gottlieb & Kosec, 2019; Kosec et al., 2018; Nye & Vasilyeva, 2015). Similarly, another strand of literature argues that political connections and access to governing-party politicians enhance public support for the provision of public goods (Albouy, 2013; Ansolabehere & Snyder Jr., 2006; Azulai, 2017; Baldwin, 2013; Fisman, 2001). Nevertheless, most of the existing debates have no say on the effects of candidate-specific characteristics (such as political capital and family networks) on mobilizing resources for their respective constituents.[1] In this paper, we attempt to fill this gap by documenting the effects of having a dynastic member of the parliament (MP) on public service delivery, with a focus on public health in Punjab, Pakistan.

The paper begins by arguing that dynastic politicians differ from non-dynastic politicians in several respects. On the one hand, dynastic politicians acquire higher political capital from their ancestors. On the other hand, dynastic politicians also enjoy a disproportionate electoral advantage. Theoretically, the former predicts that dynastic MPs will outperform non-dynastic MPs in mobilizing resources and public service delivery for their respective constituents. However, the latter predicts that

[1] Pande (2003) and Besley et al. (2004) are the exception in this regard and find that a politician's group identity matters for public goods provision.

dynastic MPs have less incentive to deliver because of their brand-name advantage.

In principle, the net effect of having a dynastic MP on public service delivery is ambiguous. We examine the impact of having a dynastic MP on public service delivery in the context of a developing country: Punjab, Pakistan. To do so, our study uses geo-tagged primary data on public health officials (i.e., doctors) working in Basic Health Units in rural Punjab. Furthermore, this primary panel data on clinics is combined with novel data identifying the familial links of members of the Punjab assembly to ascertain the impacts of having a dynastic MP on the quantity and quality of public health services received by constituents.

Our study is based on Punjab, particularly the public health sector, for two reasons: Punjab is the largest province of Pakistan, with more than 110 million people (53% of Pakistan's total population), and the health department is devolved to the provincial government after the 18th Amendment to Pakistan's Constitution.[2] The primary data on the health sector comprises a representative panel survey of 850 Basic Health Units (34% of the total clinics in Punjab), primarily located in rural areas of Punjab, collected by Callen et al. (2018). In each of the three rounds of the panel survey, enumerators made unannounced visits to determine doctors' attendance at the clinics. Using this information, we construct three outcome variables: whether a doctor was assigned, whether the doctor was present during the visit, and the doctor's tenure (in months).[3] The data on political dynasties reveal that relatives of 51% of the MPs elected in the 2008 Punjab assembly had previously served in the provincial or national assemblies of Pakistan.

The empirical strategy in the paper uses two approaches to examine the effects of a dynastic politician on public service delivery. First, ordinary least squares (OLS) is used to identify the effects of interest. OLS allows us to account for a range of covariates that could otherwise lead to omitted-variable bias. Second, leveraging geo-referenced information on clinics and political constituencies, the geographic regression discontinuity design (GRDD) based on the distance

[2] "The 18th constitutional amendment has been considered a milestone in the history of Pakistan as it has devolved major legislative and executive authorities alongside departments from federal to provincial level, including health." (Khan et al., 2014)

[3] By quantity, we mean whether a given clinic in the constituency has a doctor assigned. However, by quality, we mean whether a given clinic in the constituency has an experienced doctor (measured by tenure of the doctor).

(proximity) of a clinic to constituency boundaries is used to estimate the causal effects of political dynasties on public health.

The results of both methods show that having a dynastic MP has no discernible impact on the doctor's assignment and doctor's attendance in clinics within the given constituency. Nonetheless, doctors working in clinics located in dynastic constituencies are, on average, more experienced than those working in clinics in non-dynastic constituencies. Furthermore, suggestive evidence from the Pakistan Household and Living Measurement Survey indicates that individuals from districts with a higher share of dynastic MPs tend to report fewer improvements in health clinics and express lower satisfaction with clinic services. Our results are aligned with Asako et al. (2015) and Nazir (2020), who show that although dynastic politicians attract more development funds for their respective regions, the additional funds do not guarantee higher public goods provision in those regions. Additionally, these findings corroborate those of Ali (2016), who shows that dynastic politicians fail to mobilize higher resources for their constituencies.

Our paper also analyzes several competing explanations that support our baseline evidence. First, it finds that experienced dynastic MPs, those who previously served a term in the provincial or national assembly, do not provide additional public services to their constituents. Second, the results show that dynastic MPs from the governing party do not mobilize additional public services for their areas. Finally, the paper determines that political competition fails to motivate dynastic MPs to provide additional services to their constituents. These estimated effects of political dynasties can be taken as causal for two reasons: first, reverse causality is highly unlikely because our outcome (doctor's assignment, doctor's attendance, and doctor's quality) has no plausible influence on the electability of dynastic MPs. Second, we incorporate a battery of confounding variables to mitigate the possibility of endogeneity stemming from omitted-variable bias.

This study makes several contributions to various strands of literature intersecting politics and economics. First, it contributes broadly to the political economy of development literature by addressing the political dimension of service delivery. Second, it also contributes to the relatively nascent but emerging literature on dynastic politics and its impact on local development.

The rest of the paper proceeds as follows: Section 2 discusses the study's context, focusing on theory and evidence related to political dynasties and economic development, the political landscape of Pakistan, and the health department of Punjab, Pakistan. Section 3 highlights the study's identification strategy. Section 4 explains the data and the construction of the variables used for the empirical analyses. The results and subsequent discussion are presented in Section 5. Section 6 concludes the study.

2. Context of the Study

2.1. Political Dynasties and Economic Development: Theory and Evidence

This section presents theoretical predictions and empirical evidence on how the performance of dynastic politicians can differ from that of non-dynastic politicians in terms of economic development and the provision of public goods.

Theoretical Predictions: Existing theoretical research on dynastic politics identifies at least two mechanisms that shape the behavior of dynastic politicians. On the one hand, politicians with familial links accumulate more political capital, which they acquire from their family (Dal Bó et al., 2009; George & Ponattu, 2018). Higher political capital inherited by dynastic politicians suggests that, theoretically, dynastic politicians might outperform the non-dynastic politicians as higher political capital is 'useful at the local level, such as local political connections or name recognition as opposed to talent or drive' (Dal Bó et al., 2009, p. 112). On the other hand, dynastic politicians enjoy a disproportionate electoral advantage over non-dynastic politicians (Dal Bó et al., 2009; Feinstein, 2010). The disproportionate electoral advantage predicts that dynastic politicians will underperform because performance is not associated with re-election (Geys & Smith, 2016). It is evident that both these mechanisms have a counter-acting effect on the overall behavior of dynastic politicians. If the political capital mechanism outweighs the electoral advantage mechanism, it is predicted that dynastic politicians will supply more public goods to the constituents. Likewise, if the electoral advantage mechanism dominates, the prediction is that the dynastic politicians will deliver fewer public goods to his/her constituencies. Henceforth, the overall impact of having a dynastic politician is ambiguous.

Literature Review: The existing empirical work on political dynasties and economic development is nascent and unable to resolve the puzzle of how dynastic legislators affect economic development and public goods provision. In this respect, Besley and Reynal-Querol (2013) are pioneers in this literature by studying the impact of political dynasties on economic growth. It finds that dynastic executives outperform non-dynastic legislators when executive constraints are weak. Braganca et al. (2015) also find that dynastic mayors from Brazil spent more resources on healthcare, infrastructure, and sanitation in their areas. Likewise, Mendoza et al. (2016) find a positive association between dynastic persistence and the prevalence of poverty in the Philippines.

By contrast, Asako et al. (2015) find that the economic performance of districts with dynastic legislators is worse than that of their counterparts, even though they bring more resources to their home districts; these additional assets in their home districts did not enhance economic growth. Similarly, dynastic politicians also 'under-perform in terms of economic growth, crime, utilization of development funds, and parliamentary performance' in the case of India (Tantri & Thota, 2015). For Pakistan, Ali (2016) explores the effects of dynasties on economic development in flood-affected districts. It finds that dynastic politicians mobilize 10.9% fewer development expenditures for their flood-affected constituencies than non-dynastic politicians. Also, Rehman et al. (2022) show that economic activity (measured by nighttime lights) is significantly lower in constituencies with dynastic legislators than in those with non-dynastic legislators. In a similar vein, Rahman (2013) shows that dynastic politicians underperform in parliamentary affairs and tend to have criminal records in Bangladesh. In another study, Mendoza (2012) finds that "jurisdictions of political dynasties are characterized by lower standards of living, lower human development, and higher levels of deprivation and inequality" (p. 132). Finally, George and Ponattu (2018) also comprehensively study the impact of political dynasties on economic development in India and find that dynastic MPs under-deliver public goods compared to non-dynastic MPs.

2.2. Political Landscape of Pakistan

Pakistan is a relatively nascent democracy with a history of several coup d'état.[4] After the general elections of 2008 and the subsequent democratic government, Pakistan seems to have gained pace towards a

[4] The most recent was on the 12th of October 1999, when General Pervez Musharraf overthrew the democratic government of Pakistan Muslim League-Nawaz (PML-N).

democratic state.[5] In 2018, Pakistan witnessed the third consecutive democratic regime transition through elections.

In terms of organization, Pakistan has a parliamentary democracy. At the national level, the parliament (*also known as Majlis-e-Shoora*) of Pakistan is divided into two organs: The Senate (the upper house) and the National Assembly (the lower house). The Senate has 104 members, elected indirectly by the provincial assemblies. However, 272 members of the National Assembly are elected directly under universal adult suffrage.[6]

There are also four provincial legislative assemblies, one in each of the four provinces of Pakistan. The total number of legislative seats in the provinces is 577. Our focus in this study is on Punjab province, which has 371 seats, with 66 positions reserved for women and eight reserved for non-Muslims. The Constitution of the Islamic Republic of Pakistan bids three major powers to the members of provincial assembly: (1) To make the laws [See, Article 141 and 142 of the Constitution of the Islamic Republic of Pakistan]; (2) To manage the national exchequer [Article 123 (3) of the Constitution of the Islamic Republic of Pakistan]; and (3) To have a vigilant eye on the policies of the Government [Article 130 of the Constitution of the Islamic Republic of Pakistan].

In addition to the de jure powers delegated by the Constitution of the Islamic Republic of Pakistan, provincial assembly members also exercise the de facto power to influence the design, location, and allocation of programmatic and non-programmatic policies (Ali, 2016; Kosec et al., 2018; Mirza, 2012). The role and importance of provincial MPs accrued after the approval of the 7th National Finance Commission (NFC) award and subsequent 18th Amendment to the Constitution of the Islamic Republic of Pakistan, where the former is a financial settlement in which provinces were entitled to have a greater share from the federal divisible pool and the latter devolves 17 major federal departments to provincial government (Shah, 2012). Public health, the focus of our study, was also devolved to provincial governments after the 18th Amendment (Nishtar et al., 2013).[7]

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[5] Pakistan showed significant improvement in various global democracy indices. For instance, the country had the lowest rating of 3.92 in 2006 on the Economist Intelligence Unit's Democracy Index but it has shown continuous improvement over time. In 2019, Pakistan scored 4.25 on the Democracy Index. https://www.eiu.com/topic/democracy-index/.

[6] Total seats in the National Assembly of Pakistan are 342. Sixty seats are reserved for women and 10 seats are held for non-Muslims, as per Article 51 of the Constitution of the Islamic Republic of Pakistan.

[7] While the Constitution de jure assigns service delivery responsibilities to local governments, the absence of empowered local institutions in much of Pakistan has meant that provincial assembly

2.3. Public Health in Punjab

As mentioned above, public health was devolved to provincial governments after the 18th amendment to the Constitution of the Islamic Republic of Pakistan.[8] In Punjab province, public health provision is administered by the Department of Health, which works under the Ministry of Health, headed by a provincial minister. Primarily, public healthcare is divided into five types of facilities: (1) Basic Health Units (BHUs); (2) Rural Health Centers (RHCs); (3) Tehsil Headquarter Hospitals (THQs); (4) District Headquarter Hospitals (DHQs); and (5) Teaching Hospitals (Punjab Development Statistics, 2013).

The focus of this paper is Basic Health Units (BHUs)[9]. BHUs are located at the Union Council level in rural areas and serve around 25,000 people in their periphery. The 36 districts of Punjab have 2,496 BHUs, which deliver both preventive and curative healthcare services at the lowest administrative unit in Pakistan (Majrooh et al., 2014). Each clinic has one doctor (also known as the Medical Officer), who is accompanied by support staff. Doctors, like other public servants, are recruited by the Punjab Provincial Service Commission (PPSC) on either a temporary or a permanent basis. However, if required, the district administration can also hire a doctor on an ad hoc basis by bypassing the PPSC. Moreover, the Department of Health does not have a transparent tenure-based transfer and posting policy. This loophole provides significant leverage to politicians to influence the transfer and posting of doctors. Doctors with political connections can get posted in their home stations. They can also seek protection via their political links against under-performance (Callen et al., 2018). In return, doctors are reportedly found to be campaigning for politicians (Free and Fair Election Network [FAFEN]).

3. Empirical Strategy

This section explains the empirical strategy for identifying the causal impact of dynastic Members of Parliament (MPs) on public service

members exercise significant de facto influence over administrative matters, including personnel decisions and resource allocation in sectors such as public health. This gap between de jure mandates and de facto practices shapes the political economy of service provision in the country.

[8] There is considerable variation across Pakistan's provinces in political institutions, competition, and governance capacity. Our focus on Punjab is driven by data availability, but these results should be interpreted with caution when applied to other provinces or public sectors.

[9] Our paper uses the terms 'clinics' and 'Basic Health Units (BHUs)' interchangeably and as referred to the lowest level of healthcare facility provided by provincial government.

delivery in Punjab. In estimation, omitted-variables bias is a potential threat that can mask the true impact of having a dynastic MP on service delivery in the public health sector. For instance, constituencies with a dynastic MP can be different in other respects from those with a non-dynastic MP, and one cannot split out the causal effect unless one controls for covariates that capture those differences. Moreover, reverse causality is less likely to emerge in our analysis because our outcome variables measure short-term public service delivery. It is highly unlikely that doctors' assignments, attendance, and experience affect the electability of dynastic politicians.

Our study exploits two empirical strategies to overcome the problem of omitted variable bias.[10] First, we estimate the effect of dynastic MP on service delivery using the ordinary least squares (OLS) technique with various controls and covariates. To substantiate the findings obtained using the first strategy, the geographical regression discontinuity design (GRDD), with constituency boundaries as natural cut-offs, is employed to assess the effects of having a dynastic MP on public health service provision.[11] The details of both strategies are provided below:

3.1. Ordinary Least Squares Estimation

As discussed above, the potential threat to the causal interpretation of our findings is due to omitted variable bias. To tackle this, a large set of confounding factors is to be isolated to obtain the true impact of having a dynastic MP on public goods. Thus, the empirical analysis uses the following baseline regression equation:

$$Y_{icjt} = \beta(Dynastic\ MP)_c + \delta_j + \gamma_t + X_g + Z_e + W_i + \epsilon_{icjt} \quad (1)$$

where Y_{icjt} represents the outcome variable at the i^{th} clinic in constituency c in tehsil j at survey wave t. $(Dynastic\ MP)_c$ is a dummy variable whose

[10] One can also think of using the close-elections regression discontinuity design, as used by George and Ponattu (2018) to find the causal effect of having a dynastic politician on economic development. However, in our case, most of the constituencies have a dynastic winner as well as dynastic runner-up, making it difficult for us to exploit the quasi-random variation offered by close-elections regression discontinuity design.

[11] The GRDD approach identifies a Local Average Treatment Effect (LATE) that is specific to clinics located near the boundaries between dynastic and non-dynastic constituencies. While this strengthens causal inference by exploiting local quasi-random variation, the estimated effects may not generalize to all clinics across the province. We therefore interpret the GRDD results as providing robust evidence for the effect in border areas, complementing broader OLS analyses that cover the full sample.

value is unity when an MP in the given constituency c is dynastic. δ_j and γ_t capture the (sub-district) tehsil-level and survey-wave fixed effects. Similarly, $\boldsymbol{X_g}$, $\boldsymbol{Z_e}$, and $\boldsymbol{W_i}$ are the vectors of geographic location, election, and clinic-level controls, respectively. Finally, ϵ_{icjt} is the error term.

Equation 1 shows that β, the effect of having a dynastic MP on the outcome variable is the coefficient of interest in the analysis. The subsequent regressions also incorporate a set of available covariates discussed in the section below. Sub-district (tehsil-level) fixed effects capture the unobservable characteristics specific to the tehsils (tehsils are the administrative boundaries). Equation 1 also includes geographic location variables to control for time-invariant clinic-specific characteristics. Similarly, Equation 1 controls for election-specific covariates, such as electoral competition, political alignment, and vote share, to capture the influence of major political parties. Finally, doctor-specific controls are included in the regressions to account for possible influences on the outcome variables (such as the doctor's attendance). These controls are whether a doctor knows a politician and the distance between the doctor and his/her home.

It is also worth noting that, instead of adding multiple confounding variables at once, our analysis progressively includes a set of similar control variables in the baseline regression. The underlying advantage of this approach is that it serves as a robustness check to see how the coefficient of our outcome variable behaves when a different set of variables is included in the regressions.

3.2. Geographic Regression Discontinuity Design

As the data on basic health units and constituencies are geo-referenced, we exploit this advantage to estimate treatment effects by comparing health clinics in dynastic constituencies with otherwise similar clinics in non-dynastic constituencies.[12] The strategy used to isolate the impact of dynasties on public service delivery is based on the geographic regression discontinuity design developed by Dell (2010) to study the long-run impacts of the mining *mita*, an extensive bonded mining labor system. Our analysis is based on the following equation:

[12] Figure A1 provides a visual overview of the GRDD setup, showing the 1km × 1km grid cells and the geographic distribution of Basic Health Units (BHUs) across the boundary.

$$Y_{ibt} = \alpha + \beta(Dynastic\ MP)_c + f(x_{ib}, y_{ib}) + \delta_j + \gamma_t + \epsilon_{ibt} \quad (2)$$

where Y_{ibt} refers to the outcome variable at the i^{th} clinic that lies closest to the constituency boundary b at survey wave t. $(Dynastic\ MP)_c$ is a dummy variable whose value is unity if an MP in the given constituency c is dynastic. δ_j and γ_t capture the sub-district tehsil-level and survey-wave fixed effects. Moreover, $f(x_{ib}, y_{ib})$ is the control function based on the latitudes and longitudes of clinics. Following Callen et al. (2018), our GRDD regressions use "cubic polynomial in latitude and longitude" as a control function in the regression.[13] Finally, ϵ_{ibt} is the error term. When estimating the effects of having a dynastic MP on public health service provision using geographic RDD, it is assumed that clinics in dynastic constituencies do not differ systematically from those in non-dynastic constituencies. We also make use of certain bandwidths using the triangular kernel, which gives more weight to the near-border clinics as compared to clinics distant from the border, and limit our analyses within these bandwidths to obtain the desired coefficient (i.e., β). "This regression discontinuity approach estimates a Local Average Treatment Effect (LATE) that should be interpreted as being local to clinics that lie on the boundary of two constituencies" (Callen et al., 2018, p. 18).

4. The Data

4.1. Outcome Variable(s)

We obtain primary panel data on rural healthcare units from Callen et al. (2018). It provides data on 850 clinics out of the 2,496 basic health units in rural Punjab. These data record three aspects of each clinic: (1) whether a doctor is assigned; (2) if assigned, whether he/she was present during the enumerator's visit; and (3) tenure length of the assigned doctor. Enumerators gathered these data between November 2011–October 2012 by making three unannounced visits to the clinics. These data cover all the districts of Punjab except Khanewal.[14] Table 1 provides descriptive statistics of outcome variables. It shows that doctors are assigned to about 66 percent of clinics. Similarly, 31 percent of the doctors were present during the visits, and the average tenure was 6.1 months.[15] Figure 1 provides the geographical distribution of sampled

[13] The linear and quadratic control functions are also used as a robustness check.
[14] It is excluded because the pilot survey was conducted in Khanewal.
[15] Measured as antilog of 1.46, minus 1.

clinics in Punjab. Each dot in the figure represents a clinic, and each polygon is a provincial constitutional assembly.

Figure 1: Spatial Distribution of Sampled Clinics Across Punjab

Note: Each dot on the map shows the geographical distribution of 'sampled' clinics across Punjab province. The polygons represent provincial constituency boundaries.

; Callen et al. (2018)

Table 1: Descriptive Statistics of Outcome Variables

	N	Mean	Std. Dev.	Min	Max
Doctor Assigned	2,204	0.66	0.47	0	1
Doctor Present	2,191	0.31	0.46	0	1
Doctor's Tenure (logged)	2,206	1.46	2.03	0	5.95

Notes: Doctor Assigned and Doctor Present are the dummy variables indicating the doctor's assignment and the doctor's attendance in the given clinic, respectively.
***Source*:** Callen et al. (2018)

4.2. Treatment Variable: Dynastic Member of the Parliament (MP)

The study's explanatory variable is categorical and equals 1 if the winner in the given constituency is dynastic. This study characterizes a politician as dynastic if at least one family member[16] was a member of the provincial assembly or national assembly of Pakistan.[17]

We exploit the ancestry information of members of the 2008 Punjab Assembly to construct a dummy variable that distinguishes dynastic and non-dynastic MPs. Information on the political backgrounds of the members is publicly accessible on the Punjab Assembly website.[18] We also use the information presented in Cheema and Naseer (2013) to cross-verify the dynastic/non-dynastic status of the MPs. Finally, we also contacted the district newspaper correspondents to cross-check the identified data on political dynasties.

Table 2 provides the descriptive statistics of dynastic MPs in the 2008 Punjab Assembly.[19] It shows that 51 percent of the MPs are identified as dynastic. About 18 percent of the MPs who are dynastic were also elected in previous legislative assemblies and are thus labeled as experienced dynastic MPs. Finally, 11 percent of the MPs are dynastic and affiliated with the ruling party in Punjab. Figure 2 shows the geographical distribution of dynastic MPs in the 2008 Punjab Assembly. Each polygon represents a provincial assembly constituency. Constituencies in dark (light) color have dynastic (non-dynastic) MPs. Moreover, two maps are drawn in Figure 3 that trace the constituencies with experienced dynastic MPs and ruling party dynastic MPs, respectively.

[16] By family, we mean both blood and marriage relations. Thus, family includes: grandfather, grandmother, father, mother, uncle, brother, sister, father-in-law, and mother-in-law.

[17] Our definition excludes the Senate because senators are elected indirectly by legislators. There are chances that they might not have any vote bank. Yet, they were nominated for the seat because of party loyalty or other possible financial and political reasons.

[18] https://www.pap.gov.pk/members/listing/en

[19] It is worth mentioning that the analysis presented below is based on 214 constituencies of the Punjab assembly. However, the Punjab assembly has 297 constituencies. This is mainly due to the following three reasons. First, some of the data on clinics are lost while matching them with constituencies through ArcGIS. Second, it was not possible to access the information on the dynastic background for some MPs. In some constituencies, the winner of 2008 elections either died or resigned from the seat. Finally, as mentioned by Callen et al. (2018), Khanewal district is excluded from the data collection which resulted in the loss of 8 constituencies from the analysis.

Table 2: Descriptive Statistics of Explanatory Variables

	N	Mean	Std. Dev.	Min	Max
Dynastic MP	214	0.51	0.50	0	1
Dynastic MP (Experienced)	214	0.18	0.39	0	1
Dynastic MP (Ruling Party)	214	0.11	0.32	0	1

Notes: The table provides descriptive statistics of identified dynastic MPs in the 2008 Punjab Assembly. Rows 2 and 3 report dynastic MPs who are experienced (served in previous tenures) and dynastic MPs who belong to the ruling party, respectively.
***Source*:** Author's own calculations using data from Cheema et al. (2013) and the Punjab Assembly website.

4.3. Controls

As mentioned above, the potential threat to the validity of estimating the causal effect of having a dynastic MP on service delivery is omitted variable bias. Our empirics include a number of covariates in the OLS regressions to diminish endogeneity stemming from omitted variable bias. These covariates broadly fall under the following three categories:

Geographical Controls: As the geography of a given clinic can potentially affect doctors' attendance, a quadratic function of latitude and longitude, and distance to the district headquarters are used to account for geographic influences on the outcome variable.

Election Controls: The regressions are also controlled for election-specific variables such as political competition (measured by Herfindahl Index), political alignment (indicator variable to capture whether the given MP is affiliated to the ruling party), and vote shares of major political parties (Pakistan People's Party Parliamentarians (PPP), Pakistan Muslim League Quaid-i-Azam (PML-Q), and Pakistan Muslim League Nawaz (PML-N)).

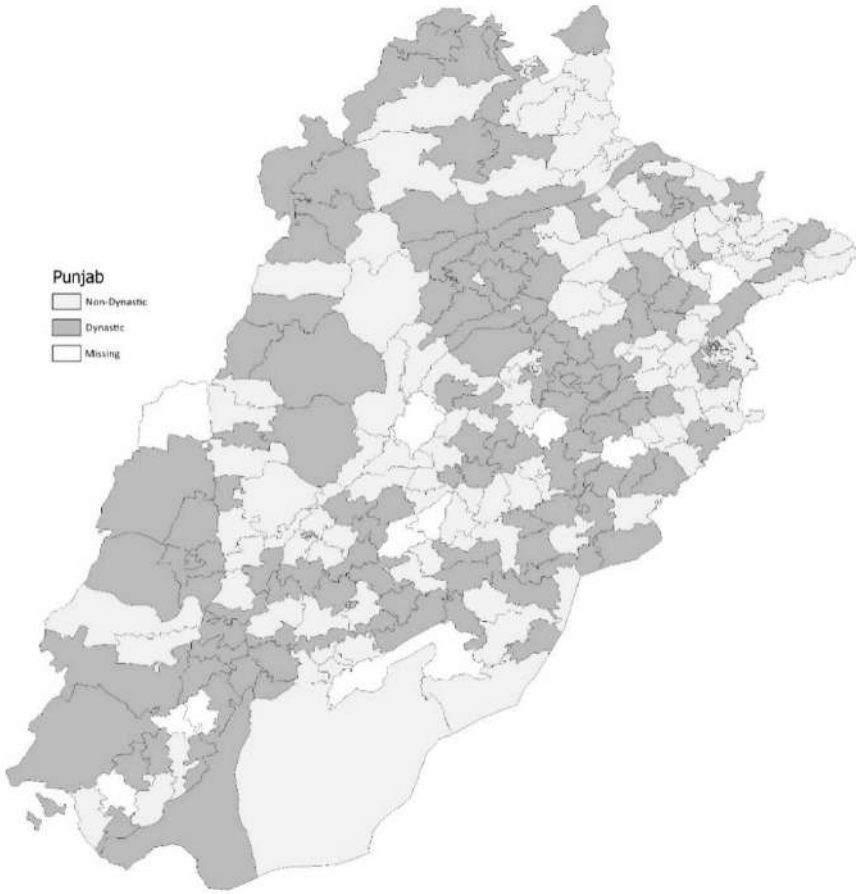
Individual Controls: Existing research shows that employees' political connections encourage absenteeism (Callen et al., 2018). Likewise, political connections can also be used to expedite the transfer process.[20] Therefore, our analysis includes three indicator variables: whether the

[20] This observation comes from first-hand experience of one of the authors. While working in the public education sector, he saw many such cases in which politically connected teachers easily get transferred to their desired colleges whereas those who do not have this luxury serve at distant colleges (also called, *hard stations*).

given doctor is connected to a politician, whether this connection is direct, and the distance to home.[21]

Table 3 presents the descriptive statistics for the control variables in the analysis. Panel A of the table reports statistics of geographical controls (such as latitude, longitude, latitude-squared,

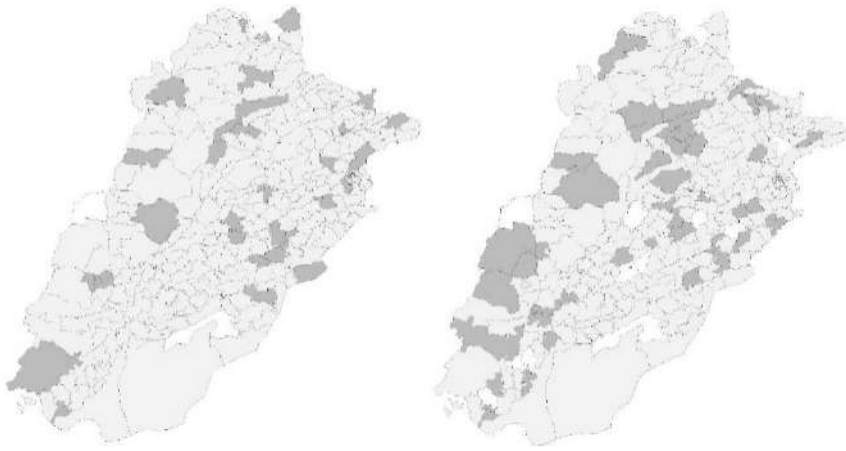
Figure 2: Dynastic MPs in Punjab Assembly in 2008



Note: This map distinguishes constituencies with dynastic MPs from the constituencies with non-dynastic MPs. The darker polygons posit that the MP in the given constituency is dynastic.
Data Source: Author's own calculations.

[21] The doctors who remained absent during the visits of enumerators were also traced out to acquire this information.

Figure 3: Experienced Dynastic MPs (left) and Ruling Party Dynastic MPs (right) in 2008 Punjab Assembly



Note: These maps distinguish constituencies with experienced or ruling-party dynastic MPs, and otherwise. The darker polygons in the first map show that given constituencies have experienced dynastic MPs. On the second map, darker polygons indicate ruling-party dynastic MPs.
Data Source: Author's own calculations.

Table 3: Descriptive Statistics of Control Variable

	Mean	Std. Dev.	Min	Max
Panel A: Geographic Location Controls				
Latitude	31.30	1.26	28.21	33.95
Longitude	72.84	1.15	69.73	75.29
Latitude Squared	981.01	78.71	795.71	1152.35
Longitude Squared	5306.59	167.39	4862.67	5669.02
Latitude×Longitude	2280.25	114.11	1971.55	2494.70
Distance to Tehsil Headquarter (in KM)	48.57	29.42	4	198
Panel B: Political Controls				
HH Index	0.86	0.11	0.53	1.00
Vote Share (Federal Ruling Party)	0.26	0.15	0	0.64
Vote Share (Provincial Ruling Party)	0.25	0.16	0.004	0.65
PPP Winner	0.31	0.46	0	1
PMLN Winner	0.27	0.45	0	1
PMLQ Winner	0.29	0.45	0	1
Panel C: Individual Controls				
Doctor's Distance to Home (in KM)	3.72	1.49	0	7.43

Notes: The table is based on the descriptive statistics of control variables. Panel A of the table reports descriptive statistics of geographical controls related to clinics. Similarly, Panels B and C of the table report descriptive statistics of political and individual controls,

respectively. All these control variables are used in the OLS regressions reported in the sections below.
***Source*:** Callen et al. (2018) and Election Commission of Pakistan (2018)

longitude-squared, Latitude×Longitude, and Distance to Tehsil Headquarters). On average, clinics are 48.57 kilometers away from the tehsil headquarters. Panel B presents political controls obtained from the Election Commission of Pakistan (2018). This information revealed that the 2008 provincial assembly elections were fairly competitive, with the average HH index of 0.86.[22] The average vote share of the ruling party in federal and provincial governments is 26% and 25%, respectively. Also, 31%, 27%, and 29% of the provincial assembly seats are won by PPP, PML-N, and PML-Q, respectively.[23] Moreover, panel C of Table 3 shows that doctors' average distance from home is 3.72 kilometers.

5. Results and Discussion

This section presents the results of ordinary least squares (OLS) and geographic regression discontinuity design (GRDD) regressions. First, we present and discuss the OLS results in detail for three outcome variables used in the analysis: doctor assigned, doctor present, and tenure of the doctor. Second, we present the GRDD results to substantiate the OLS findings. Finally, we explore alternative explanations of when dynastic politicians are most efficient in providing services.

5.1. OLS Results

The OLS results are presented in Table 4-6, obtained by estimating Equation 1.[24] Column 1 of each Table 4-6 shows the results when only a focused explanatory variable and a constant are included in the regression. In addition, columns 2 to 5 progressively include tehsil-fixed effects, wave-fixed effects, geographic controls, election controls, and individual controls, respectively. Our results suggest that the quantity and quality of service delivery are not significantly different in constituencies with a dynastic MP compared to those with a non-dynastic MP.

[22] Herfindahl-Hirschman index of political concentration lies between 0 and 1, with 1 means perfect competition.
[23] As mentioned above, our analysis covers 214 of the total 297 constituencies. The complete results of 2008 elections reveal that 27.76%, 21.29%, and 38.89% of the seats are won by PPP, PML-N, and PML-Q, respectively.
[24] For robustness, we present the Probit and Logit regressions for doctor assigned and doctor present outcome variable in Appendix B.

Doctor Assigned: First, the paper estimates the effect of having a dynastic MP on the assignment of doctors to a clinic in a given constituency. Table 4 shows that a dynastic MP does not significantly affect the assignment of doctors at rural health clinics in Punjab. All specifications indicate that political dynasties are not significantly associated with the provision of public services. It is worth noting that the number of clinics during the study period remained unchanged (Punjab Development Statistics, 2013, p. 190).

One more institutional detail, worth documenting here, is that allocation/assignment can have two meanings in the context of public-sector departments in Pakistan. One way of assignment is the inclusion of new "sanctioned" posts, which are to be approved by the Finance department after budgetary allocation. On the other hand, "filled" post refers to assigning a civil servant (i.e., doctor) to the "sanctioned" post. The former type of assignment requires a lengthy bureaucratic process, while the latter is done by recruiting new doctors or by assigning in-service doctors to vacant posts through transfers. Luckily, there was a temporary ban on new recruitment during the analysis period of the study, so assignments only denote transfers of doctors between clinics.

The appointment of doctors to a vacant post is carried out by the autonomous organization, the Punjab Public Service Commission, through testing and interviewing of candidates on the basis of merit. The ban on new recruitments during the period of analysis helped us, as 'assignment' is the only part that can be influenced by politicians. The null impact of dynastic MPs on doctors' assignment means these MPs did not use their influence to allocate more doctors to their constituencies.

Doctor Present: Second, our study examines whether the doctor's attendance at the clinic is affected by the MP's dynastic nature. Surprisingly, dynastic MP has no effect on a doctor's attendance at the clinic level. Although results presented in columns 1-5 of Table 5 show that the doctor's attendance in dynastic constituencies is low compared to the non-dynastic constituencies, this finding is also statistically insignificant.

Doctor Tenure: The results indicate that clinics in dynastic constituencies have more experienced doctors than those in non-dynastic constituencies (Table 6). However, this finding loses significance in the fully specified model.

The overall results show that having a dynastic MP has a mostly null effect on service delivery. This result is contrary to the existing literature on political dynasties. For example, Mendoza et al. (2016) find that a dynastic incumbent worsens poverty in the Philippines. Ali (2016) and George and Ponattu (2018) show the negative effects of political dynasties on economic development in Pakistan and India, respectively. However, the results of this paper are consistent with those of Braganca et al. (2015), who found no effect of dynasties on public service delivery.

5.2. Geographic RD Results

This study also examines the effects of a dynastic incumbent on public service delivery using a Geographic Regression Discontinuity (GRDD) design. Tables 7-9 show regression results obtained by estimating Equation 2. The GRDD findings corroborate the OLS results. For example, Table 7 shows that dynastic MPs have no impact on the doctor's assignment for all the bandwidths. Similar results can also be found for doctors' attendance, presented in Table 8. Finally, Table 9 shows that constituencies with dynastic MPs have experienced doctors compared to constituencies with otherwise similar. These results are significant for 5KM and 10KM bandwidths. While estimating this impact, our GRDD regressions use cubic "polynomial in latitude and longitude" as a control function.[25]

5.3. Complementary Explanations

This section presents results from various specifications that substantiate the baseline finding of a null effect of dynasties on public service delivery. First, we estimate whether senior dynastic MPs, with more than one term of experience, have any impact on service delivery. Then, we examine whether dynastic MPs from the governing party have any influence on public service delivery in their constituencies. Finally, we show how dynastic MPs influence public service delivery in constituencies with higher electoral competition.

[25] We also use linear and quadratic control functions, and these results are available for interested readers on request.

Table 4: Impact of Dynastic MP on Doctor's Assignment (OLS)

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Assigned=1				
Dynastic MP	-0.015	-0.014	-0.016	-0.026	-0.038
	(0.031)	(0.031)	(0.031)	(0.031)	(0.027)
	[0.636]	[0.648]	[0.622]	[0.409]	[0.170]
Observations	2,124	2,124	2,033	2,033	2,033
R-squared	0.332	0.336	0.350	0.356	0.461
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. Columns 2-5 progressively expand the model by adding tehsil-fixed effects, wave-fixed effects, geographic controls, election and individual controls, respectively. Geographic controls include a quadratic function of latitude and longitude, and distance to the district headquarters (in KM). Election controls include political competition (measured by the Herfindahl Index), political alignment (an indicator variable to capture whether the given MP is affiliated with either the federal or provincial government), and vote shares of major parties (PPP and PML-N). Individual controls include the logged distance to the doctor's home.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. *** < 0.01; ** < 0.05; and * < 0.10.

Table 5: Impact of Dynastic MP on Doctor's Attendance (OLS)

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Present=1				
Dynastic MP	-0.022	-0.022	-0.015	-0.021	-0.035
	(0.030)	(0.030)	(0.030)	(0.030)	(0.028)
	[0.473]	[0.478]	[0.611]	[0.496]	[0.217]
Observations	2,112	2,112	2,022	2,022	2,022
R-squared	0.198	0.199	0.209	0.213	0.372
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor present*. The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 6: Impact of Dynastic MP on Doctor's Tenure (OLS)

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Tenure (log)				
Dynastic MP	0.240*	0.240*	0.239*	0.146	0.125
	(0.138)	(0.138)	(0.144)	(0.148)	(0.137)
	[0.084]	[0.083]	[0.098]	[0.328]	[0.360]
Observations	2,126	2,126	2,035	2,035	2,033
R-squared	0.179	0.189	0.191	0.200	0.341
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor tenure (logged)*. The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

5.4. Does Prior Experience of Electoral Politics Matter for Service Delivery?

In this section, our focus is on the dynastic politicians who have prior experience of electoral politics (i.e., served before 2008 either in the provincial or national assembly). Besides familial links, politicians' own experience in the political arena can also play an important role in delivering services to the constituents. However, senior politicians also have a lower incentive to deliver because of their brand-name advantage. Tables 10-12 provide the results when our analysis uses senior dynastic MP as an explanatory variable. Results show that the seniority status of the dynastic candidate has no effect on assignment, attendance, or tenure of the doctor.

Table 7: Impact of Dynastic MP on Doctor's Assignment (GRDD)

	Outcome: Doctor Assigned=1				
Bandwidth in KM (+/-)	**1**	**2**	**IK=2.46**	**5**	**10**
Dynastic MP	0.122	0.115	0.085	0.042	-0.012
	(0.138)	(0.094)	(0.078)	(0.056)	(0.047)
	[0.378]	[0.225]	[0.280]	[0.459]	[0.793]
Mean of Dependent Var.	0.696	0.682	0.679	0.673	0.669
Constituencies	106	141	160	200	214
Observations	433	737	885	1,532	2,035

Notes: Outcome variable in the analysis is *doctor assigned*. The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. For all bandwidths, our GRDD regressions use a cubic "polynomial in latitude and longitude" as a control function.

In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 8: Impact of Dynastic MP on Doctor's Attendance (GRDD)

Outcome: Doctor Present=1					
Bandwidth in KM (+/-)	**1**	**2**	**IK=2.77**	**5**	**10**
Dynastic MP	0.067	-0.054	-0.072	-0.058	-0.033
	(0.137)	(0.116)	(0.086)	(0.060)	(0.041)
	[0.628]	[0.644]	[0.404]	[0.338]	[0.430]
Mean of Dependent Var.	0.305	0.298	0.304	0.312	0.314
Constituencies	106	141	169	200	214
Observations	427	730	955	1,523	2,023

Notes: Outcome variable in the analysis is *doctor present*. The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. For all bandwidths, our GRDD regressions use a cubic "polynomial in latitude and longitude" as a control function.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

5.5. Does Dynastic MPs from the Ruling Party Affect Service Delivery?

There is a vast literature which shows that voters who elected the ruling party candidates are served disproportionately (Baldwin, 2013; Blakeslee, 2018; Panda, 2015). Callen et al. (2018) exploit the same data used in this study to examine whether constituencies with governing-party candidates receive higher levels of public services. In this section, our analyses examine whether the dynastic MPs from the governing party could mobilize higher public service for their constituencies. By doing this, our analysis combines the two forces: political capital acquired by the dynastic politician from his family and support from the governing party.

Table 9: Impact of Dynastic MP on Doctor's Tenure (GRDD)

Outcome: Doctor Tenure (log)					
Bandwidth in KM (+/-)	**1**	**2**	**IK=3.13**	**5**	**10**
Dynastic MP	0.130	0.420	0.420	0.410*	0.298*
	(1.610)	(0.754)	(0.382)	(0.244)	(0.163)
	[0.936]	[0.579]	[0.272]	[0.094]	[0.070]
Mean of Dependent Var.	1.529	1.532	1.542	1.530	1.508
Constituencies	106	141	181	200	214
Observations	433	737	1,086	1,534	2,037

Notes: Outcome variable in the analysis is doctor tenure (logged). The explanatory variable of interest is Dynastic MP. The unit of analysis for the study is a clinic. For all bandwidths, our GRDD regressions use a cubic "polynomial in latitude and longitude" as a control function. In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Tables 13-15 present the results of regressions when ruling party dynastic MPs is used as an explanatory variable. As in previous results, Table 13 shows that dynastic MPs from the ruling party do not significantly affect doctors' assignments in the clinics in their constituencies. Similarly, Table 14 shows that ruling-party dynastic MPs have no effect on doctors' attendance. Nevertheless, Table 15 shows that doctors serving in clinics in constituencies of ruling-party dynastic MPs tend to have more experience than those serving in other constituencies.

5.6. Does Competition in Dynastic Constituencies Matter for Service Delivery?

Finally, the paper also explores whether dynastic MPs perform better when they face competition. Existing evidence shows that political competition has a positive impact on public goods provision (Besley et al., 2010; Boulding & Brown, 2014; Gottlieb & Kosec, 2019; Kosec et al., 2018; Nye & Vasilyeva, 2015). We argue, while documenting the theoretical predictions, that dynastic MPs have lesser incentive to perform better because of brand-name advantage (Dal Bó et al., 2009).

The results of our regressions, when competition is interacted with dynastic MP, are reported in Tables 16–18. Table 16 finds that political competition does not drive dynastic MPs to improve doctor assignment in clinics within their respective constituencies. Similarly, Table 17 shows that doctors' attendance, though negatively associated, is statistically insignificant in most specifications. Therefore, we conclude that dynastic MPs do not significantly influence doctors' presence either way. Finally, Table 18 presents regression results where the outcome variable measures doctors' tenure. The results indicate that clinics in dynastic constituencies have more experienced doctors than those in non-dynastic constituencies. This finding is robust across most specifications but loses significance in the fully specified model.

Table 10: Experienced Dynastic MP and Doctor's Assignment

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Assigned=1				
Experienced Dynastic MP	0.014	0.016	0.012	-0.006	-0.014
	(0.043)	(0.043)	(0.041)	(0.042)	(0.038)
	[0.737]	[0.715]	[0.772]	[0.883]	[0.702]
Observations	2,124	2,124	2,033	2,033	2,033
R-squared	0.332	0.336	0.349	0.355	0.460
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls Election			✓	✓	✓
Controls Individual Controls				✓	✓
					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Senior Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 11: Experienced Dynastic MP and Doctor's Attendance

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Present=1				
Experienced Dynastic MP	0.002	0.002	0.007	-0.002	-0.012
	(0.036)	(0.036)	(0.035)	(0.038)	(0.034)
	[0.954]	[0.948]	[0.839]	[0.947]	[0.718]
Observations	2,112	2,112	2,022	2,022	2,022
R-squared	0.197	0.199	0.208	0.213	0.372
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls Election			✓	✓	✓
Controls Individual Controls				✓	✓
					✓

Notes: Outcome variable in the analysis is *doctor present*. The focused explanatory variable is Senior Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 12: Experienced Dynastic MP and Doctor's Tenure

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Tenure (log)				
Experienced Dynastic MP	0.147	0.145	0.125	0.083	0.004
	(0.179)	(0.179)	(0.181)	(0.206)	(0.206)
	[0.411]	[0.419]	[0.489]	[0.688]	[0.985]
Observations	2,126	2,126	2,035	2,035	2,033
R-squared	0.178	0.188	0.189	0.200	0.340
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls Election			✓	✓	✓
Controls Individual Controls				✓	✓
					✓

Notes: Outcome variable in the analysis is *doctor tenure (logged)*. The focused explanatory variable is Senior Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4. In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 13: Ruling Dynastic MP and Doctor's Assignment

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Assigned=1				
Dynastic MP (Ruling)	0.033	0.034	0.039	0.059	0.062
	(0.039)	(0.040)	(0.038)	(0.058)	(0.044)
	[0.397]	[0.391]	[0.308]	[0.308]	[0.164]
Observations	2,124	2,124	2,033	2,033	2,033
R-squared	0.332	0.336	0.350	0.355	0.460
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Senior Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 14: Ruling Dynastic MP and Doctor's Attendance

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Present=1				
Dynastic MP (Ruling)	0.011	0.011	0.021	0.044	0.029
	(0.033)	(0.033)	(0.032)	(0.055)	(0.050)
	[0.734]	[0.730]	[0.509]	[0.426]	[0.559]
Observations	2,112	2,112	2,022	2,022	2,022
R-squared	0.198	0.199	0.209	0.213	0.372
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor present*. The focused explanatory variable is Dynastic MP from Ruling. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 15: Ruling Dynastic MP and Doctor's Tenure

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Tenure (log)				
Dynastic MP (Ruling)	0.035	0.031	0.020	-0.007	0.020
	(0.165)	(0.165)	(0.171)	(0.292)	(0.234)
	[0.831]	[0.850]	[0.908]	[0.980]	[0.931]
Observations	2,126	2,126	2,035	2,035	2,033
R-squared	0.177	0.188	0.189	0.202	0.342
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor tenure (logged)*. The focused explanatory variable is Dynastic MP from Ruling. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 16: Competitive Dynastic MP and Doctor's Assignment

	(1)	(2)	(3)	(4)	(5)
		Outcome:	*Doctor Assigned=1*		
Dynastic×Competition	-0.008	-0.007	-0.010	-0.029	-0.042
	(0.036)	(0.036)	(0.036)	(0.035)	(0.031)
	[0.833]	[0.843]	[0.790]	[0.413]	[0.181]
Observations	2,124	2,124	2,033	2,033	2,033
R-squared	0.332	0.336	0.349	0.355	0.461
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Dynastic×Competition. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 17: Competitive Dynastic MP and Doctor's Attendance

	(1)	(2)	(3)	(4)	(5)
		Outcome:	*Doctor Present=1*		
Dynastic×Competition	-0.016	-0.015	-0.009	-0.024	-0.038
	(0.035)	(0.035)	(0.034)	(0.035)	(0.032)
	[0.656]	[0.661]	[0.801]	[0.496]	[0.238]
Observations	2,112	2,112	2,022	2,022	2,022
R-squared	0.198	0.199	0.209	0.213	0.372
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls Individual				✓	✓
Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Dynastic×Competition. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.

In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table 18: Competitive Dynastic MP and Doctor's Tenure

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Tenure (log)				
Dynastic×Competition	0.281*	0.280*	0.287*	0.157	0.137
	(0.161)	(0.161)	(0.167)	(0.166)	(0.155)
	[0.082]	[0.082]	[0.087]	[0.345]	[0.377]
Observations	2,126	2,126	2,035	2,035	2,033
R-squared	0.179	0.189	0.191	0.200	0.341
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls Individual				✓	✓
Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Dynastic×Competition. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

5.7. Results from Pakistan Social and Living Measurement Survey

In this section, we present additional results from the Pakistan Social and Living Measurement (PSLM) survey on the usage and satisfaction with basic health units (BHUs). Since the PSLM only records respondents' district of residence, we cannot apply the same empirical strategy as in our main analysis. Instead, we construct a measure of dynastic presence at the district level, defined as the share of constituencies in a district represented by dynastic candidates.[26] We estimate the following regression to estimate the effects of dynastic presence on usage and satisfaction with BHUs:

$$Y_{id} = \beta \left[\text{Dynastic Share}\right]_d + \gamma' X_{id} + \delta_t + \varepsilon_{id} \quad (3)$$

where Y_{id} is the outcome for individual i in district d (BHU usage or satisfaction), $\left[\text{Dynastic Share}\right]_d$ is the fraction of constituencies in district d held by dynastic candidates, $\boldsymbol{X_{id}}$ is a vector of individual controls (e.g.,

[26] Depending on the population, each of the 36 districts is divided into multiple provincial constituencies. Our measure is the number of dynastic constituencies divided by the total number of constituencies in the district.

age, gender, education, occupation, and urban/rural status), and δ_t is survey-year fixed effects, and ε_{id} is the error term.

Table 19 presents the results from estimating Equation 3. Since our election data are from the 2008 general elections, we use the 2009 and 2011 waves of the PSLM Survey for this analysis.[27] The results in Table 19 indicate that greater dynastic presence is associated with a lower change in BHU service (i.e. fewer improvements in clinic infrastructure) and less satisfaction with BHU services, while the coefficients for frequency of use are positive. The negative effect on satisfaction is statistically significant at the 5% level, whereas the other outcomes are not.

Table 19: Dynastic MP and Satisfaction with BHU service

	(1)	(2)	(3)
	Change in BHU service	Frequency of BHU usage	Satisfaction with BHU service
Dynastic MP (district average)	-0.159	0.180	-0.085**
	(0.113)	(0.170)	(0.036)
	[0.165]	[0.291]	[0.019]
Observations	28298	51950	28721
R-squared	0.008	0.027	0.047
Controls	✓	✓	✓

Notes: Outcome variables in the analysis come from the Pakistan Social and Living Measurement (PSLM) Surveys 2009 and 2011. The focused explanatory variable is the ratio of dynamic MPs in a given district. The unit of analysis for this analysis is the individual level. In all columns, individuals' age, gender, education, occupation, and urban/rural status are used as controls.
In all the regressions, standard errors (given in parentheses) are clustered at the district level. where, *** < 0.01; ** < 0.05; and * < 0.10.

6. Conclusion

The existing literature on the political economy of development provides several explanations of why some areas receive more public services than others. This study examined one of these explanations in the case of public health in Punjab, Pakistan. We argued in the paper that there are two plausible explanations of why dynastic MPs can perform differently from their non-dynastic MPs. First, dynastic MPs have greater political capital accumulated through their political family. Second, dynastic MPs enjoy a disproportionate electoral advantage over non-

[27] We exclude the 2013 wave because its dates overlap with the subsequent election.

dynastic MPs. The former explanation predicts that dynastic MPs will outperform non-dynastic MPs; the latter explanation indicates that dynastic MPs will underperform their counterparts.

By combining the primary data on rural health clinics collected by Callen et al. (2018) with novel data on familial links of members of the provincial assembly, this study analyzed the effects of having a dynastic MP on public service delivery in Punjab. Our empirical results found that having a dynastic MP has no impact on doctors' assignments and doctors' attendance in rural clinics. However, our study found a positive impact of having a dynastic MP on the tenure length of the doctors in clinics. Furthermore, ancillary analysis using data from the Pakistan Household and Living Measurement Survey indicates that, on average, individuals residing in districts with a greater proportion of dynastic MPs report statistically lower perceived improvements in clinic infrastructure and reduced satisfaction with the services provided. The findings of this paper suggest that alternative explanations for differences in the behavior of dynastic MPs counteract one another, nullifying their overall effects on public service delivery.

The study also probed several additional considerations to support our baseline evidence. First, it finds that dynastic MPs who served for more than one term in parliament are also unable to mobilize public services in their respective constituencies. Second, although MPs from the ruling party often have greater access to public funds, dynastic MPs from the governing party also fail to provide a greater quantity of services to their subjects. Finally, we showed that dynastic MPs who face higher political competition perform slightly better in providing public health services in the clinics in their constituencies.

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Appendix Probit and Logit Results

Table A1: Probit regressions: Impact of Dynastic MP on Doctor's Assignment

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Assigned=1				
Dynastic	-0.015	-0.015	-0.019	-0.032	-0.047
	(0.033)	(0.033)	(0.032)	(0.032)	(0.030)
	[0.642]	[0.644]	[0.556]	[0.309]	[0.108]
Observations	1914	1914	1871	1871	1738
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table A2: Probit regressions: Impact of Dynastic MP on Doctor's Attendance

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Present=1				
Dynastic	-0.024	-0.024	-0.016	-0.018	-0.036
	(0.030)	(0.030)	(0.030)	(0.029)	(0.025)
	[0.435]	[0.432]	[0.595]	[0.532]	[0.157]
Observations	1967	1967	1877	1877	1877
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor present*. The focused explanatory variable is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table A3: Logit regressions: Impact of Dynastic MP on Doctor's Assignment

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Assigned=1				
Dynastic	-0.017	-0.016	-0.021	-0.036	-0.049
	(0.035)	(0.035)	(0.034)	(0.034)	(0.031)
	[0.627]	[0.641]	[0.544]	[0.283]	[0.121]
Observations	1914	1914	1871	1871	1738
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

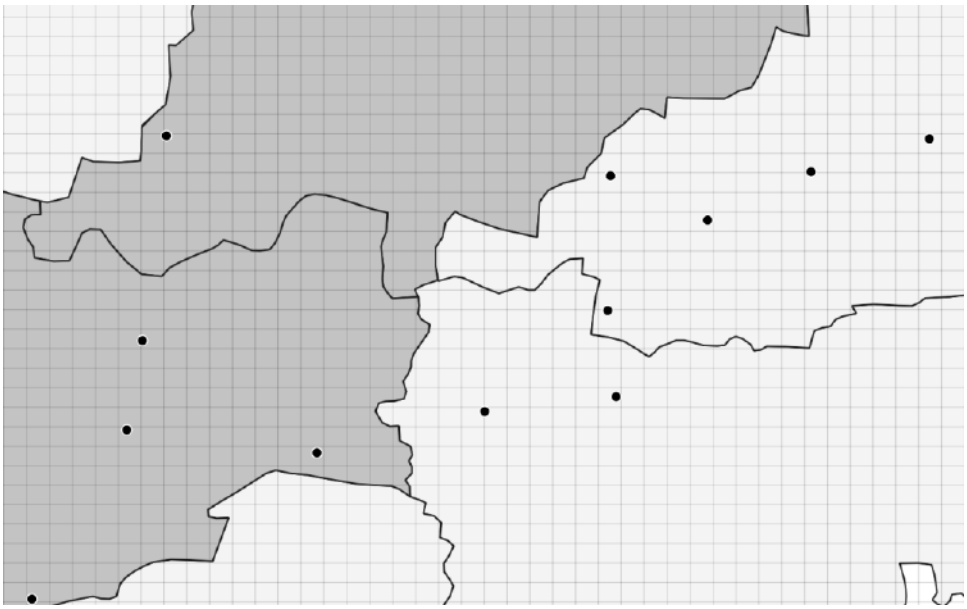
Notes: Outcome variable in the analysis is *doctor assigned*. The focused explanatory variable is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Table A4: Logit regressions: Impact of Dynastic MP on Doctor's Attendance

	(1)	(2)	(3)	(4)	(5)
	Outcome: Doctor Present=1				
Dynastic	-0.022	-0.022	-0.013	-0.014	-0.035
	(0.030)	(0.030)	(0.030)	(0.029)	(0.026)
	[0.459]	[0.464]	[0.657]	[0.629]	[0.172]
Observations	1967	1967	1877	1877	1877
Tehsil Fixed Effects	✓	✓	✓	✓	✓
Wave Fixed Effects		✓	✓	✓	✓
Geographic Controls			✓	✓	✓
Election Controls				✓	✓
Individual Controls					✓

Notes: Outcome variable in the analysis is *doctor present*. The focused explanatory variable is Dynastic MP. The unit of analysis for the study is a clinic. In all columns, the specification of included controls is the same as Table 4.
In all the regressions, standard errors (given in parentheses) are clustered at the tehsil level. where, *** < 0.01; ** < 0.05; and * < 0.10.

Figure A1: Geographic Description of GRDD



Note: This map illustrates the spatial setup of the Geographic Regression Discontinuity Design (GRDD). Gray lines indicate 1km × 1km grid cells. Each black dot represents a Basic Health Unit (BHU).
Data Source: Author's own calculations.