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Political Dynasties and Local Economic Development in Pakistan

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Political dynasties are entrenched in Pakistan's political system. Dynastic legislatures constitute more than 50 percent of elected politicians in Pakistan. However, until recently, no scientific study was conducted to evaluate the economic performance of dynastic parliamentarians. This study explores the effect of political dynasties on local economic development at the constituency level across Pakistan. More specifically, the objective is to examine whether constituencies with dynastic persistence are significantly different from the rest in terms of economic activities and public good provisioning. To measure political dynasties, data on elected politicians who won 2002, 2008, & 2013 general elections are utilised to extract information about a politician's family background. This information is then matched with the constituency level indicators of economic development and public goods. The findings show that dynastic legislature underperforms relative to non-dynast in terms of local economic development and public good provision. Constituencies with non-dynast winners have improved water and sanitation facilities, better infrastructure, and significantly higher access to public services such as electricity, gas, and telephone. The study recommends that limiting the role of parliamentarians in discretionary funds and development spending, and empowering the local government system would minimise the performance differences across constituencies.

PREFACE

There has been a general debate about which institution performs better in terms of service delivery and economic development. The discussion generally starts from the comparison of political parties and settles down on individual performances. Usually, the parties are discussed in terms of their experiences in managing government affairs. However, since politicians move between parties, it makes perfect sense to compare their performances. Families of some of these elected members have been in power for generations. This resulted in the formation of political dynasties. The question is whether these politicians with more experience perform better than those who are relatively new. In other words, whether or not dynast politicians outperform non-dynasts? This sets up the premise for this study where we scientifically examine and compare the economic performances of dynastic members with the non-dynast ones. The scope of this study covers all the members of the national assembly (MNAs) who contested in the three elections (2002, 2008, 2013).

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1. INTRODUCTION

Political dynasty is a prevalent phenomenon in many democratic societies where political capital (skills, connections, brand-name, loyal voters, etc.) transfers from parents to children over time (Dal Bó, et al. 2009; Rossi, 2009; Querubin, 2011; Mendoza, 2012; Cheema, *et al.*, 2013; Bohlken & Chandra, 2014). The transfer of political capital increases a dynast heir electoral advantage over a non-dynast and thereby decreasing his incentives to deliver public goods. Nevertheless, the initial political endowment may enable a dynast to outperform the non-dynast in service delivery. The overall impact of dynastic persistence on economic performance is, therefore, unclear.

Pakistan is among those countries where the share of elected political dynasties in parliament is one of the highest in the world. Ahmad and Rehman (2020) observed that more than 50 percent of winners in the national assembly of Pakistan (2002, 2008, 2013 elections) have dynastic routes. Before 2008, there was very little debate among politicians on the economic performance of dynast vs. non-dynast legislatures. However, since 2008, the debate is intensified among the leaders of main political parties. [1] Interestingly, until recently, there was no scientific evidence on which this debate is based.[2] This motivates us to carry out a comprehensive study on the effects of dynastic legislatures on local economic development across Pakistan.

In an ideal democratic system, a government should spend its resources to bridge the gap between underdeveloped regions with the developed ones. However, political elites exercise considerable de facto control to divert resources to their constituencies without taking into consideration the principle of equity. The optimal allocation of resources for public service provision could be done through effective local government institutions. However, designing an efficient local government is a disincentive for the legislatures who have significant control over the allocation of resources at national and sub-national levels.

An example of this is the access of parliamentarians to discretionary development funds in Pakistan. President Zia-ul-Haq introduced a special federal program in 1985 that allocated funds to elected legislatures of the national assembly for the development of

[1] https://www.theweek.in/wire-updates/business/2019/07/22/fgn19-pak-imran-dynasty.html & https://www.thenews.com.pk/latest/775177-imran-khan-is-an-inexperienced-player-maryam-nawaz

[2] Ali (2016) and Malik, et al. (2021) find that dynastic legislatures have negative effect on different indicators of economic performance. However, the scope of there studies are limited to the province of Punjab.

their constituencies. Following the footsteps of Zia, successive governments continued the program under different names. Afzal (2009) and Malik (2021) provide a detailed analysis of the program under different governments. For example, between 2008 and 2013, the program was named the People's Work Program by the then-Pakistan People Party (PPP) government. Under this program, every parliamentarian was provided access to Rs. 20 million for developmental projects in the respective constituency. The funds could be used for health, education, electrification, roads, and other types of local infrastructure.[3]

But what are the incentives for politicians to invest in local development? The major incentive is to be reelected. Nevertheless, this depends on several factors including the concentration of political power, political capital, and connections, loyal voters like baradari, etc. In turn, these factors depend on several individual and constituency level factors. Among them, being a member of a political family (dynasty) stands out. Existing evidence and economic theory conclude the ambiguous effects of dynastic politicians on economic development. On the one hand, the incentive to establish a dynasty on the part of the founder may encourage long-term investments to build political capital, thereby leading to economic development. However, the descendants—who inherit political capital—have lesser incentives to ensure economic development (George and Ponattu, 2019). Therefore, the net effect of political dynasties on economic development is ambiguous.

Given the above discussion and the fact that Members of the National Assembly (MNAs) in Pakistan enjoy considerable influence in the allocation of development funds (discretionary and otherwise), the objective of this study is to explore the causal effects of political dynasties on local economic development in Pakistan. More specifically, our objective is to study whether constituencies with dynastic persistence are significantly different from the rest in terms of economic activities and public good provisioning.

To measure political dynasties, data on elected politicians who won 2002, 2008, & 2013 general elections are utilised to extract information about a politician's family background. Similarly, different proxies including the growth in night light luminosity, level of wealth and consumption, access to electricity, gas, telephone, water, and roads at constituency, village, and individual levels are used to measure economic performance at the constituency level.

Utilising close elections regression discontinuity design, we show that constituencies with a dynast winner have 1 percentage point lower economic development than a non-dynast winner. Similarly, the access to public goods (electricity, gas, water, sewerage, and roads) is 25 percent lower in dynast constituencies than the non-dynast ones. Furthermore, the households in dynast constituencies have 20 percent lower consumption.

The rest of the study proceeds as follows: The theoretical linkage between a dynastic politician and economic development is explained in Section 2. Section 3 describes the data and variables used in the analysis. Some stylised facts between

[3]The influence of legislatures in the local development can be assessed from the fact that the incumbent government of the Pakistan Tehreek-i-Insaf (PTI) initially put a stop to the allocation of funds to elected politicians (https://www.dawn.com/news/1428660). However, recently, Prime Minister Imran Khan announced Rs.500 million for each MNA so that they can initiate development schemes in their constituencies (https://www.dawn.com/news/1604040).

dynasties and economic performance are provided in section 4. The identification strategy is discussed in section 5. Section 6 presents results and discussion while section 7 concludes the study with some policy implications.

2. CONCEPTIONAL FRAMEWORK

The theoretical underpinnings of the impact of political dynasties on local economic development can be discussed using two frameworks. This first one is that of George and Ponattu (2019) who extended the political agency framework of Besley (2007) by nesting a probabilistic voting model with electoral uncertainty in an overlapping generations (OLG) framework. The model assumes that politicians possess "human capital" and "political capital" and that both are heritable. Human capital refers to the skills that enable a politician to govern well. Political capital signifies assets (such as name recognition and/or strong network) that can help a politician get elected, but do not improve his performance in the office. Hence, these are alternatively named as "governing capital" and "campaigning capital" respectively. George and Ponattu (2019) separate two effects, namely the "founder effect" and the "descendant effect". Incumbent politicians, who want to be reelected, would take costly actions and put in more effort to provide public goods and improve local economic development. The efforts will further increase if they have bequest motives; that is, the intention to secure the political office for their future generations. Heritable human capital thus gives incumbent parents further incentive to perform well to signal to voters that they and, therefore, their descendants — are high types. This is called the founder effect which is expected to have a positive impact on local economic development. However, a founder could only be identified if a dynasty is formed in the future. Hence, today's non-dynast could be a potential "founder" of a future dynasty.

Descendant dynasts, on the other hand, may have both positive and negative effects on economic development. They inherit human or governing capital in the form of skills and political knowledge which they can put to use to improve the provisioning of public goods in their constituencies. The downside, however, is that these descendants usually do not start at the grassroots and are, therefore, disconnect from ground realities. Moreover, they also inherit political capital (e.g. a prominent name or a powerful network) which they can use to persist in power even when they underperform. Since the probability of winning of descendant dynasts is expected to be high due to inherited political or campaigning capital, they are ready to give up some of this probability for additional leisure (or reduced effort). Consequently, descendant dynasts may underperform compared to non-dynasts. The descendant effect dominates the founder effect thereby resulting in an overall negative effect of dynasties. This suggests that when the subsequent generations of politicians enter into politics, their performance deteriorates to the point that residents of their constituencies become poorer and are left with fewer public goods (George and Ponattu, 2019; Malik, et al. 2021).

The second framework finds its roots in the political theory of economic backwardness advocated by Acemoglu and Robinson (2006b). It suggests the political elites confront a trade-off between potential economic gains and political power. *Ceteris Paribus*, they do want reforms-led prosperity that might translate into increased future rents for them. Nonetheless, the *ceteris paribus* assumption does not hold in reality.

Hence, these reforms could induce changes that can potentially weaken their political advantages over other groups. For instance, educational reforms and technological progress create political awareness resulting in political competition and thereby reducing their hold on their respective constituencies. They could therefore decide to "block beneficial economic and institutional change when they are afraid that these changes will destabilise the existing system and make it more likely that they will lose political power and future rents" (pp. 115-6).

This theory suggests a non-monotonic relationship between political competition and resistance to development. The political elite facing extensive competition, or none (due to their complete dominance) will improve economic development through reforms and the adoption of new technologies. Those in between these two extremes, however, will adopt the opposite attitude. This has a straightforward explanation. In case of extreme competition, if the political elites do not innovate and improve, the dissatisfied voters, with many options available due to competition, would simply replace them. On the other hand, elites with complete dominance and lack of political competition will have no threat of losing political power in case of economic and technological development. This absence of a trade-off between economic gains and power encourages them to invest more effort in local economic development. In contrast to these two cases, politicians who do have some control and power in their constituencies but also fear potential competition in the future would be lured into blocking innovation and reforms to prevent any political competition and being replaced eventually. This would, however, ultimately translate into the underperformance of the dynast politicians. Since this latter case is more prevalent in the contemporary world, one could expect the underperformance of the dynast politicians for reasons other than the moral hazard problem as discussed in George and Ponattu (2019). Overall, these two frameworks provide theoretical bases for the ambiguous relationship between dynastic politics and local economic development. We, therefore, turn to empirics to explore the nature of this relationship.

3. DATA AND VARIABLES

In this section, we discuss important variables and their sources to be used in the empirical analysis. We utilise different sources on political and economic development variables at the national constituency level across Pakistan.

3.1. Political Dynasties

Our main variable of interest is political dynasties. The identification of political dynasties is one of the important and challenging parts of this study. The variation in the political dynasty variable depends on the definition a researcher utilises. In the last decade, a strand of literature on the persistence of political dynasties has evolved which describes various features of political dynasties including the way it is defined (Dal Bo, et al. 2009; Rossi, 2009; Querubin, 2011). Based on this extensive literature, we define a politician as a dynast if at least *one member* from his family[4] has been elected as a

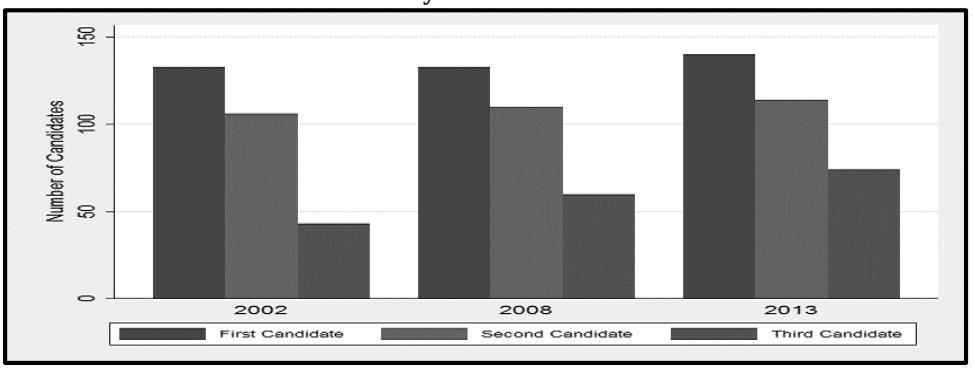
[4] Family means grandfather, grandmother, father, mother, uncle, brother, sister, father-in-law, andmother-in-law.

legislator in the Lower House (i.e., national assembly) of Pakistan.[5] This definition is also used by Ali (2016) and Cheema, et al. (2013) in their studies for Pakistan.

Once defined, the subsequent task is to identify the dynasts' members of parliament. In most countries, there is a systematic pattern in the names of members of a family. *Surname* is often the family name. In such cases, it is easy to identify the dynasties by matching *family names*. Ali (2016) argues that such a technique is not relevant in the case of Pakistan where surnames are not family-specific, but clan-specific.[6] Therefore, instead of matching *surnames*, we exploit different sources to identify the familial links of the candidates. Firstly, significant information has been extracted from Anjum (1990) and Cheema and Naseer (2013). The remaining data is obtained from the archives of the digital newspaper. Some of the data has also been collected from the websites of the national assembly. Furthermore, we also contacted some reporters for the local newspapers to confirm our identified dynasties for each constituency.

We collect information on winner and runner-up candidates (both dynasts and non-dynasts) in the national assembly for the three elections, i.e., 2002, 2008, and 2013.[7] Figure 1 reveals that about 50 percent of winners and 41 percent runner-up electoral candidates in the national assembly in the past three elections (2002, 2008, and 2013) belong to dynastic families. Similarly, on average, 20 percent of the contesting candidates in each constituency in these three elections were members of the dynastic families. These numbers depict the entrenched role of dynastic politics in the electoral process of Pakistan.

Fig. 1. Number of Dynastic Candidates in Top Three Contestants of National Assembly



3.2. Local Economic Development and the Use of Nighttime Luminosity

The local economic development is the dependent variable of the study which can be proxied through various economic variables. Unfortunately, in Pakistan, like many

[5]Members of the Upper House are elected indirectly through provincial assemblies. So, they do not exercise their power and influence directly.

[6]For example, "Bhugti", "Mazari", "Aurakzai" and so forth.

[7]For methodological reasons including change in the constituencies' boundaries and availability of nightlight data, which hinder the estimation of long-run effects, the election of 2018 has not been considered in this study.

other developing countries, information on socio-economic indicators for all the national assembly constituencies is not available. This becomes an impediment to measuring economic growth or development at the constituency level. To overcome this limitation, many scholars sorted out the possibilities of using satellite-based remote sensing, including nighttime illumination imagery at national and subnational level as a proxy for measuring economic activities (Ebener, et al. 2005; Sutton, et al. 2007; Xi & Nordhaus, 2010; Henderson, *et al.* 2012; Donaldson & Storeygard, 2016; Bruederle & Hodler, 2018). However, an important question is how valid is the use of nightlight luminosity as a proxy for economic growth. The answer lies in the literature on electricity consumption, nightlights, and economic growth. Several empirical studies have concluded a high correlation between electricity consumption and different indicators of economic development (income, growth, poverty, agriculture, industrial production, etc.).[8]

The availability of total nighttime light depends on both public and private sector investment in the provision of electricity. However, in a country like Pakistan where government footprints in the provision of electricity are significantly high, the correlation between nighttime illumination and public sector investment in electrification seems to be one of the highest in the world.[9] Similarly, the emerging literature on the use of nighttime lumens shows a high correlation between state investment in electrification/ electricity provision and lights visible from space at night (Elvidge, et al. 1997; Min, 2008). Furthermore, some studies have used the level of electrification as a proxy to measure the extent of politically driven provisioning of public goods (Agnew, et al. 2008, Carlson, et al. 2008, Min, 2008, Min, 2010, Paik and Shapiro, 2013, Tantri and Thota, 2017, George and Ponattu, 2019). The validity of using the luminosity data for economic development, therefore, depends heavily on the politics of local government in providing public goods.[10] Recently, Hasan, et al. (2021) measured district-wise GDP in the province of Khyber Pakhtunkhwa while using harmonised nightlight data.[11] The study finds that nighttime luminosity is useful information to measure non-form economic activity. Given this evidence, we argue that nighttime illumination is a strong predictor of local economic development and can therefore be used as a proxy to measure economic activities and the provision of public goods.

The raster images of stable nighttime illumination were made available by the National Centers for Environmental Information (NOAA).[12] In this study, we only use lights from human settlements in cloud-free composites images produced using all the available archived satellite images of Defense Meteorological Satellite Programs Operational Linescan System (DMSP-OLS) during a calendar year. These composites are scaled onto a geo-referenced 30 arc-second grid (approximately 1 km^2) where each grid cell takes on a 6-bit scale digital number (DN), from 0 to 63. For each year, a grid cell with a value of zero can be interpreted as an area with zero nighttime light. On the other

[8] Few of these studes are (Ferguson, et al. 2000; Ghosh, 2002, Yoo, 2005).

[9] Two publicaly owned companies, Water and Development Authority (WAPDA) and Distribution Companies (DISCOS) except Karachi Electric have control over the generation, transmission, and distrubiton of electricity in Pakistan.

[10] The local government in Pakistan is either missing in the democratic system or depends on constituency level politicians for resource allocation.

[11] https://seed-pk.com/wp-content/uploads/2021/08/NTL-PolicyBrief-Aug-1.pdf

[12] The data is accessed through https://www.ngdc.noaa.gov/eog/night_sat/nightsat.html

hand, the value of 63 is the saturation value and indicates the brightest area for each year. For each region, we calculate the average DN and use this DN mean and its growth as our key dependent variable."

Table 1

Summary Statistics of Nightlight Information for National Constituencies

Variable	Obs	Mean	Std. Dev.	Min	Max
			Overall		
Nightlights (Mean)	816	15.63575	19.46644	0	63
Nightlights (Median)	816	14.34191	20.37084	0	63
		2002			
Nightlights (Mean)	272	15.4361	19.22151	0	63
Nightlights (Median)	272	14.02574	20.223	0	63
		2008			
Nightlights (Mean)	272	15.16347	19.6974	0.003	63
Nightlights (Median)	272	14.03676	20.57814	0	63
		2013			
Nightlights (Mean)	272	16.30769	19.5308	0.003	63
Nightlights (Median)	272	14.96324	20.3707	0	63

The luminosity data is then merged with the national constituencies. Table 1 provides descriptive statistics of the night luminosity from human settlements. It shows the average change in the night lights across constituencies since 2002. Similarly, Figures 2, 3, and 4 present the spatial distribution of raster images of nightlight in Pakistan for the years 2002, 2008, and 2013, respectively. The intensity of light is significantly high in the eastern part compared to the rest of the country. Furthermore, these nightlight figures are also extracted for national constituencies for the respective years.

Fig. 2. Spatial Concentration of Nightlight in 2002

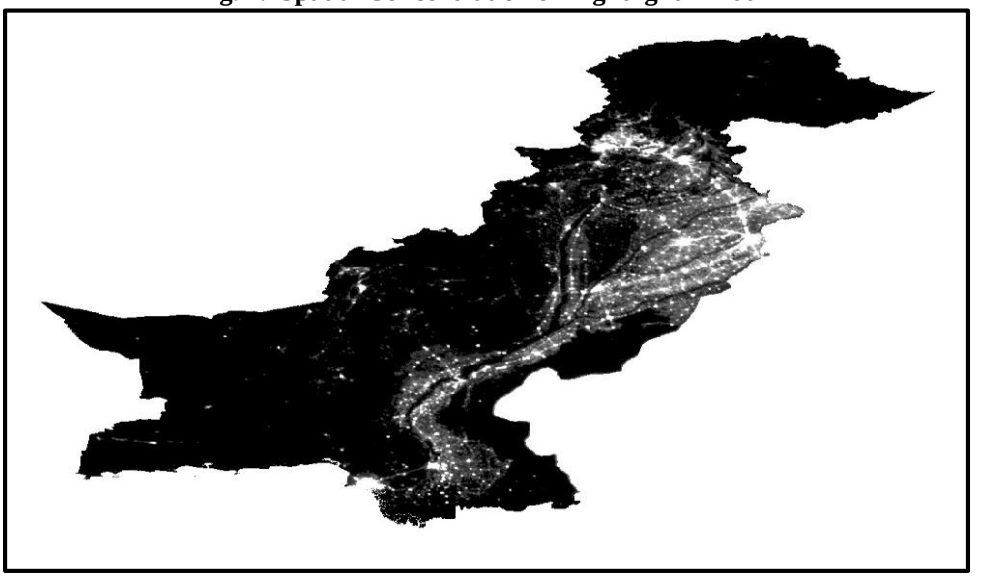


Fig. 3. Spatial Concentration of Nightlight in 2008

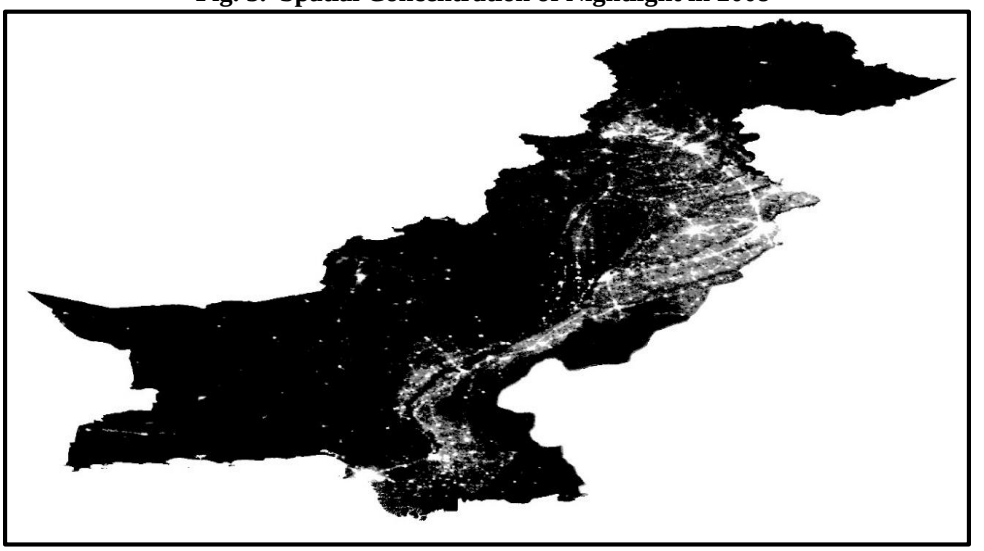
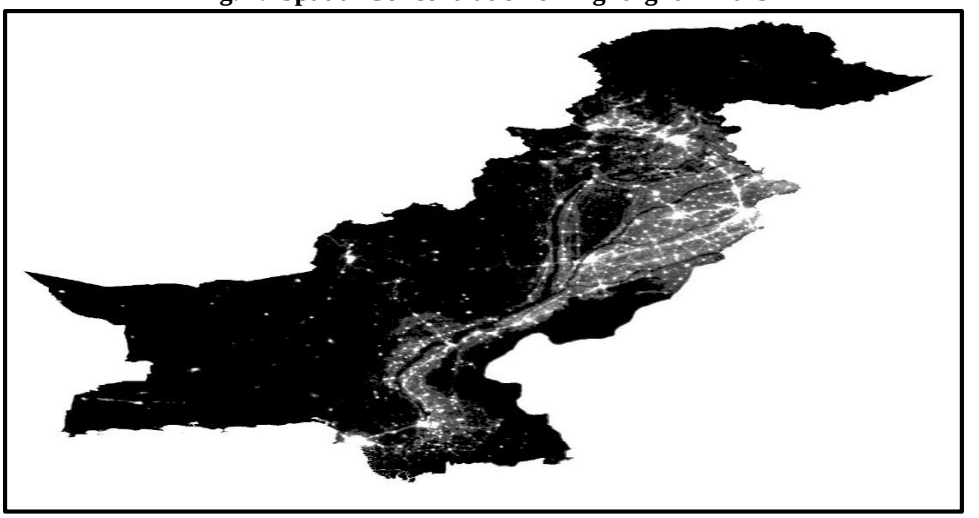


Fig. 4. Spatial Concentration of Nightlight in 2013



3.3. Control Variables

To minimise the likelihood of the omitted variables bias (OVB) in the empirical analysis, we also collected data on socio-economic characteristics at the district level for 2002, 2008, and 2013 periods. These include data on constituency level variables like the number of candidates who contested in the election, voter turnout, voter share of the incumbent candidate, ruling party legislature, winning margin between the winner and runner-up candidates, and the number of independent candidates. Finally, to further minimise OVB which may arise due to time-invariant unobserved heterogeneities, the regressions include district and constituency fixed effects and election (year) fixed effects to check for time-invariant or slow-changing unobservables. Table 2 provides summary

statistics on both dependent and control variables which will be utilised in a regression discontinuity (RD) design framework. Interestingly, some constituencies have experienced negative nightlight growth while others have as much as high as 67 percent in the electoral cycles of 2002-2008 and 2008-2013.

Table 1

Summary Statistics of Dependent and Control Variables

Variables	Mean	S.D.	Min	Max
RD Variables				
Mean of Nighlight Luminisity	15.64	19.47	0	63
Growth in Nightlight	0.337	2.999	-1	67
Dynast Margin of Victory	0.031	0.213	-0.64	0.62
Dynast Winner	0.553	0.486	0	1
Control Variables				
Number of Candidates	10.812	6.653	2	57
Turnout	45.92	12.34	15.23	84.77
Vote Share of the Incumbent	0.146	0.174	0.02	0.924
Ruling Party Legislator	0.688	0.464	0	1
PPP Legislator	0.238	0.426	0	1
PML(N) Legislator	0.265	0.442	0	1
PTI Legislator	0.0332	0.179	0	1

3.4. Pakistan Rural Household Panel Survey (PRHPS)

One way to test the validity of the use of nighttime luminosity as a measure of local economic development is to compare the results from nightlight with other data on socio-economic indicators at the constituency level. The Pakistan Rural Household Panel Survey (PRHPS) does provide such information.[13] The three rounds of the PRHPS have geocoded information on socioeconomic and infrastructure indicators at the village and constituency levels. The information on rural development is generated from Round 1 and 1.5 (PRHPS, 2012) while political controls are constructed from Round 2 (PRHPS, 2013). The various dimensions covered in this data include information on access to electricity, gas, piped sewage, piped water, carpeted and non-carpeted roads, distance to school and hospital, political knowledge, trust in institutions, politicians, law and order situation, to mention a few.

This survey, however, is only representative at the rural level. It is based on approximately 2,090 households from 176 *mouzas (villages).* Four mouzas (villages) are randomly selected from each of 19 rural districts in the provinces of Punjab, Sindh, and Khyber Pakhtunkhwa.[14] Similarly, it covers 46 of 342 (15 percent) of the National Assembly constituencies of Pakistan. We will match this data with the novel data on constituency-level political dynasties to identify potential mechanisms through which political dynasties could

[13] This data can be accessed at https://www.ifpri.org/publication/pakistan-rural-household-panel-survey-prhps-2014-round-3

[14] The data are fully representative of Rural Punjab and Sindh. However, some of the districts of KPK are not included in the sample due to the difficult law and order situation. Baluchistan and FATA are also excluded from the sample due to security concerns.

impact local economic development. Despite its limited coverage, it may provide suggestive evidence of these mechanisms. Table 3 reports summary statistics of some of the socio-economic and political variables from the PRHPS.

Table 2

Descriptive Statistics of Household & Village Socio-economic and Political Variables

Variables	Mean	S.D.	Min	Max
HH Public Services				
HH Infrastructure Index	0.434	0.264	0	1
Electricity	0.852	0.355	0	1
Flush Latrin	0.393	0.488	0	1
Pipe Drainage	0.429	0.495	0	1
Pipe Water	0.0606	0.239	0	1
Consumption (Rs.)	34588.65	41688.17	5410	117920
Land Wealth (Rs.)	224210.3	972842	0	4.62E+06
Non-Land Wealth (Rs.)	177462.9	350763.7	3000	5555200
HH Political and Trust Variables				
Cast Vote in 2008	0.844	0.363	0	1
Political Knowledge	0.413	0.440	0	1
Deomcoratic Preferences	2.910	0.843	1	5
Trust in Institutions	2.316	0.558	1	4
Village Public Services				
Village Infrastructure Index	0.446	0.293	0	1
Electricity	0.570	0.495	0	1
Sui Ga	0.0993	0.299	0	1
Telephone	0.247	0.431	0	1
Paved Road	0.371	0.483	0	1

Note: Household infrastructure index is the average value of household access to electricity, tap water, pipe drainage, and flush latrine, while, the village infrastructure index is the average value of village access to electricity, sui gas, telephone, and paved roads. Similarly, political knowledge is the average value of questions like know/name PM/CM, democratic preference is the average value of support for the democratic system, protection of civil and political rights, and trust in institutions is the average value of trust on police, judges, and local politicians.

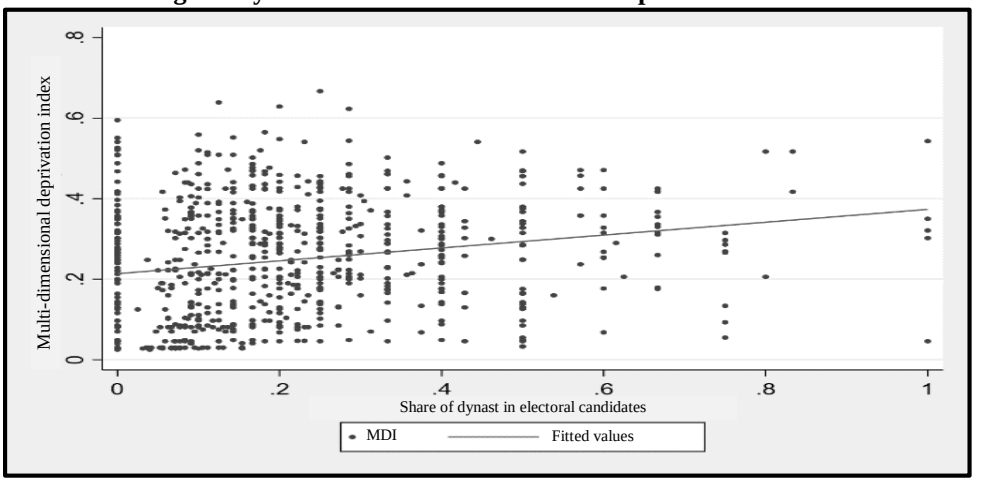
4. DYNASTIES, COMPETITION, AND DEVELOPMENT: SOME STYLISED FACTS

Before we move to formal empirical analysis, it is important to see some stylised facts about the connection between dynasties, political competition, and local economic development. This exploration is in line with the conceptional framework discussed in section, 2 and will set the base for the empirical result discussed in the next section.

We begin by looking at the relationship between the share of dynastic politicians in elections in a constituency and the multidimensional deprivation index (MDI) of the district where the respective constituency lies. Figure 5 shows that this relationship is positive. This suggests that constituencies with a higher share of dynast candidates are worse off compared to those will a lower share of these candidates. This provides the first

suggestive evidence that constituencies dominated by dynasts suffer from a lack of public good provisioning, indicating the fact the dynast underperforms in improving the welfare of their constituents.

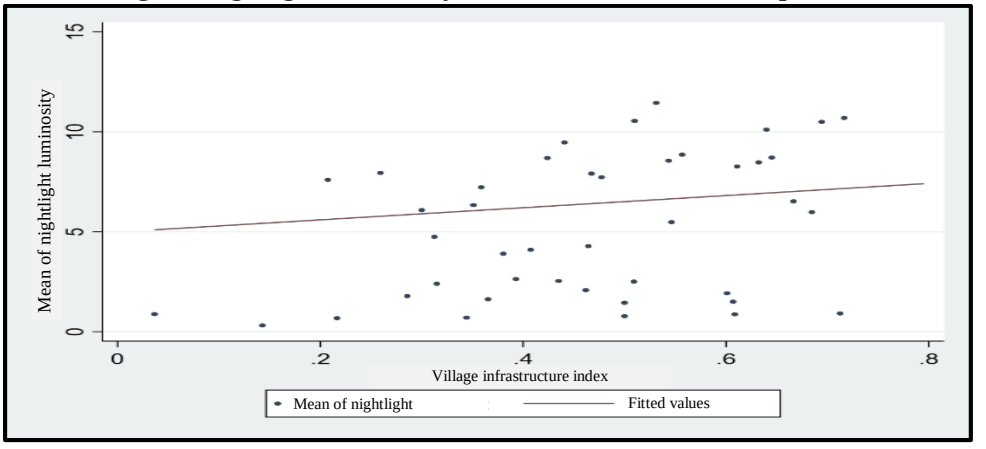
Fig. 5. Dynasties and Multidimensional Deprivation Index



Source: Authors' calculations.

But does domination of dynast candidates also impede local economic development? We discussed in the previous section that, due to the lack of data on economic growth at the constituency level, the nightlight luminosity is used as the proxy. It is, therefore, important to empirically verify how good of a proxy this is. Figure 6 shows the relationship between the village infrastructure index and the mean of nightlight luminosity. The infrastructure index is developed from the PRHPS. There is a positive relationship between the two suggesting that improved infrastructure is associated with a higher value of nightlights and vice versa. In other words, infrastructure development - an indicator for local economic development—can be evidenced by nightlight data.

Fig. 6. Nightlight Luminosity and Local Economic Development

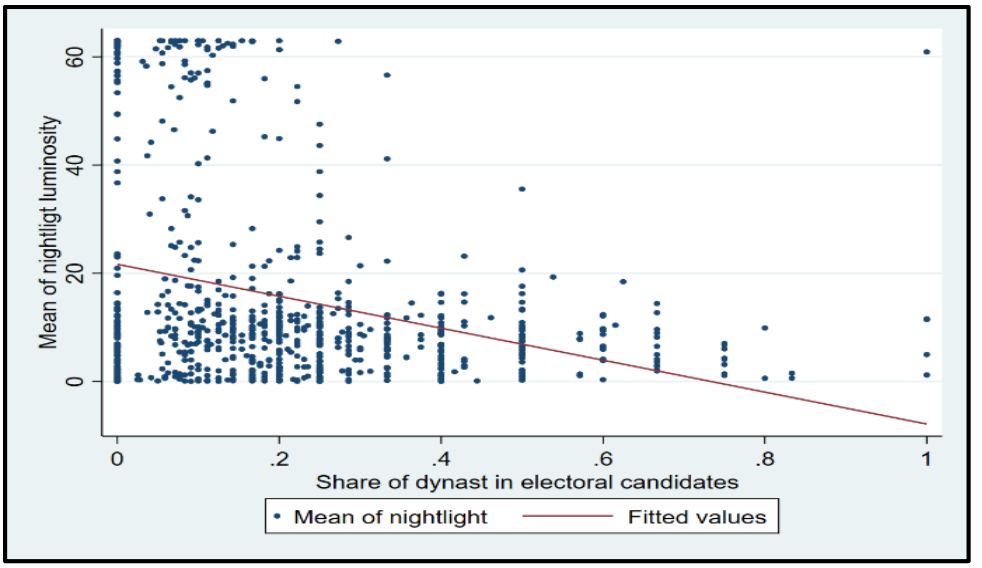


Source: Authors' calculations.

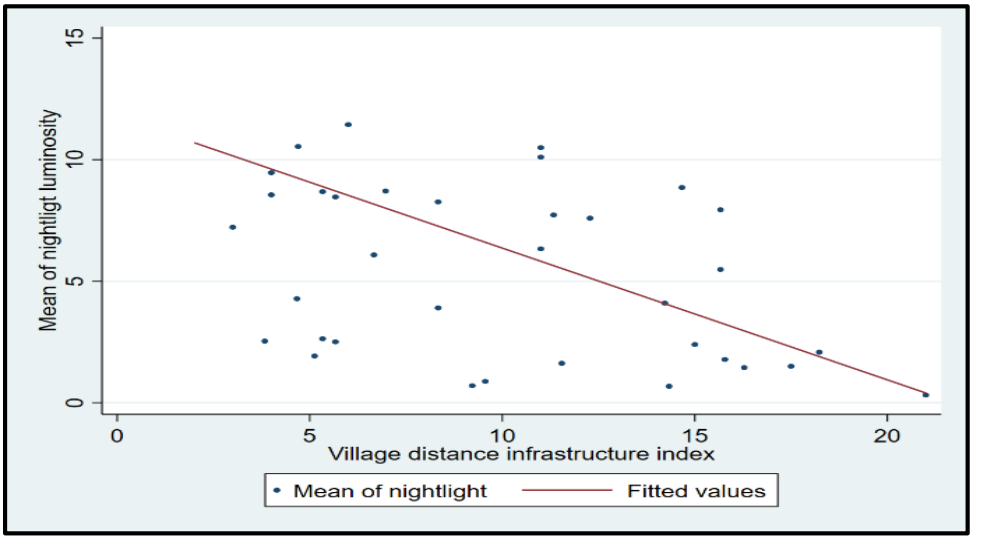
Next, we examine the relationship between local economic development and the share of dynasts in electoral candidates. A lower share of dynast candidates is associated with greater local economic development (Figure 7: Panel A). This invigorates the evidence in Figure 4 that constituencies ruled by dynasts have deteriorated public good provisioning which results in their lower economic development. This is further supported by Panel B (Figure 7) which shows that distance from institutions of public good provisioning such as schools, healthcare centers, etc., reduces the local economic development.

Fig. 7. Dynasties and Local Economic Development

Panel A

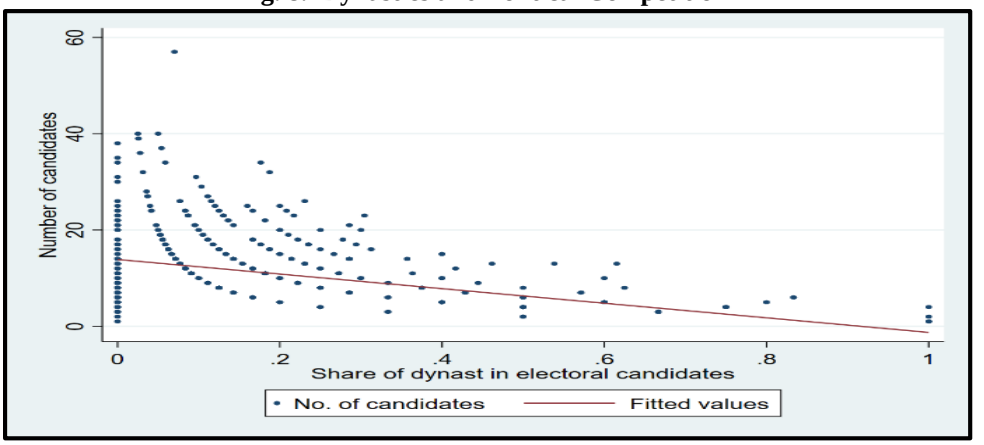


Panel A



The stylised facts shown above provide suggestive evidence that constituencies that are dominated by dynastic politicians are worse off in terms of economic development and the provision of public goods. The question, however, arises as that how that increased share of economic dynast candidates hinder economic development. The answer to this question lies in the political theory of economic backwardness advocated by Acemoglu and Robinson (2006b). As discussed in section 2, politicians who do have some control and power in their constituencies but also fear potential competition in the future would be lured into blocking innovation and reforms to prevent any political competition and being replaced eventually. The increase in the share of dynasts in electoral candidates reduces political competition. Non-dynast candidates believe that they would be able to defeat the dynast candidates due to the latter's political capital. The election campaign at the constituency level has also been made very costly despite assigning of maximum limit on the cost for these campaigns by the Election Commission of Pakistan (ECP). Figure 8 confirms the notion that an increased share of dynasts in candidacy for the office kills the political competition. In absence of any meaningful competition, the decedent dynasts have a lower incentive to deliver.

Fig. 8. Dynasties and Political Competition



5. IDENTIFICATION STRATEGY

A straightforward comparison between dynasts and non-dynast politicians is unlikely to be meaningful given that dynasts differ from non-dynasts significantly in terms of observable and unobservable characteristics (Querubin, 2011). Thus, a simple descriptive analysis or an Ordinary Least Squares (OLS) regression may not provide the causal effect of political dynasties on local development. These statistical techniques are constrained by reverse causality, a possibility where political dynasties might have emerged historically in less developed constituencies.

To overcome these challenges, previous work on political dynasties (Dal Bo, *et al.* 2009; Querubin, 2011; George & Ponattu, 2019) relies on close elections to isolate the effects of observable and non-observable candidate-specific characteristics on outcome variables. They examine close races where a dynast defeats a non-dynast with a small margin and vice versa. Such an empirical framework is appropriate in the context of the

above studies as the focus there is on the persistence of political dynasties. In other words, the above studies examine if close election winners are more likely to have their coming generations in political offices when compared to close election runner-ups.

Such a strategy of comparing winners and losers is not appropriate for the research question under study. Since we are interested to examine the economic performance of the political dynasty, candidates who lose elections are not likely to hold any political office and, therefore, it is not possible to measure their performance. Hence, an ideal strategy, in this case, is to compare one set of close election winners with another set of such winners. Accordingly, we compare the performance of dynastic members of national assembly (MNAs) who defeat non-dynastic candidates by a close margin with that of non-dynastic MNAs who defeat dynastic candidates by a similar close margin while using a Regression Discontinuity Design (RDD) (Galasso and Nannicini, 2011; Malik, et al. 2021). As winning an election by a close margin is likely to be random, the use of close elections as an identification strategy minimises the effects of observable and non-observable politicians' characteristics on the probability of winning an election. That is, the winners and runner-ups are almost similar in other characteristics and the win/loss is random in the sense that the results could have gone either way.

The RD set-up is created by multiplying the winning margin of non-dynasts by (–1) and leaving the winning margin of dynasts unaltered. This results in a continuous series of winning margins with non-dynasts being represented by negative numbers and dynasts by positive numbers. This modified margin is then used as the running variable with zero being the cutoff. In effect, this RD design compares outcome (local economic development) between dynast MNAs who defeated non-dynast runner-ups with a narrow margin of close to zero and non-dynast MNAs who defeated dynasts candidates with a similar margin.

Our empirical RD specification is given as follows:

$$Y_{ct} = \beta_0 + \beta_1 Dynast_{ct} + \beta_2 Victory\ Margin_{ct} + \beta_3 (Dynast * Victory\ Margin)_{ct} + \gamma X_{ct} + \theta_d + \varepsilon_{ct} \quad \ldots \quad (1)$$

Where Y_{ct} represents the local economic development at the constituency level c at time t (2002-2013); $Dynast_{ct}$ takes the value 1 if the elected MNA is from a dynasty and zero otherwise during the period 2002 to 2013; $Victory\ Margin_{ct}$ shows the margin of victory of a dynast over non-dynast and vice versa; X_{ct} represent a constituency and candidate-specific characteristics that are included as control variables in Equation (1); and θ_d controls district fixed effects.

In Equation (1), β_1 is the coefficient of interest, which measures the mean difference in the outcome variable (economic development), Y_{ct}, between constituencies where a dynast narrowly wins an election and constituencies where a dynast narrowly loses to a non-dynast candidate. Specifically, β_1 measures the average difference in the mean and growth of nightlight luminosity (economic development) between the two types of constituencies.

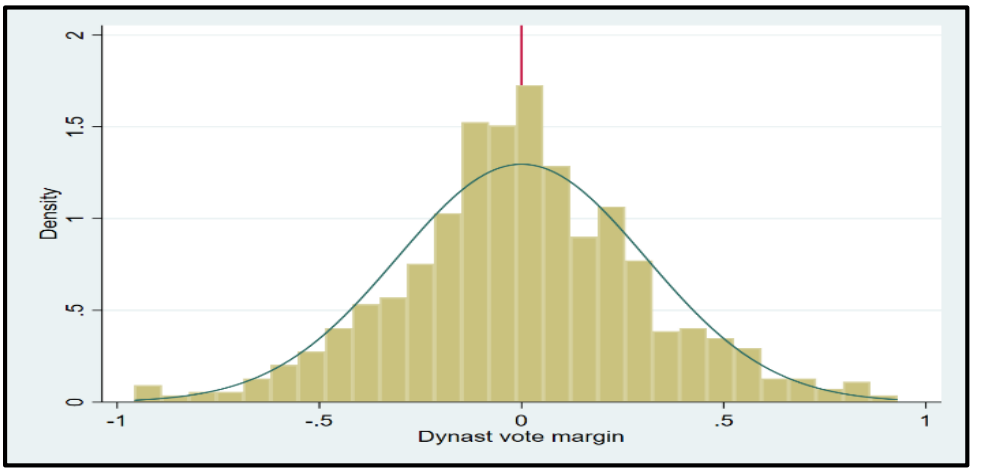
One of the concerns with the validity of the RD design is the manipulation of the treatment variable at the cut-off. In our case, there may be a possibility that the electoral system is being manipulated by dynastic politicians in ways that increases their probability of winning. If this was the case, we should observe a discontinuity in the density of the running variable (dynast victory margin) at the cut-off. Visual inspection of Figure 9 reveals no discontinuity/manipulation of the forcing variable at the cut-off zero.

Panel A (Figure 9) depicts the simple distribution of the dynast vote margin at the cut-off while Panel B (Figure 9) provides a 95 percent confidence interval around the distribution of dynast vote margin.[15]

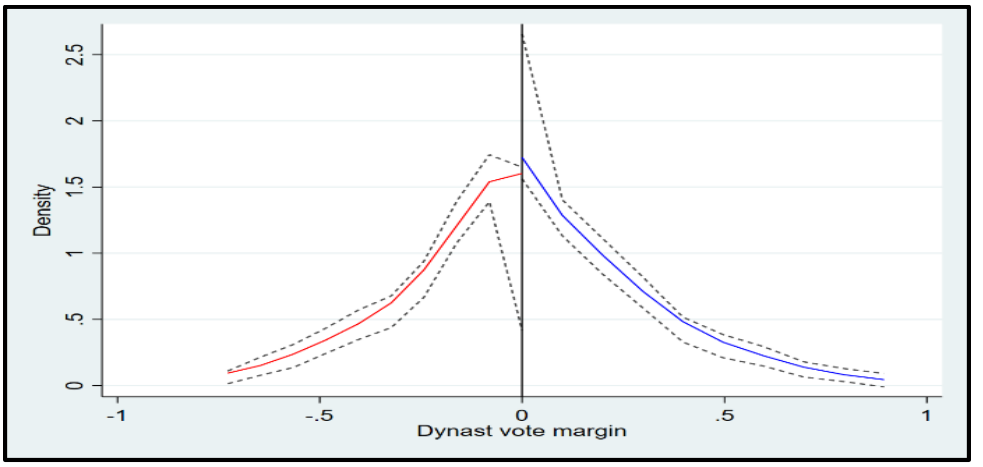
The other concern with the validity of the RD is the discontinuity of control variables at the cut-off line. If constituency and candidate-specific characteristics change discontinuously at the cut-off line, the RD design may not give valid estimates. In this context, Table 4 shows the difference in means in covariates between dynast and non-dynast ruling constituencies between 2002-2013. It reveals that except for the nightlight mean, there is no statistically significant difference among other covariates.

Fig. 9. Density of the Daynst Politician Vote Margin (i.e., Forcing Variable)

Panel A



Panel B



[15] To detect discontinuity in the running variable (dynast vote margin) around threshold value of zero, we also perform Cattaneo, et al. (2018) test. Its t-value (0.43) and p-value (0.67) do not reject constinuity at the cut-off, i.e, no systematic electoral manipulation by dynsts are observed which affects their chances of winning.

Table 4

Difference in Control and Covariates between Dynast and Non-Dynast Constituencies

Variables	Dynast	Non-Dynast	Dynast-Non-Dynast
Mean of Night Lights	12.26	19.07	–6.803***
			[1.345]
Turnout	45.94	47.72	–1.773
			[1.491]
Ruling Party Legislator	0.71	0.61	0.100*
			[0.056]
Vote Share of Incumbent Candidate	0.16	0.15	0.015
			[0.022]
Vote Share of Idependent Candidates	0.08	0.11	–0.029
			[0.020]

Note: This table provides descriptive statistics on some of the constituency and candidate specific characteristic which may affect the outcome variable. ***p < 0.01; **p < 0.05; *p < 0.1

6. RESULTS AND DISCUSSION

Using Equation (1), we estimate the impact of dynastic politicians, who narrowly won elections from non-dynast politicians, on local economic development. We start by presenting the results of our main indicator of local development, i.e., constituency level mean and growth in nightlight luminosity between 2002 and 2013. Furthermore, we also estimate the effect of a dynastic politician winner on household and village level indicators of development including provision of public services (electricity, education, health, road, etc.), private consumption and assets holding, and trust in institutions.

6.1. Graphical Evidence of Discontinuities

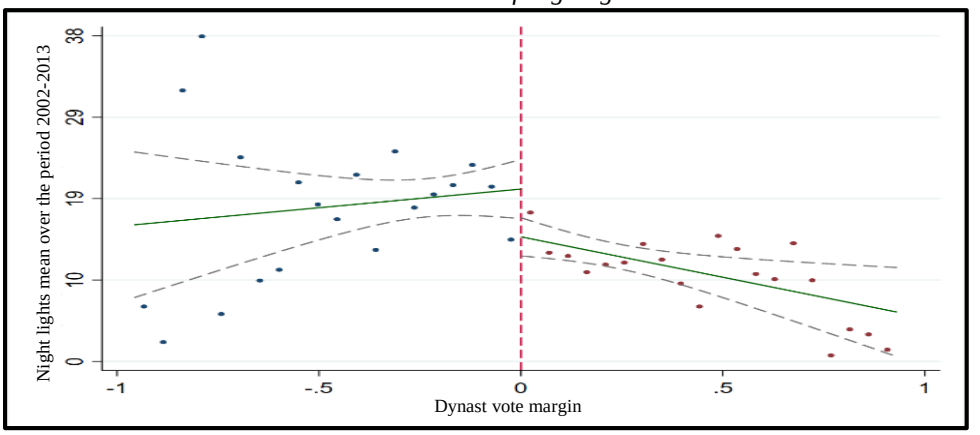
Figures 10 & 11 provide visual evidence of discontinuity in nightlight luminosity based on equation (1) at both national and provincial levels, respectively. The left side of the graphs depicts discontinuity in the *mean* of nightlight luminosity in a five-year election cycle, i.e., 2002, 2008, and 2013. Similarly, the right-side of the graphs visualise discontinuity in the growth of nightlight in an election cycle, 2002-2008 and 2008-2013. Furthermore, within a graph, points on the right of the cut-off, i.e., 0 line, represent the margin of victory of dynastic candidate over the non-dynast runner-up, and on the left of cut-off, a dynast narrowly lost to non-dynast.

Figure 10 provides a clear discontinuity in both mean (Panel A) and growth (Panel B) in nightlight luminosity on locations on either side of the cut-off line. Specifically, locations on the right of the cut-off have lower mean and growth in nightlight relative to locations on the left of the cut-off. Similarly, Figure 11 visualises discontinuities in the mean and growth of nightlight at the provincial level. An interesting discontinuity is that of the province of Khyber Pakhtunkhwa (Panel C: Figure 11) where a dynastic rule has a positive effect on nightlight mean and growth over time.[16]

[16] Khyber Pakhtunkhwa is the only province where incumbent political parity has never won an election except in 2018. This behavior of voters might have created incentives for the dynast politicians to perform on local development indicators.

Fig. 10. Nightlight Luminosity and Dynast Vote Margin at the National Level

Panel A: Mean of Nightlight



Panel B: Growth of Nightlight

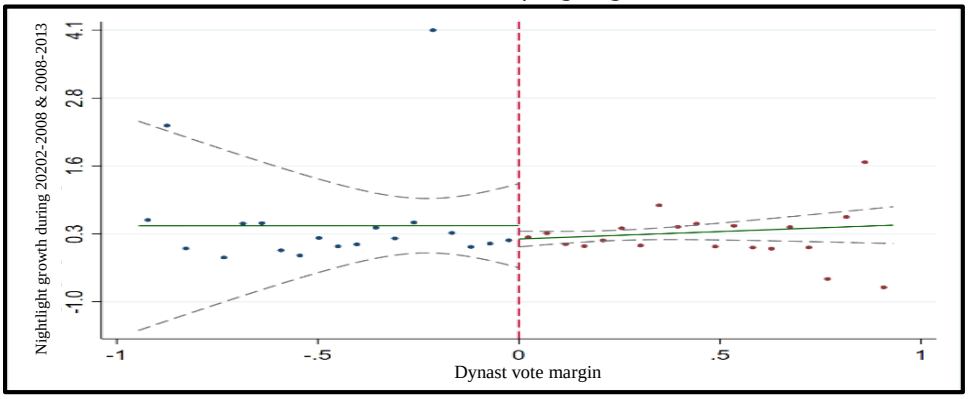
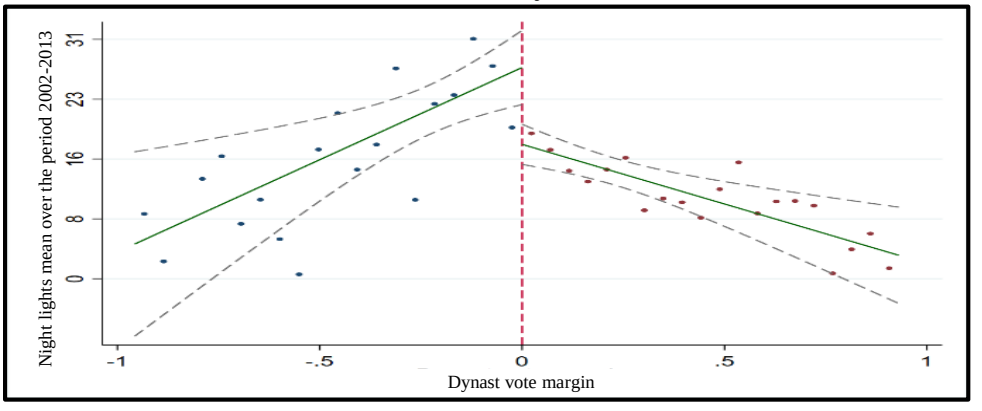
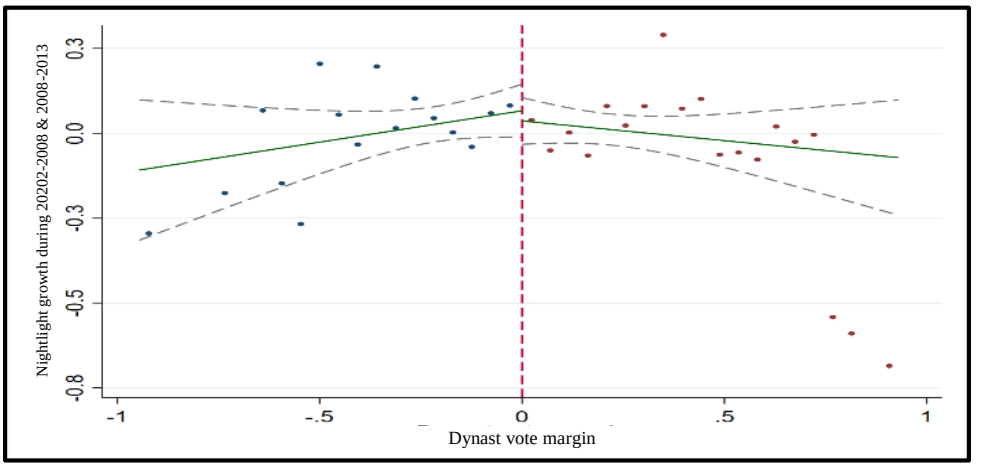


Fig. 11. Nightlight Luminosity and Dynast Vote Margin at the Provincial Level

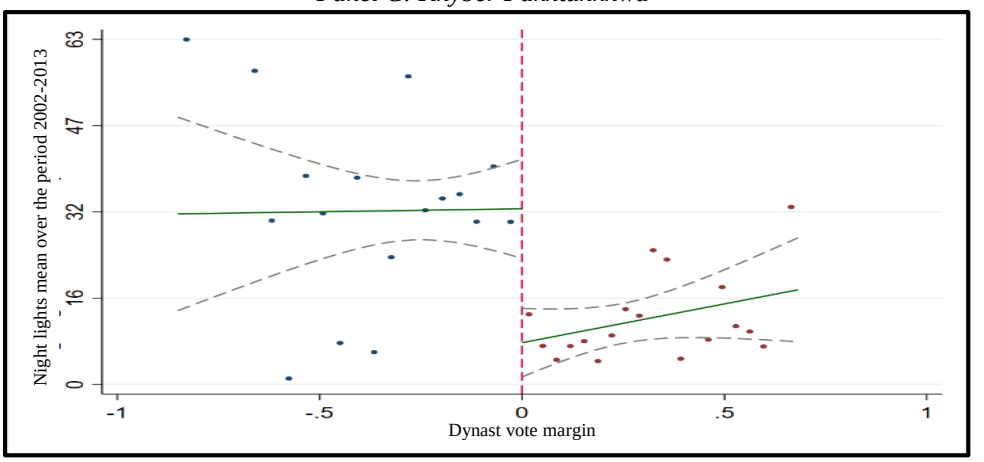
Panel A: Punjab

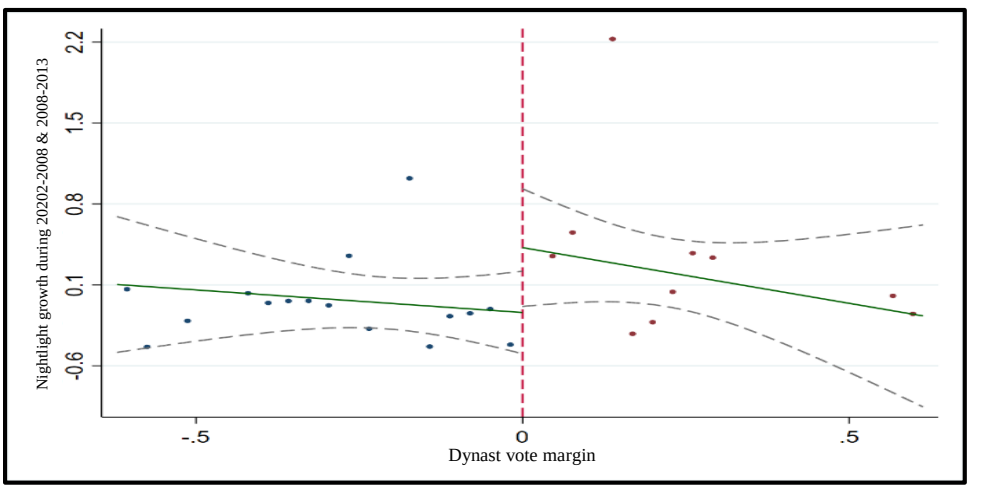


Panel B: Sindh

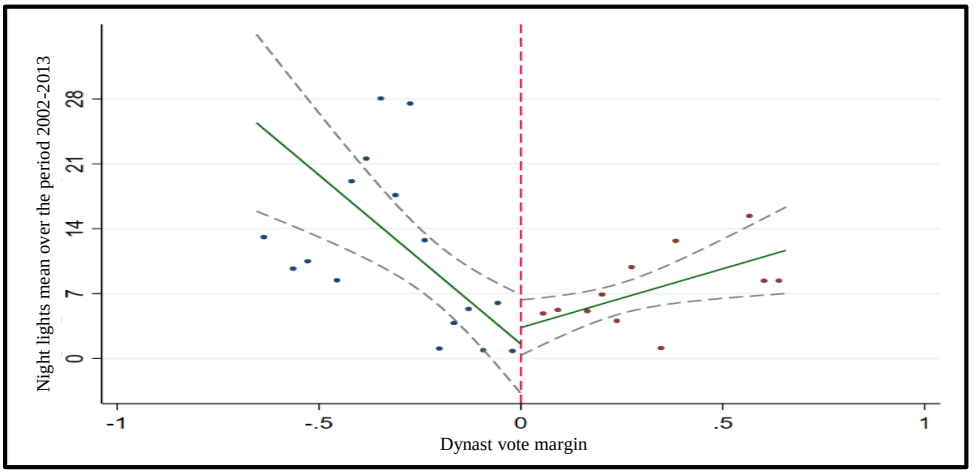


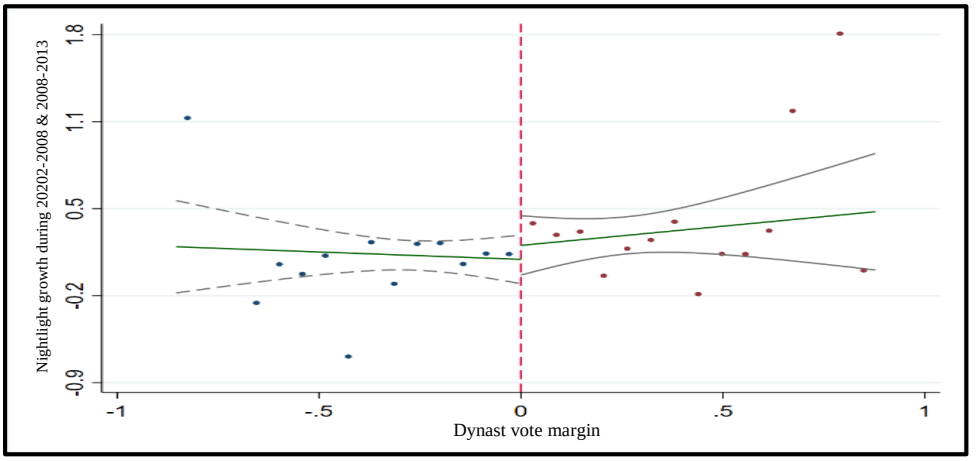
Panel C: Khyber Pakhtunkhwa

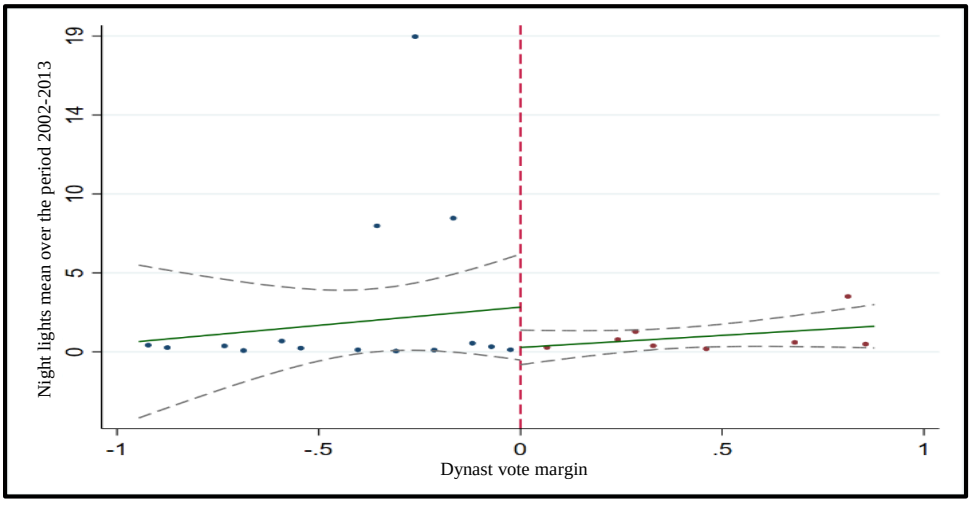


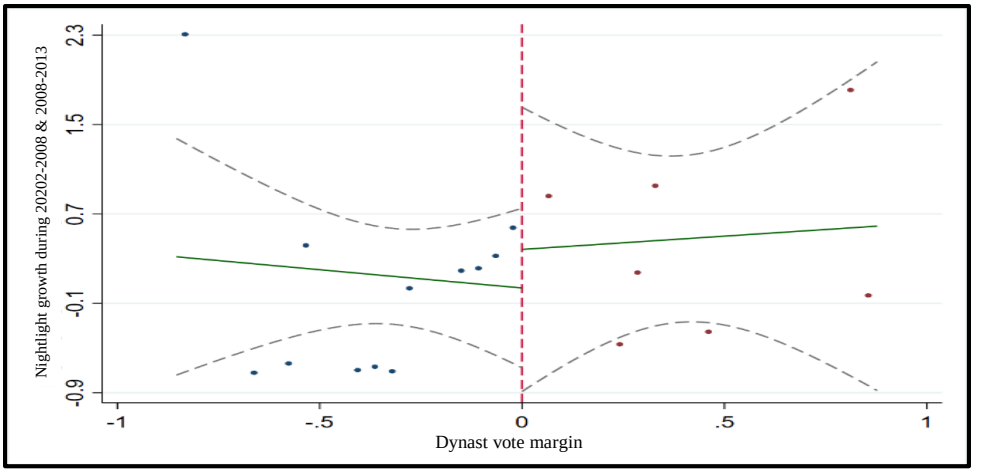


Panel D: Balochistan









6.2. Regression Discontinuity Estimates

Table 5 presents results from the constituency-level RD. All the regression specifications include district and time-fixed effects. The district fixed effects control for unobserved district-level factors that affect local economic development. Similarly, time-fixed effects control for time shocks that affect development in all constituencies over time. The regression specifications also include constituency-level and candidate-specific characteristics like turnout, ruling party legislator, voter share of the incumbent candidate, the number of independent candidates, age of the candidate, and a number of terms a candidate won an election. Furthermore, we also perform regression analyses for different RD bandwidths to minimise the effect of politicians' specific characteristics on the outcome variable.

Column 1 provides the effect of a dynastic legislator on nightlight growth for the whole sample. It shows that a constituency where a dynastic politician won an election has 0.97 percentage points less electricity as compared to a constituency that is won by a non-dynast politician. To minimise the role of politician-specific characteristics on nightlight growth, columns 2-4 report estimates for those elections which are won/lost by a dynastic politician by a margin of 3 percent, 5 percent, and 7 percent, respectively. The effect size of the coefficients is almost the same in these bandwidths; however, the statistical significance decreases for a bandwidth of 3 percent.

Quantitatively, a one percentage point is approximately the difference in growth in nightlight between a constituency at the 50th percentile of the nightlight growth distribution and a constituency at the 5th percentile. It is approximately equal to a difference in nightlight growth between constituencies in the districts of Gujrat and DG Khan; Haripur and Lakimarwat; Tando Ala Yar and Tharparkar; and Quetta and Loralai.

Similarly, Table 6 provides estimates of the effect of a dynastic ruler on nightlight growth at the provincial level. Khyber Pakhtunkhwa and Baluchistan estimates are not reported because of the low number of effective observations. Table 6 reveals that a dynastic winner reduces the growth of constituency level nightlight in Punjab by 0.30 percentage points which is approximately the difference between nightlight growth of Jhang district (77th nightlight percentile distribution) and Bahawalpur (50th percentile).

Similar estimates are observed in the province of Sindh where dynastic winner decreases the growth of nightlight by 0.25 percentage points, i.e., a difference between the growth of nightlight in Larkana and Tharparker.

Table 3

Effect of Dynastic Legislator on Nighttime Luminosity Growth at National Level

	(1)	(2)	(3)	(4)
Dynastic Legislator	–0.974**	–0.956*	–0.934**	–1.041***
	(0.459)	(0.513)	(0.456)	(0.398)
RD Bandwdith	Full Sample	3%	5%	7%
Specification	Local Linear	Local Linear	Local Linear	Local Linear
Control Variables	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
Time FE	Yes	Yes	Yes	Yes
Observations	320	156	192	211

Note: The table estimates the specification in equation (1). The dependent variable Y_{ct} is growth in nightlight luminosity during the electoral cycle in which a candidate is elected (e.g., between 2002 and 2008 for a candidate elected in 2002). The control variables include turnout, ruling party legislature, the vote share of the incumbent candidate, the vote share of the independent candidates, age of the candidate, and the number of terms a candidate won an election. Standard errors are reported in parentheses which are clustered at the district level. ***p < 0.01; **p < 0.05; *p < 0.1.

Table 6

Effect of Dynastic Legislator on Nighttime Luminosity Growth at Provincial-Level

	Punjab	Sindh	KPK	Balochistan
Dynastic Legislator	–0.295**	–0.251*	–	–
	(0.148)	(0.135)	–	–
			–	–
Bandwith	Full Sample	Full Sample	–	–
Specification	Local Linear	Local Linear	–	–
Control Variables	Yes	Yes	–	–
District FE	Yes	Yes	–	–
Time FE	Yes	Yes	–	–
Observations	165	87	–	–

Note: The table estimates the specification in equation (1). The dependent variable Y_{ct} is growth in nightlight luminosity during the electoral cycle in which a candidate is elected (e.g., between 2002 and 2008 for a candidate elected in 2002). The control variables include turnout, ruling party legislature, the vote share of the incumbent candidate, the vote share of the independent candidates, age of the candidate, and the number of terms a candidate won an election. Standard errors are reported in parentheses which are clustered at the district level. ***p < 0.01; **p < 0.05; *p < 0.1.

6.3. Robustness

As discussed in the previous sections that nightlight luminosity is highly correlated with different measures of economic development. However, due to widespread load-shedding in Pakistan since 2008, nightlight intensity may not capture the actual correlation with economic activities at the constituency level. Furthermore, the intensity

of electricity shortages was significantly higher in rural constituencies than in urban. Similarly, landholding had played a significant role in the creation of dynastic families in Pakistan (Malik, et al. 2021). Restricting the analysis to rural constituencies with various indicators of local development would not only provide the actual effect of dynastic politics on economic development but also will test the validity of the nightlight as a proxy for economic and human development.

For this purpose, we utilise information on various socio-economic and political variables at household and village levels from rounds 1 and 1.5 of the Pakistan Rural Household Panel Survey (PRHPS). The survey was conducted in 2012 and 2013 in rural areas of three provinces. Therefore, we match the survey information to the rural constituencies of the 2008 election where a dynast won/lost the election. Furthermore, the survey collected rich information on different dimensions of household and village economic variables including access to electricity, gas, schools, hospitals, road, etcetera. The regression estimates based on the PRHPS survey are reported below.

In this analysis, the dynastic legislator is a dichotomous variable that takes the value 1 if the dynast had won the 2008 election and 0 otherwise. Table 7 reports the regression estimates of the effect of the dynastic winner in 2008 on household and village levels infrastructure indicators (public services) in 2012.[17] It shows that a dynastic legislature has a significantly negative effect on the household public services. Similarly, the estimates are statistically robust when we control the respective regressions for covariates and district fixed effects. Households in the constituency of a dynastic winner have access to fewer public services, i.e., 0.107, than non-dynast constituencies. This value is approximately equal to 10 percent of the infrastructure index. Similarly, villages under a dynastic ruler have 0.25 (25 percent) less public services than the non-dynast constituencies.

Table 7

Dynastic Legislator and Household/Local Infrastructure

	HH Infrastructure Index	Village Infrastructure Index
Dynastic Legislator	–0.107***	–0.253**
	(0.038)	(0.119)
Control Variables	Yes	Yes
District FE	Yes	Yes
R-squared	0.778	0.592
Observations	1,729	176

Note: The dependent variable is the infrastructure index which is calculated as the average values from access to electricity, tap water, pipe drainage, and flush latrine at the household level. Similarly, the village infrastructure index is an average value of access to village electricity, sui gas, telephone, and paved roads. Control variables include household size, marital status, education, ethnicity, employment status, wealth, distance to school, health centers, market, and city. Standard errors are reported in parentheses which are clustered at the village and tehsil levels, respectively. ***p < 0.01; **p < 0.05; *p < 0.1.

[17]Household infrastructure index is the average value of household access to electricity, tap water, pipe drainage, and flush latrine, while, the village infrastructure index is the average value of village access to electricity, sui gas, telephone, and paved roads.

Similarly, we regress individual variables in the infrastructure index, i.,e, household access to public services like electricity, flush latrine, drainage system, and piped water on having dynastic legislature in the constituency. The results are reported in Table 8 which reveals that the constituencies where a dynastic politician won the 2008 election had less access to the above public services in 2012 than a non-dynast constituency. Interestingly, the effect of the dynastic legislature is significantly high on the magnitude of the electricity provision than other public services which also validate the results based on nightlight luminosity.

Table 8

Dynastic Legislator and Household Level Public Services

	Electricity	Flush Latrin	Piped Drainage	Piped Water
Dynastic Legislator	–0.231***	–0.058	–0.106**	–0.163***
	(0.062)	(0.104)	(0.040)	(0.055)
Control Variables	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
R-squared	0.464	0.221	0.416	0.381
Observations	1,732	1,730	1,730	1,730

Note: The dependent variable is the access to electricity, tap water, pipe drainage, and flush latrine at the household level. Control variables include household size, marital status, education, ethnicity, employment status, wealth, distance to school, health centers, market, and city. Standard errors are reported in parentheses which are clustered at the village level. ***p < 0.01; **p < 0.05; *p < 0.1.

Furthermore, we also estimate the effect of a dynastic legislature on different types of individual public services at the village level. Table 9 shows that villages in the constituencies of the dynastic legislature have significantly lower public service provisions than non-dynast legislature villages. In line with the results of household public services, the effect on electricity provision is the highest than on other public services.

Table 9

Dynastic Legislator and Village Level Public Services

	Electricity	Sui Gas	Telephone	Paved Roads
Dynastic Legislator	–0.285**	0.172***	–0.109**	–0.110***
	(0.119)	(0.067)	(0.051)	(0.043)
Control Variables	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
R-squared	0.563	0.664	0.808	0.712
Observations	176	176	176	176

Notes: The dependent variable is the access of a village to electricity, sui gas, telephone, and paved roads. Control variables include village distance to school, health centers, market, and city. Standard errors are reported in parentheses which are clustered at the tehsil level. ***p < 0.01; **p < 0.05; *p < 0.1.

Next, we investigate the effect of the dynastic winner on household consumption and wealth level, which are in natural logarithmic form. Table 10 reveals that constituencies with a dynastic legislator exhibit a significantly lower value of household consumption and wealth. The household in constituencies where a dynast wins have 21 percent lower consumption than non-dynast winner constituencies.

Table 10

Dynastic Legislator and Household Consumption and Wealth

	Consumption	Land Wealth	Non-Land Wealth
Dynastic Legislator	–0.206**	–0.972***	–0.552***
	(0.087)	(0.280)	(0.166)
Control Variables	Yes	Yes	Yes
District FE	Yes	Yes	Yes
R-squared	0.298	0.317	0.291
Observations	1,731	744	1,733

Notes: The dependent variable is the log of consumption, land, and non-land wealth at the household level. Control variables include household size, marital status, education, ethnicity, employment status, distance to school, health centers, market, and city. Standard errors are reported in parentheses which are clustered at the village level. ***p < 0.01; **p < 0.05; *p < 0.1.

6.4. Potential Mechanisms

Finally, we provide some evidence on the potential channels through which a dynast may have less incentive to consider the local development of its constituency. One of the mechanisms could be low political preferences in constituencies where a political dynastic family exists. Political preferences can be proxied in the form of casting votes in an election, political awareness, and support for democratic processes. Political science literature on political dynasties reveals that due to political networking, brand name advantage, loyal voters, etc., a low electoral turnout in a constituency increases the likelihood of a dynast winning (Geys, 2006; Dar, 2019). Due to the loyal voters of the dynast, its constituency is likely to have low political knowledge and awareness. These characteristics of the voters favor a dynast as they may not vote based on economic performance and public service delivery of the dynast but purely on loyalty and political connections.

Similarly, Malik, et al. (2021) studied in Punjab that voters in the constituency of an entrenched political dynasty have lower trust in formal institutions. They have a high tendency to solve their dispute through informal institutions through local elites (dynasts). Therefore, they may have less incentive to reform formal institutions.

Table 11 presents that voters in the constituency of a dynast legislature, who had won the 2008 election, have less political knowledge, lower democratic preferences, and are less likely to cast vote in 2012. Similarly, voters in these constituencies exhibit lower trust in formal institutions. This means that the presence of a dynast in the office is associated with the deteriorated trust of constituents in the system. This happens when the voters are not satisfied and do not expect better institutional performance in public service provisioning from their officeholders.

Table 11

Dynastic Legislature and Voters Political and Social Behavior

	Voted	Political Knowledge	Democratic Preferences	Trust on Institutions
Dynastic Legislator	–0.101***	–0.098**	–0.096**	–0.107**
	(0.028)	(0.042)	(0.038)	(0.048)
Control Variables	Yes	Yes	Yes	Yes
District FE	Yes	Yes	Yes	Yes
R-squared	0.027	0.169	0.214	0.276
Observations	1,707	1,707	1,707	1,691

Notes: The dependent variable is vote casting in the 2008 election, political knowledge is the average value of questions like know/name PM/CM, democratic preferences is the average value of support for the democratic system, protection of civil and political rights, and trust on institutions is the average value of trust on police, judges, and politicians at the household level. Control variables include household size, marital status, education, ethnicity, employment status, wealth, distance to school, health centers, market, and city. Standard errors are reported in parentheses which are clustered at the village level. ***$p < 0.01$; **$p < 0.05$; *$p < 0.1$.

7. CONCLUSION AND POLICY IMPLICATIONS

This study explored the impact of dynastic persistence on local economic development and public service provisioning. The findings suggest that constituencies with non-dynasts winners perform better than the dynast winners in terms of local economic development. Moreover, constituencies with non-dynast winners have better public service provisioning. They have improved water and sanitation facilities, better infrastructure in terms of roads, and significantly higher access to services such as electricity, gas, telephone. Furthermore, non-dynast constituencies have significantly higher consumption and assets. The potential reason for the worse performance of dynasts could be associated with (i) lower political competition, and (ii) a lack of trust in democratic institutions by the voters. In the absence of political competition, the dynast has little incentive to perform. They rely on their political or campaigning capital (e.g., a prominent name or a powerful network) to win the elections and remain in power. This leads them to put less effort which results in underperformance. Moreover, lack of trust in political institutions reduces political participation which in turn discourages political competition and therefore public service provisioning.

The disaggregated analysis shows that dynasts are lagging in performance holds for all provinces except Khyber Pakhtunkhwa (KP). This is an interesting diversion but makes perfect sense. Historically speaking, the voters in KP evaluate the candidates based on their performance and not on political capital. This is evident from the fact that almost all political parties have been given the chance to rule in the province but were voted out in the next election when they did not perform. Whether or not the candidates are from dynast families did not matter to them. The candidates from dynasties know this and therefore they try to improve local economic development and public service provision to consolidate their position.

Based on the findings in this study, the following policy recommendations are suggested:

- It is important to mention that the scope of this study was to explore performance in terms of local economic development. We did not evaluate how a dynast or non-dynast politician performs in the assembly through participation in legislation and other functionings of the parliament (which is the primary role of a parliamentarian). The debate about economic performance between dynast and non-dynast politicians would be irrelevant if they are spared from this responsibility. This can be done by (i) abolishing discretionary funds allocated to members of the parliament and (ii) reducing their influence in the allocation of the Public Sector Development Programme (PSDP). This is the responsibility of the parliament to debate and implement this recommendation.
- The funds should instead be allocated to local government as local economic development is primarily the role of this tier of government.[18] This will incentivise contesting elections at the local (village/union council) level thereby increasing political participation and competition. The accountability of locally elected representatives will improve transparency which will ensure better economic development at this level. As per the constitution, the provincial governments should be responsible for implementing this suggestion.
- Until the above recommendations are implemented, the discretionary funds allocated to members of the parliament should be institutionalised by putting to audit and other accountability criteria set up by the Planning Commission of Pakistan.
- To our knowledge, this is the first scientific evidence at the national level about the comparison of economic performances of dynast and non-dynast politicians. This should generate a debate among academics, civil society, politicians, and more importantly among the voters. This study should be widely circulated among key stakeholders for debate and coming up with better suggestions to improve the system. Media can play an important role in creating awareness among voters about the office holders' performance and founder and descendant effects.

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[18] This tier is protected by the constitution in Article 32 and 140-A.

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