Pre-colonial Religious Institutions and Development: Evidence through a Military Coup*

Adeel Malik† Rinchan Ali Mirza‡

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ABSTRACT

This paper offers a novel illustration of the political economy of religion by examining the impact of religious elites on development. We compile a unique database on holy Muslim shrines across Pakistani Punjab and construct a historical panel of literacy spanning over a century (1901-2011). Using the 1977 military take-over as a universal shock that gave control over public goods to politicians, our difference-in-differences analysis shows that areas with a greater concentration of shrines experienced a substantially retarded growth in literacy after the coup. Our results suggest that the increase in average literacy rate would have been higher by 13% in the post-coup period in the absence of shrine influence. We directly address the selection concern that shrines might be situated in areas predisposed to lower literacy expansion. Finally, we argue that the coup devolved

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†University of Oxford. email: adeel.malik@qeh.ox.ac.uk

‡University of Kent. email: r.a.mirza@kent.ac.uk

control over public goods to local politicians, and shrine elites, being more averse to education since it undermines their power, suppressed its expansion in shrine-dense areas.

JEL Codes: I25, N55, O15, Z12

1 INTRODUCTION

Inspired by Max Weber's seminal contribution on the relationship between Protestantism and prosperity, a niche literature has emerged on the impact of religion on economic outcomes, including human capital. While still described as a relatively "nascent" area of enquiry, the dominant focus of this expanding literature on the economics of religion has been on studying the broader impact of religiosity—see Iannaccone (1998) and Iyer (2016) for an exhaustive review. In this paper, we tackle a relatively understudied dimension: the impact of religious elites on economic development. The role of elites is central to understanding the evolution of institutions and their impact on development. Elite attitudes can determine whether growth promoting policies are permitted or hindered (North, Wallis, Weingast, et al., 2009; Robinson, 2012).[1] Specifically, elites can oppose education or "block initiatives to increase the human capital of the masses" when it risks eroding their future political power (Acemoglu and Robinson, 2006, pp. 124).

Despite the salient role accorded to elites in the dominant literature on political economy, we have little systematic knowledge of how the incentives and capacities of religious elites might shape development. This paper seeks to fill this gap by examining the impact of religious leaders on literacy in the world's second most populous Muslim country, Pakistan. Our analysis highlights the role of religious elites whose power is historically-embedded and derived from their association with holy Muslim shrines, which historians have described as the "symbolic cultural outposts of the power of Islam and the Muslim state" and are originally credited with the spread of Islam in South Asia (Gilmartin, 1988). While largely organized as informal institutions and funded by the communities they serve, shrines dispense important welfare functions, which include free kitchens for the poor, healing for the sick, and

[1] Role of elites is implicit in most institutional analyses whether it is the differential impact of colonial rule (Acemoglu, Johnson, and Robinson, 2001; Huillery, 2009), the legacy of historic inequality (Engerman and Sokoloff, 1997), the institutional impact of overseas trade engagement (Acemoglu, Johnson, and Robinson, 2005; Jha, 2013) or the impact of traditional structures of authority built around chieftancy in Africa (Acemoglu, Reed, and Robinson, 2014).

resolution of local disputes. Together with their sacred lineage, this allows shrine elites to enjoy tremendous religious legitimacy and unquestionable obedience and devotion of the vast networks of followers. With their religious authority, shrine leaders have become important controllers of economic and political power and serve as crucial intermediaries between the ruler and the ruled. Courted and rewarded by every ruler from the pre-colonial period to present-day Pakistan, shrine elites are structurally positioned within the prevailing political economy structures and can therefore profoundly influence local development.

In this paper, we focus on the impact of shrine elites on literacy. This is inspired by a wealth of qualitative literature that shows how the religious authority of shrine leaders is directly threatened by the spread of mass schooling. Education strikes at the very heart of the regime of voluntary obedience that shrine guardians seek to maintain, and can compromise their ability to control the underlying economic and political structure. An advantage of focusing on shrine elites relative to other elites (e.g. landed elites) who might be similarly incentivized to obstruct schooling is that the former have a greater ability to shape cognitive processes, moral perceptions, and beliefs, and thus exert a deeper and more durable form of control over local populations. Compared with elites whose power solely rests on land, shrine elites have both greater aversion and capacity to oppose education.

To investigate the impact of shrine elites on literacy, we study a rare encounter between historically-embedded religious power and formal institutional change. Specifically, we use a major policy shock induced by the military coup in 1977 that brought General Zia-ul-Haq to power. After assuming power, General Zia radically altered the system of public goods provision by reassigning the control over public development spending from centralized bureaucrats to elected representatives. While this was a universal policy shock that affected all regions we hypothesize that, given the greater aversion of shrine elites to educational expansion, the effect of this shock should be more pronounced in regions where shrine

elites have historically enjoyed greater influence. To conduct the empirical analysis, we assembled a rich dataset on the number and presence of shrines using hitherto untapped primary archival sources, principally the colonial-era British District Gazetteers and the Department of Religious Endowments at the Government of Punjab. This is the first and most comprehensive data collection effort on Muslim religious shrines to date. We then use the number of historically recognized shrines per thousand persons to proxy for the religious power of shrine elites, measured at the tehsil level, the lowest administrative unit for which literacy data are available.

Our empirical strategy exploits two important sources of variation: cross-sectional variation in the number of historically important shrines per thousand persons and temporal variation arising from the coup-induced administrative shock to public goods provision. Combining these two sources of variation in a difference-in-differences (DID) framework allows us to investigate whether the impact of the coup-induced administrative shock on literacy was modulated by the strength of historically-embedded religious power.[2] We show that growth in literacy was slower in regions where the number of historically important shrines per thousand persons was higher (relative to regions where it was lower) after the coup-induced administrative shock (relative to before).[3] Concretely, our results show that the increase in average literacy rate in Punjab would have been higher by 13% in the post-coup period in the absence of shrine influence.

In interpreting these results, we emphasize that the impact of historically-embedded religious elites is only activated after the coup-induced shock to public goods provision in 1985 when elected politicians, including shrine elites, were given direct control over development funds earmarked for their constituencies. With their greater aversion to education, shrine elites were now better able to thwart lit-

[2]Conceptually, this allows us to compare the growth of literacy in tehsils before and after the shock, and to assess how this trajectory of literacy is shaped by shrine-based religious power.

[3]Importantly, these literacy differences between high and low-shrine tehsils persist even after the restoration of electoral democracy in late 1980s.

eracy expansion. We shed light on the precise mechanisms through which this happened and investigate both supply and demand-side explanations. We rule out the obvious possibility that shrine elites might have opposed educational expansion by restraining public spending on education or opposing school construction. Using a dataset on the dispersal of development funds in national electoral constituencies of Punjab, we find no evidence that shrine-linked legislators systematically under-utilized development funds in their constituencies. We also present evidence that shrine-dominated regions did not have systematically lower supply of schools or teachers. Instead, shrine elites undermined education by making school provision defective. Drawing on several auxiliary datasets, we show that shrine elites manipulated school provision in three ways: limiting physical access to schools, compromising the quality of school infrastructure, and inefficiently dispersing school resources. Finally, testing for potential demand-side explanations, we show that neither urbanization nor economic migration appear as primary mechanisms for our results.

In carrying out our empirical analysis we take several steps that are standard in the literature. First, we control for unobserved time-invariant heterogeneity and period-specific shocks by including in our specifications both tehsil and year fixed effects. Next, the historical literature on the diffusion of Islam in the sub-continent suggests certain geographic characteristics that were crucial to the locational decision of shrines and could have been correlated with long-run development (Eaton, 2009). Related work has identified the large-scale displacement caused by the Partition of British India as another key determinant of long-term trends in literacy across the sub-continent (Bharadwaj and Mirza, 2019; Mirza, 2020). Taking cue from these literatures, we use distance to Delhi (the capital of historical Delhi Sultanate, 1206-1526), Mughal-era land classifications, and partition-induced displacement as baseline controls in our analysis.

Our identification strategy is based on the assumption that, conditional on our baseline controls, the interaction between the timing of the coup-induced administrative reforms and shrine presence is exogenous with respect to literacy. However, we recognize potential concerns with such an assumption. First, regions with historically-recognized shrines could have been suffering from lower literacy levels even before the introduction of coup-induced reforms and, at the same time, be the primary drivers of the coup itself. If this were the case, then our identification assumption would be violated and the negative effect of shrines on literacy that we document cannot be attributed to the coup-induced policy shock activating the power of shrine elites. To rule out this concern we show that there were no systematic trends in literacy prior to the reforms between high and low-shrine regions. Even if shrine-dominated regions were not on a differential trajectory in terms of literacy prior to the coup-induced administrative restructuring, they could still have differed along other dimensions that matter for literacy. Whilst limited in our ability to perform a similar test for parallel trends in other relevant dimensions due to data constraints, we are at least able to show that there are no levels differences between high and low shrine regions for a range of public infrastructure variables that are important for literacy prior to the coup. Finally, the presence of shrines could still somehow be generally related to other tehsil-level characteristics that might have a bearing on how the coup-induced reforms influenced literacy. Accordingly, we account for other powerful historical explanations for Punjab's underdevelopment, including colonial-era land revenue, initial urbanization rate, and the presence of Christian missions. Our results remain highly robust to the inclusion of these additional controls.

To demonstrate that our results highlight the impact of religious elites rather than the generalized impact of religiosity, we carry out a placebo exercise by replacing our historic shrines measure with a variable covering the universe of shrines in Punjab. We fail to find any significant impact of this all-shrine measure. Besides clarifying the impact of religious elites, this result helps to rule out any

remaining selection concern over and above the dimensions we already account for through our baseline controls. This is because if there was a systemic selection on location then it should equally apply to all shrines, not just shrines recognized by the colonial administration. Finally, we carry out a battery of robustness checks and show that our main findings remain robust to including alternative measures of shrine presence, removing outliers, using alternative fixed effects, and restricting the sample to the post-partition period. We also conduct sensitivity analysis for any remaining concern of omitted variables. Implementing the tests proposed by Altonji, Elder, and Taber (2005) and Oster (2019), we show that the selection on unobservables needs to be more than two and a half times stronger than the selection on observable characteristics to drive our estimated shrine effect to zero.

Given its focus on the impact of religious elites on literacy, this paper contributes most directly to a growingly influential literature on the economics and politics of religion. An exhaustive review of this literature is offered by Iannaccone (1998), Iyer (2016)), Carvalho, Iyer, and Rubin (2019), and Kuran (2018). Specifically, our work is situated at the intersection of two important fields of enquiry that Iyer (2016) described in her wide-ranging review as warranting further scholarly attention. The first pertains to the relationship between religion and human capital and the second to "the whole field of religion, political processes, and their interaction with economic processes" (Iyer, 2016, p. 432). While a growing body of scholarship has studied the first dimension by studying the long-run impact of religious missions on human capital (Becker and Woessmann, 2009; Valencia Caicedo, 2019; Woodberry, 2004; Gallego and Woodberry, 2010; Nunn, 2010; Wantchekon, Klašnja, and Novta, 2014), this literature has primarily focused on non-Muslim contexts. A partial exception is Chaudhary and Rubin (2011) who show how early religious and political institutions shaped subsequent differences in human capital formation in colonial India. By contrast, our paper focuses on the attitudes of Muslim religious elites

towards education and offers one of the first empirical attempts at uncovering the impact of historically-embedded religious power on the evolution of literacy.[4]

The second area, the relationship between religion, politics and economic processes, is particularly under-studied in the context of Muslim societies. While past studies have examined the impact of the Hajj, Islam's global congregation, on social attitudes of Muslim believers (Clingingsmith, Khwaja, and Kremer, 2009), the analysis of veiling by female Muslims (Carvalho, 2013), and the impact of Ramadan fasting on economic outcomes and subjective well-being (Campante and Yanagizawa-Drott, 2015), the relationship between Islam and political economy has only recently gained prominence (Platteau, 2017; Rubin, 2017). Using centuries of flood data on river Nile, Chaney (2013) showed that Egypt's central religious authority assumed greater political power in periods of economic shocks. Similarly, Bazzi, Koehler-Derrick, and Marx (2020) utilize the Indonesian land reforms of 1960, which exempted religious lands from expropriation, and show that regions that faced a greater threat of land expropriation witnessed higher transfers of land by rural elites into Islamic charitable endowments and subsequently resulted in stronger electoral support for Islamic political parties. This literature has primarily focused on two aspects of organized religion: religious clergy (*Ulama*) and Islamic political parties. Our paper broaches a third important yet neglected dimension: the impact of Islamic mystical tradition (*Sufism*) on long-run development.

This article also relates to a broader literature that has studied elite opposition to education in the context of high land inequality (Galor, Moav, and Vollrath, 2009; Cinnirella and Hornung, 2016; Sokoloff and Engerman, 2000). Relative to this literature on land inequality and education, we emphasize the religious as opposed to an economic motive and offer more precise evidence on the strategy used

[4]This paper also complements a body of scholarship arguing that educational differences across countries are grounded in history(Gallego and Woodberry, 2010; Gallego, 2010; Acemoglu, Gallego, and Robinson, 2014; Galor, Moav, and Vollrath, 2009). Colonial investments on education, is shown to have lingering effects on human capital development in Africa (Huillery, 2009).

by these elites to restrain literacy. Our work also connects with the literature on informal institutions and development (Platteau, 2000; Casson, Della Giusta, and Kambhampati, 2010). While past work focuses on culture, norms and social capital (Guiso, Sapienza, and Zingales, 2006; Tabellini, 2010; Qian, Xu, Yao, et al., 2015), the role of informal religious authority and its interplay with formal power structures has been largely neglected.[5]

Finally, our paper complements an expanding literature on the role of history for explaining economic development (Nunn, 2009). The challenge of "persistence studies is to figure out why and how history matters" (Fouka, 2020). We do not merely claim that shrines, which were set-up centuries ago and have historically shaped religious authority of their guardians, still exert an impact on literacy but clearly identify "when" such an effect should have occurred and offer a plausible conceptual explanation for "why" it occurred. This brings our work in line with an emerging strand of scholarship on "time-varying persistence", the idea that the impact of a historical variable can remain latent for a long time until it interacts with other factors to shape contemporary outcomes (Belmonte and Rochlitz, 2019; Fouka and Voth, 2013; Ochsner and Roesel, 2019).

The rest of this paper proceeds as follows. Section 2 sets out the essential background for our empirical analysis. Section 3 outlines the empirical strategy, section 4 describes the data, and results are presented in section 5. Finally, section 6 discusses plausible mechanisms for our results, and section 7 concludes the paper.

[5] A partial exception is Ticku, Shrivastava, and Iyer (2018) who establish that Mughal rulers in medieval India were more likely to desecrate Hindu temples in periods of economic downturns. Relatedly, Barro and McCleary (2003); Barro, McCleary, and McQuoid (2011) study the socio-economic determinants of sainthood in Christianity.

2 Historical Background

This section provides a background on three critical dimensions of our analysis: the historical placement of shrines and the persistent power of their guardians, their relevance for literacy, and the coup-induced administrative restructuring of public goods provision.

2.1 The Placement and Power of Shrines

The placement of shrines.—The spread of Islam in South Asia occurred between the thirteenth and eighteenth centuries. Islamic mystics (*Sufis*) served as the primary conduits of religious transmission. As Gilmartin (1988, p. 40) notes, "many rural Punjabi tribes have traced their conversion [to Islam] to these medieval saints". Travelling from central Asia, Afghanistan, and the Middle East, Sufis settled in all regions of Punjab, whether prosperous or poor. While the historical literature suggests that the spiritual diktats and demands of a mystical order typically determined where these saints finally settled (Nizami, 1953), the gradual diffusion of Islam was "embedded in larger socio-economic, indeed environmental, transformations" (Eaton, 2009, p. 217). Studying the patterns of early Muslim conversions in Punjab, eminent historian Richard Eaton argues that the spread of Islam coincided with "the transition to, or intensification of, settled agriculture" and "this transformation was conceptually linked with the pioneers or shrines through whose agency it had occurred" (Eaton, 2009, p. 216). In Eaton's argument, shrines and cultivators were both crucial aspects of Islamization.

Aiding this process of Islamization and the associated shift from pastoral to settled agriculture were two crucial factors: political geography and hydrology. In terms of political geography, areas initially considered as frontier or "marginal" to Delhi Sultanate provided an important base for Sufi preaching and early religious conversions. As Eaton (2009, p. 208) notes: "The Islamization of western Punjab between the thirteenth and eighteenth centuries" took place in regions that were "located along

the margins of expanding, Delhi-based empires". An important reason why frontier regions were more propitious for the diffusion of Islam lied in the fact that they were home to large "indigenous populations that were not well-incorporated into a Hindu socio-religious world at the time of their earliest contact with Muslims" (Eaton, 2009, p. 208). These were typically clans consisting of pastoral nomads who moved northwards along the Indus valley to sparsely populated areas that were agriculturally fertile but hitherto uncultivated. These areas were effectively outer spaces separating populated areas and wild forests that lied between rivers forming "a natural barrier between two different human settlements" (Soofi, 2014).[6] As these nomadic clans "adopted field agriculture, they also generally acquired a Muslim identity" (Eaton, 2009, p. 211).

An enabling factor for both religious conversions and the feasibility of agriculture was hydrology. In Punjab water has long been recognized as the principal constraining factor for agriculture. As the 1921 Census of India observed: "Cultivation in the Punjab is affected more by rainfall and irrigation than by difference in the soil..."[7] In this milieu, riverine tracts had some of the most conducive agricultural conditions, especially "when wells were few and canals not at all, the low-lying lands along the river were best, and greedily seized by the invader" (Lyall, 1928, pp. 63). It was partly for their superior agricultural potential that the riverine regions attracted many earlier Muslim saints who preferred to depend on independent income streams that agriculture afforded. Access to river also expanded the spiritual constituency for saints by affording greater mobility of people, especially in an age when other means of communication were under-developed, and key river crossing points served as logistic nodes. It is therefore unsurprising that some of the oldest and most prominent shrines are "often located by or near the great rivers of Punjab" (Eaton, 2009, p. 208). As Lyall (1928, pp. 62) notes, "it is a curious

[6]Focusing on the shrine of Baba Farid, Eaton argues that: "Beyond the urban settlements lying along Punjab's rivers lay vast tracts of sparsely populated land, the so-called barr country, situated between the province's five rivers. Although scanty rainfall hindered agricultural operations in this region, the barr country was well suited for pastoral nomadism." (p.210).

[7]Census of India 1921, Volume XV, Part I, Punjab and Delhi, 1923, p. 33. Successive Irrigation Commission Reports noted that Punjab's plains were generally fertile with high levels of soil suitability.

feature of riverain tracts that they are mainly inhabited by Muhammedans". In her famous travelogue on the Indus river, whose northern parts and tributaries lie in Punjab, Alice Albinia dedicated a chapter on "River Saints" in which she describes how, in the popular imaginary, the "power of Islam" coexists with the "power of the Indus" in such profound ways that the river serves as a "silent protagonist" of the teachings of proselytising saints (Albinia, 2008, p. 89, 107).

To summarize, shrines of historic significance were more likely to be situated in frontier regions that were home to pastoral nomads who were yet unattached to the Hindu cultural system and lacked an established social hierarchy. These were also regions where the potential for agriculture was higher either through proximity to the river or through other means of access to water. Our empirical analysis will systematically account for these dimensions that could have a bearing on shrine location and at the same time influence patterns of long-run development.

The power of shrine elites.—The religious authority of shrine elites is primarily derived from their guardianship of the shrine and their sacred lineage with founding saints. Shrine elites are distinguished by their control over symbolic power that helps to create patterns of voluntary obedience and compliance among local populations.[8] This has important implications for power relations. In their landmark work, *Character and Social Structure: The Psychology of Social Institutions*, (Mills and Gerth, 1953, pp. 193-5) emphasize the role of such obedience in power relations by arguing that:

> "the crux of the problem of power rests in understanding the origin, constitution, and maintenance of voluntary obedience ... An adequate understanding of power relations thus involves a knowledge of the grounds on which a power holder claims obedience, and the terms in which the obedient feels an obligation to obey."

[8]The locus of shrine power is in its "informal organization and the extra-associational norms situated in the community" (Malik and Malik, 2017, pp. 1822).

Shrine elites thus control the social structure at a much deeper level through their influence on mental constructs, cognitive capacities, and the popular understanding of religious beliefs.

The religious authority that such elites derive from their affiliation with the shrine and their control over local populations has made them important allies for all centralized rulers who have turned to them for legitimacy and support and offered material rewards, in return. In fact, "[N]o major ruler passed by the area without showing deference to their "spiritual power" (Eaton, 1984, pp. 347). However such deference and rewards became more systematized under British rule when Muslim religious elites, such as Syeds, Sheikhs, and Qureshis, were considered as "agrarian castes" and became fit to receive landed gentry grants. While land grants by Mughal rulers could easily revert to the throne upon the saint's death they were preserved under British rule, thanks to the establishment of formal property rights.[9] This made the hereditary succession of shrine-based religious authority a powerful economic proposition and converted shrine elites into both "spiritual and feudal masters", appropriately termed as *pir-zamindars*. Instances of colonial patronage to shrine guardians, which included both permanent land grants and other forms of appeasement (e.g., honours, titles and appointments) are extensively documented in the historical literature (see Online Appendix, Section 1).

Over time, shrine elites were able to use their religious authority to harness, not only economic but, also political power. In fact, historians have long argued that the religious and political authority of shrine elites is co-constituted (Gilmartin, 1979; Ansari, 1992). A vast network of devotees, considerable wealth, and a superior ability to mobilize meant that Punjab's shrine elites possessed the three crucial elements of political power: number, resources, and organization. It is thus unsurprising that when the British introduced electoral politics in early twentieth century shrine elites became natural contenders for political power and have since protected their political turf, surviving through both military regimes

[9]Prior to the British, "jagirs and pensions offered by the state...were non-portable and at the mercy of the government" (Roseberry, 1987, pp. 81)

and civilian governments in Pakistan.[10] The Online Appendix (section 1, Table A1) provides a snapshot of the political persistence of leading shrine families. To illustrate the consolidated power base of shrine elites, Figure 1 charts the genealogy of Syed Yusuf Raza Gilani, former Prime Minister of Pakistan and a leading shrine aristocrat. As Figure 1 shows, the power of the Gilani clan is historically embedded. Several members of the Gilani clan were appointed to key positions during the British era, including membership of district boards, municipal committees, judiciary, and legislative assemblies. Since then, the Gilanis have enjoyed an enduring electoral presence. The Gilanis are, by no means, an isolated example but broadly reflective of the persistent power of historic shrine families (see Table A1, Online Appendix).[11]

Difference from landed elites and implications for literacy.—While political genealogies of shrine elites might be similar to those of landed elites (see Figure A1, Online Appendix), their power is differentially configured in ways that translates into their stronger aversion to mass education and greater capacity to oppose literacy expansion. Relative to landed elites, shrine elites have an additional source of power, which we have described earlier as symbolic power. At the very heart of this power are hierarchical structures based on obedience, unquestioned loyalty, and superstition. Mass education can undermine these structures and challenge the very foundation of the religious authority upon which the political and economic power of shrine leaders is based. Any improvement in human capital thus poses a more fundamental threat to shrine elites compared to other elites whose opposition to education derives mainly from economic concerns.[12]

[10] In the 1920 and 1946 provincial elections, held under British rule, roughly 19% of total rural Muslim constituencies were represented by shrine families. Nearly a century later, their corresponding representation in the national parliament only fell to 16% in 2013.

[11] Other shrine shrine notables whose power is similarly spread over multiple generations includes (districts in brackets): the Syeds of Shah Jewna (Jhang), Qureshis of Shah Rukn-e-Alam (Multan), Makhdooms of Jamal Din Wali (Rahimyar Khan), Chishtis of Pakpattan, Kirmani Syeds of Daud Bandagi (Okara), and Khwajas of Taunsa Sharif (D. G. Khan), among others.

[12] By facilitating labour mobility, education can offer exit options for people tied in a dependent social and economic structure (Galor, Moav, and Vollrath, 2009). This can affect both landed and shrine elites. However, aside from its impact on labour mobility, education can threaten the religious authority of shrine elites.

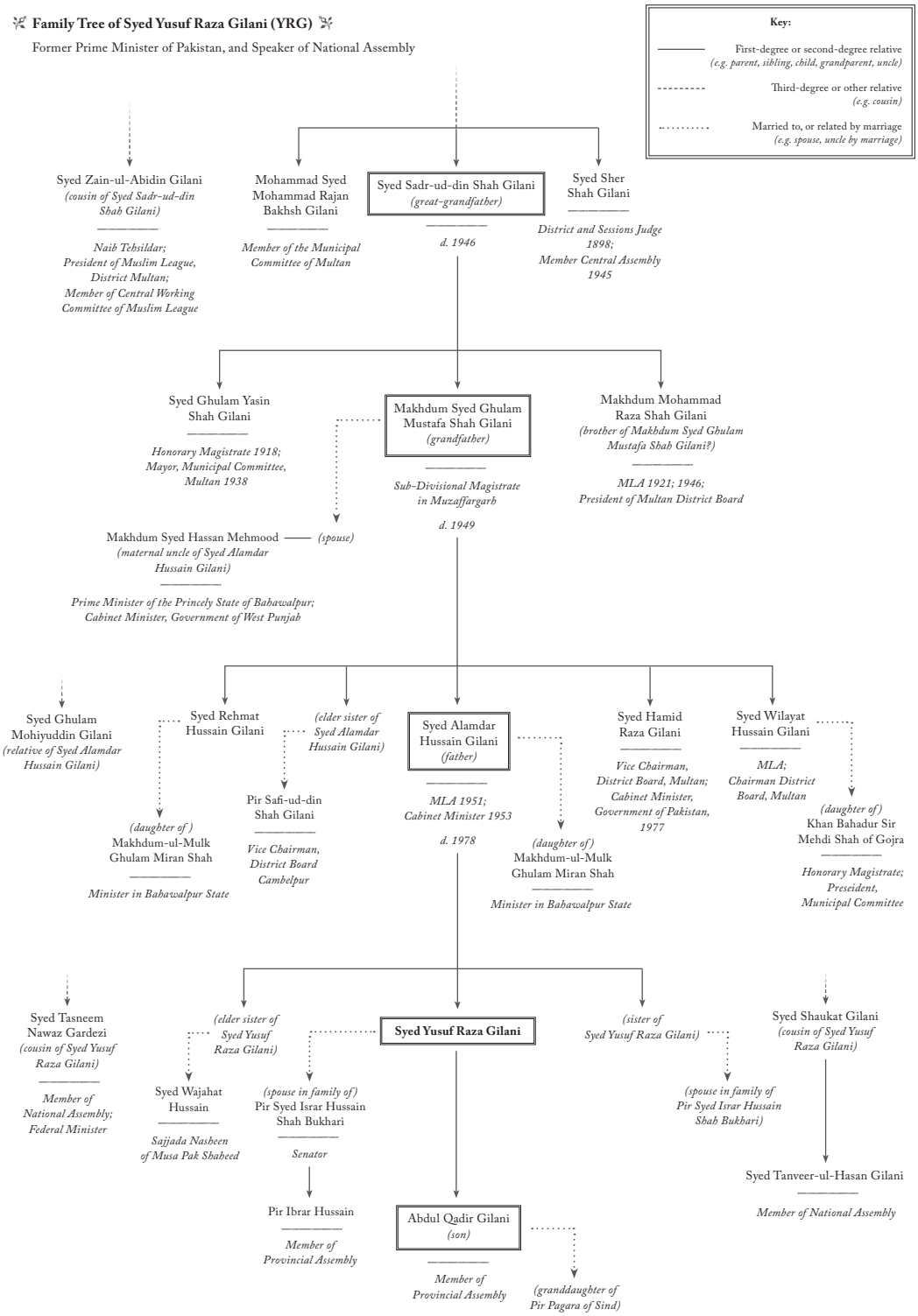

FIGURE 1: Genealogy of a shrine elite: Syed Yusuf Raza Gilani

Plentiful references in both historical and contemporary literatures highlight the particularly strong aversion of shrine elites to education. As Sir Malcolm Darling observed in *The Punjab Peasant*, the *Pirs* are: "instinctively opposed to the two movements from which the ordinary cultivator has most to hope. Neither education nor cooperation has their sympathy, for both strike at the regime [of voluntary obedience] which it is their one object to maintain" (Lyall, 1928, pp. 100). Echoing the same concern, Anatol Lieven highlights how educational progress could "strike directly at the cultural and social bases" of shrine power (Lieven, 2012, pp. 138). To historian, K. K. Aziz, shrine opposition to education is unsurprising. "How could a pir", he asks, "countenance any prospect for the education of the masses when his supremacy, status and income depended on their ignorance and superstition?" (Aziz, 2001, pp. 27).

Besides their greater aversion, shrine elites also possess stronger capacity to oppose schooling. Firstly, shrine elites are able to combine instruments of control typically deployed by traditional elites—coercion and co-option—with obedience and compliance. This can result in a voluntary suspension of agency that makes collective action around common interest resources, such as education, even less likely in a milieu where shrine leaders enjoy greater bargaining power with respect to their constituents and are subjected to fewer sanctions given their religious status. Secondly, shrine elites enjoy distinct political advantages over landed elites. The religious network sustained through the relationship of *piri-mureedi* (master-disciple) and the unconditional allegiance of devotees allows shrine leaders to enjoy a more stable constituency of followers—a captive vote bank of sorts—that makes them electable even in an uncertain political game. Compared to a typical landed aristocrat, shrine elites are also more accessible to ordinary people. Thirdly, as a fixed institution offering a "semi-permanent family seat" and durable religious legitimacy, shrines provide their guardians a more stabilizing source of power. Shrine families are less prone to inheritance-related sub-division of property, since the *gaddi* (seat of religious

power) can provide an important "safeguard against dilution of landed power" (Malik and Malik, 2017). Fourthly, shrine leaders operate as a more cohesive group as the ties of shrine brotherhood (*pir-bhai*) provide a stronger basis for the emergence and consolidation of collective interests.[13] Finally, given their religious authority, shrine elites are also more effective legitimizing agents for political rule. This makes them more eligible to receive state patronage and affords them greater ability to mobilize other elite segments, including landlords, who often seek their divine intercession and are usually dependent on the shrine guardian's support for winning an election. Thus, even when they do not hold legislative power, shrine elites enjoy an indirect influence over other landed, political, and bureaucratic elites. Such differences mean that shrine elites can be more effective at restraining literacy.

2.2 The 1977 coup and the policy shock governing public goods

A third key element of our analysis is the coup-induced policy shock that brought a radical change to the administrative regime governing public goods provision. Following civil disorder, General Muhammad Zia-ul Haq deposed the democratically elected government through a military coup in 1977. Having safely ensconced himself in power, General Zia succumbed to the international demands for restoring parliamentary democracy and held nationwide elections under a non-party based system. In a radical shift from the past, elected representatives were given direct control over development funds for public goods in 1985, which were previously determined largely by bureaucrats.

In principle, these funds could be allocated to each member of the legislature in equal amounts. While the resources are not directly placed in the hands of elected representatives, the latter could identify development schemes in their constituencies and determine the corresponding resource allocation.[14]

[13] As argued in Malik and Malik (2017, pp.41): "Compared to the landed class, the pirs seem to possess a stronger sense of class consciousness allowing them to protect their group solidarity more cohesively in and outside the parliament."

[14] The MNAs are also usually required to submit cost estimates and propose the implementation agency. See Afzal (2009) for further details.

The overall spending mandate is broad, covering such diverse items as water supply and electrification, with education being a central component. The administrative shake-up in 1985 gave elected representatives a controlling stake over development spending. Apart from indirectly deriving rents through collusion with contractors, elected members now exerted greater influence on shaping the composition of spending (e.g., how much is to be spent on schools versus roads or school construction and salaries versus quality) and flow of resources in their respective constituencies. Importantly, they could influence the quality of infrastructure provision, appointments of school teachers, and decide where schools were to be built. The decade of 1980s witnessed an unprecedented number of new educational initiatives and a noticeable increase in public spending on education (see Figure 2 and Online Appendix, Section 2). Consequently, there was a major expansion in school construction and education departments became the single largest employer at the provincial level.

The policy shift in mid-1980s converted education into an important arena of patronage for politicians and led to a significant "institutionalization of patron-client relationship", especially with regards to public goods provision (Wilder, 1999). As Gazdar (2000) notes, "the entry of MNAs and MPAs as local power brokers in the mid-1980s" marked a qualitative shift for public education.[15] While previously the district education officer (DEO) enjoyed greater "discretionary (and rent-earning) powers, his or her political influence and power was much smaller than that wielded, subsequently, by the local MPA or MNA" and there were greater constraints on the "abuse of discretionary powers" (Gazdar, 2000, pp. 30). An insider account of the decline of Pakistan's bureaucracy by Mufti (2020) clearly suggests that bureaucrats were relatively insulated from local politicians in the pre-Zia period. Major decisions on public goods provision were made more centrally under the direction of the Planning Commission of Pakistan through its Five-Year Plans (see Online Appendix, Section 2). With politicians gaining direct

[15] MNA stands for Member of National Assembly, MPA for Member of Provincial Assembly.

control over pubic resources, the educational machinery became susceptible to elite capture, especially in a milieu where, according to Martin (2015, pp.4), "control over the state apparatus" is crucial for traditional elites' "strategies of accumulation and dominance."

In short, the coup-induced administrative shock to the system of public goods provision represented a sharp policy discontinuity. Three aspects of this policy shock are especially relevant for our empirical strategy. Firstly, both the 1977 military coup and the resulting policy change were exogenous to the power of shrine elites. The coup was the outcome of a complex interplay between geo-strategic influences and domestic power struggles.

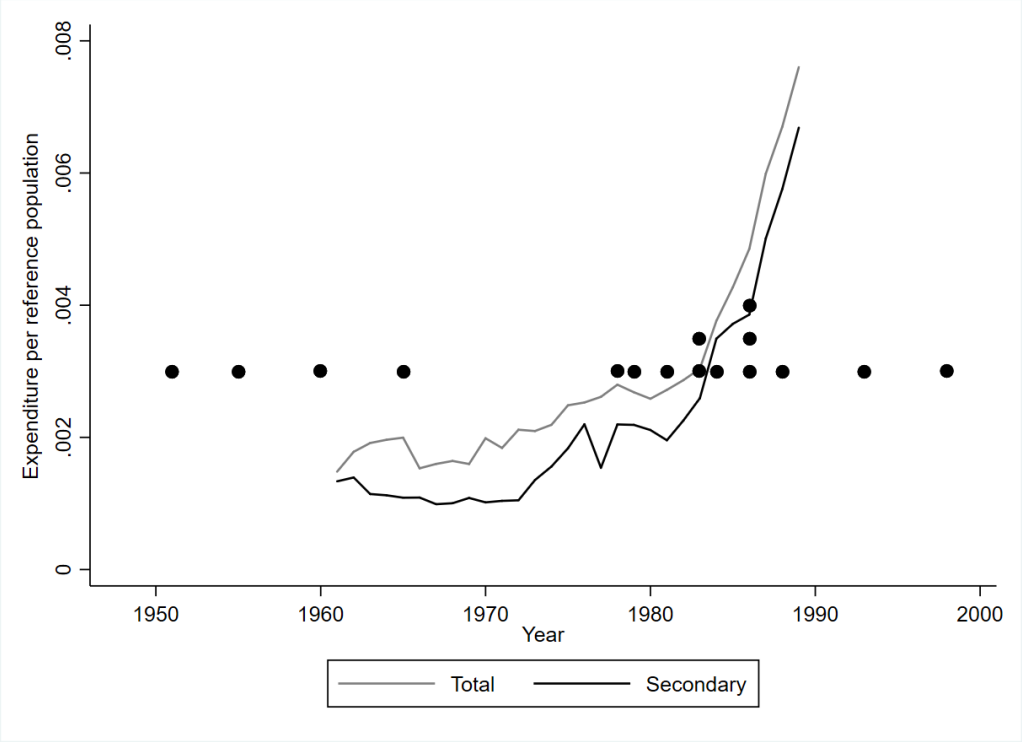

FIGURE 2. Educational policies and spending in Pakistan, 1952-1998. The figure, obtained from Mirza (2020), displays the evolution of public expenditure per reference population for Pakistan during the period, 1960-1990. Reference population consists of individuals that fall in the relevant school-going age. Each bullet point represents a new educational initiative. The Figure shows a sharp spike in expenditures during the 1980s and a larger number of educational policies (as evidenced by the clustering of bullet points in 1980s).

Neither did shrine families drive the coup nor was the coup influenced by economic characteristics or the potential for literacy expansion in constituencies that later elected shrine families into politics. The coup was preceded by public mobilization organized by Pakistan National Alliance (PNA), a coalition of ethnic and religious parties who were united in their opposition to Mr Zulfiqar Ali Bhutto, the elected Prime Minister deposed through the military coup. The PNA mobilized urban street power and was principally supported by urban traders. Shrine guardians were not the principal driving force for this protest movement. Secondly, institutional changes in the organization of public goods provision were universal and not targeted towards shrine families alone. Thirdly, the new administrative regime has continued despite General Zia's departure and the resumption of democracy in 1988.[16]

3 Data

3.1 Informal Religious Power

Historically-recognized shrines.—To construct our proxy for religious power we gathered information on historically important shrines from the colonial district gazetteers. Issued periodically during the colonial era, the gazetteers contained vital information on the name and location of major shrines, their guardians, and the spiritual and material influence of shrine families.[17] While shrines are a ubiquituous feature of Punjab's sacred geography, their influence varies considerably across regions with some areas known for highly influential shrines while others have shrines "dedicated to lesser known saints" that "had only the most localized significance" (Gilmartin, 1988, p. 41). The Online Appendix (section 4.1) provides further evidence from colonial-era district gazetteers of the varying significance of shrines across regions. The Gazetteers thus offer a critical historical resource as no prominent shrine with pre-

[16] The administrative arrangements and mandate of development spending remained the same even if it was packaged under different political banners. As Afzal (2009) notes: "Development funds were allocated to MNAs under the Peoples Programme in 1988-90 and 1993-97, under the Tameer-e-Watan Programme in 1991-93 and 1998-2000, and under the Khushal Pakistan Programme from 2002-8."

[17] Such information was typically documented in a separate sub-section entitled, "Religious fairs and festivals".

colonial influence would have missed a mention. To construct a tehsil-level measure of the concentration of historic shrines, we use the number of shrines (mentioned in District Gazetteers) per thousand persons in 1931, the census year for which consistent and comprehensive information was available across all tehsils:

$$Shrines_i^{hist} = \frac{\text{No. of shrines in tehsil (i) in 1931}}{\text{No. of persons in tehsil (i) in 1931}} \times 1000 \tag{1}$$

In our robustness analysis we will use two alternative measures: the number of historic shrines per square mile and a high shrine dummy. The former is defined as the number of historic shrines per square miles in 1931 while the high shrine dummy is coded as one for all tehsils where historic shrines per thousand persons is above the median of the overall sample distribution in 1931.

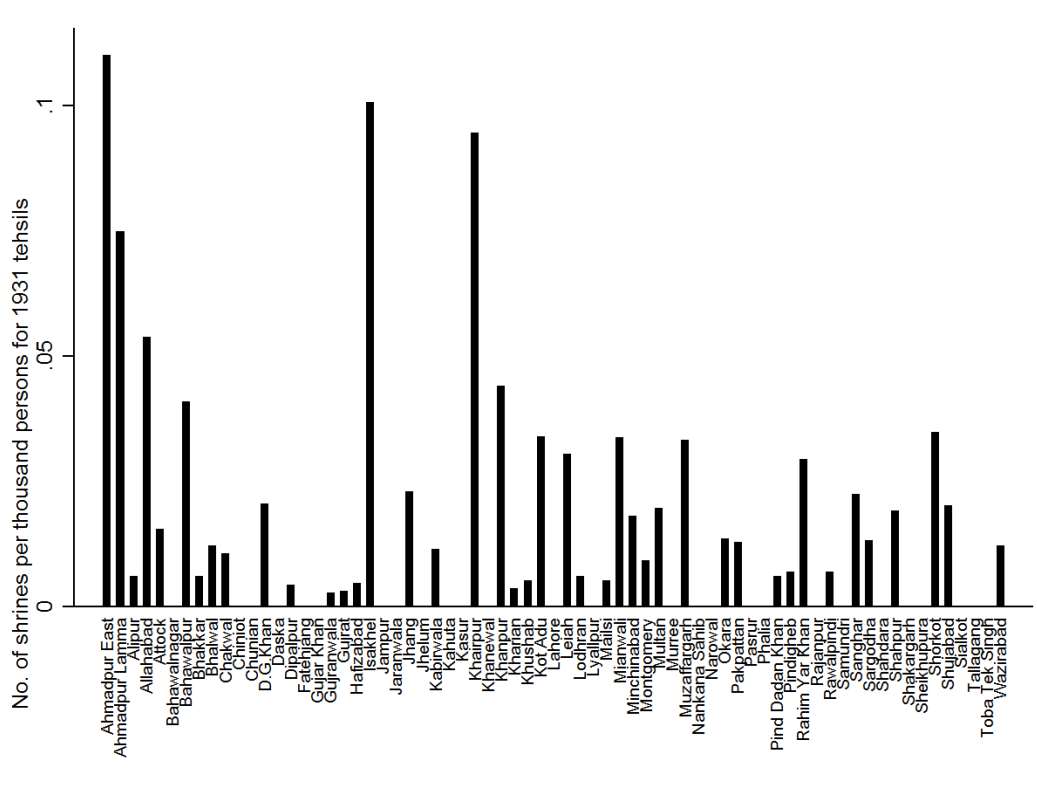

FIGURE 3. Proportion of historically-recognized shrines (by tehsil). The figure plots the number of historically recognized shrines per thousand persons for tehsils of Punjab. Tehsil names are mentioned on the horizontal axis.

Auqaf and political shrines.—We supplement the Gazetteer data with an exhaustive compilation of the names and locations of the universe of shrines across Punjab. In this regard, we gathered shrine lists maintained by the Punjab Auqaf Department and conducted specialized interviews with informed respondents in each district circle to verify the names and locations of shrines. Correspondingly, we construct an all-shrines measure that is defined as the number of all shrines (whether historically recognised or not) per thousand persons in a tehsil. We use this as an alternative measure of shrine concentration in our auxiliary regressions. Finally, we compiled a third database that mapped the direct participation of shrine families in electoral politics using multiple waves of election results since 1937. To develop this fine-grained database of shrines-politics linkage we draw on electoral records from several sources (see Online Appendix, section 4.2, for further details).

Taken together, these three complementary databases provide a comprehensive coverage of shrines across all tehsils of Punjab and constitute the most systematic data effort on shrines to date. Overall, there are a total of 598 shrines in our database. We identify 146 of these as historically significant (i.e. mentioned in Punjab District Gazetteers). Our main variable of interest will be the measure of historically recognized shrines per thousand persons. A quick glance at Figure 3 shows substantial variation in our measure. While Ahmadpur East has the highest share of historic shrines other tehsils have fewer or no shrines recognized in Gazetteers (e.g., Gujrat and Narowal). We will exploit this spatial variation in historic shrine density to learn about the evolution of literacy before and after the coup-induced shock.

3.2 LITERACY

Data on literacy for our long panel comes from the following three sources: (a) census reports for colonial Punjab; (b) district census reports for Pakistan; and (c) Multiple Indicators Cluster Survey (MICS).

Our study includes ten time periods spanning over a century and cover the period, 1901-2011. The pre-independence data on literacy is obtained from decadal census reports of colonial Punjab, covering the years 1901, 1911, 1921 and 1931. Colonial census reports contain information on literacy by sex and religion at the tehsil level. Data on post-independence literacy is obtained from the district census reports of Pakistan and the Multiple Indicator Cluster Survey (MICS), and covers the following years: 1961, 1972, 1981, 1998, 2008 and 2011.[18] Data for 1961-1998 is obtained from district census reports and is supplemented with tehsil-level data on literacy from MICS for 2008 and 2011.

All of the above data sources use a minimum agreeable definition of literacy. Literacy is defined as being able to read and write in any language.[19] Although the definition of a literate person did not change during the colonial period, slight modifications were made after independence. These minor definitional changes should be captured by the inclusion of year fixed effects in our specifications. To arrive at a consistent balanced panel, we impute literacy data for a few tehsil-years (17 data points in total) that were missing in the first three census years. Our procedure is inspired by Bharadwaj, Khwaja, and Mian (2008, 2015) and described in the Online Appendix (section 5). Later on in the empirical analysis, we will show the robustness of our results to excluding these imputed observations. An empirical challenge in using historical data on literacy is that such data is available at the level of colonial tehsils. Over time, some tehsil boundaries have undergone periodic changes due to administrative restructuring. We therefore map current tehsils onto historical boundaries. To do so we fix tehsil boundaries at 1931, the census year for which comprehensive historical data is consistently made available for the largest number of tehsils. In the spirit of Bharadwaj, Khwaja, and Mian (2008), we then follow a two-step mapping procedure that is described in detail in the Online Appendix (section 5).

[18]MICS Punjab is a representative household survey designed to produce statistically reliable estimates on key social indicators at the tehsil-level covering both urban and rural areas defined by the 1998 population census. Additional information accessible at: http://bos.gop.pk/mics

[19]For the MICS data we exclude Quranic reading, if this was the only response.

In our empirical analysis we also draw on supplementary sources to construct measures of gross enrolment, school size, physical access to schools, and school infrastructure. Using the annual reports of Punjab Development Statistics, we constructed a panel of gross enrolment rates and school size for the period 1982-98 (annual data is only available for this period). The latter is defined as the number of pupils normalized by number of schools in a tehsil.[20] Next, we used household data from MICS 2007-8 to construct tehsil-level indicators of distance to primary schools. We construct three indicators based on the proportion of households in a tehsil reporting their nearest primary school as being less than 2 kilometers away, within the 2-5km range, and greater than 5 kilometers. Finally, using recent monitoring data on school facilities, we construct tehsil-level measures for the proportion of schools without boundary walls and electricity.[21]

3.3 Descriptive statistics

Table 1 presents basic summary statistics for key variables used in our analysis. Our main sample consists of 68 tehsils (defined as per colonial administrative boundaries). Average total literacy rate during the full period of our panel, 1901-2011, is 21.4%, with female literacy significantly lower at 7%. Noticeably, there is significant temporal variation in literacy, especially after 1980s. The major literacy expansion since the 1980s provides an important backdrop for this paper. The total literacy rate in the post-shock period is 52% compared to 12% during the 1901-1981 period (see Table 1). Exploiting these patterns of variation over time and across tehsils, we will explore whether high shrine regions witnessed a differential increase in literacy after the coup-induced shock. Figure 4 shows the spatial distribution of historic shrines per thousand persons and provides a parallel view of average literacy rate for the post-

[20]The statistics are compiled by the Bureau of Statistics, Government of Punjab. Recent reports are available to download from http://www.bos.gop.pk/developmentstat

[21]The data is compiled by the School Education Department, Government of Punjab, and made available through the following website: https://open.punjab.gov.pk/schools/

shock period (1998-2011). A quick glance at Punjab's sacred geography shows that shrines are more concentrated in the south, with significant inter-tehsil variation (also see Figure A3 in Online Appendix, section 3). The two maps considered together suggest that districts with the highest shrines per thousand persons (darker shades in top panel) also have the lowest average post-shock literacy rate (lighter shades in bottom panel).

Additionally, Figure 5 charts the evolution of literacy rates across high and low shrine tehsils, defined on the basis of the 95th percentile of the distribution of our historic shrines measure. Revealingly, even without any controls, this crude visual representation shows the emergence of a noticeable gap between literacy rates of the two types of tehsils after the coup-induced shock in 1985. In analysing Figure 5, it is important to recognize that there is a possibility of a trend break in the data between the pre- and post-partition periods. This is because the partition represented a shock along several dimensions (including changes in data quality). Accordingly, if we restrict attention to just the post-partition period, two clear observations can be made. The mean literacy rate in high shrine regions closely tracks that of low shrine regions in the pre-shock period. There is also a clear divergence between the high and low shrine tehsils in the post-shock

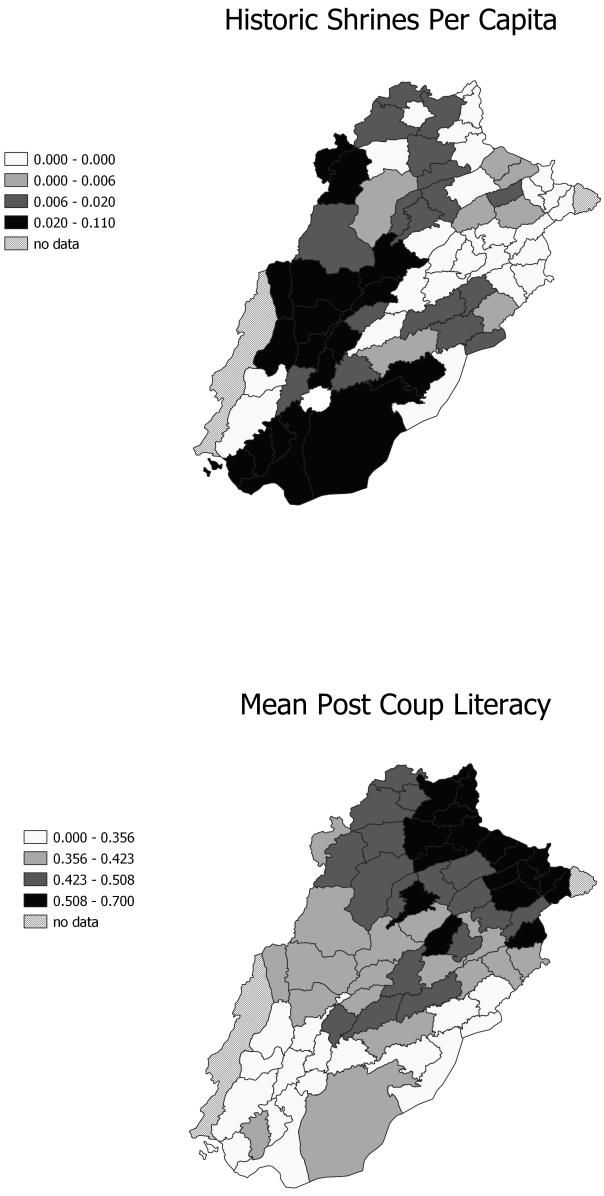

FIGURE 4. Historic Shrines and Literacy: Heterogeneity. The top and bottom panels of the above figure show the spatial variation in historic shrines per capita and average post coup literacy, respectively. The Quantile Method in QGIS was used for classifying the data into different bins. This method sorts the data from the smallest to the largest value and then determines bins such that number of values in each bin is the same.

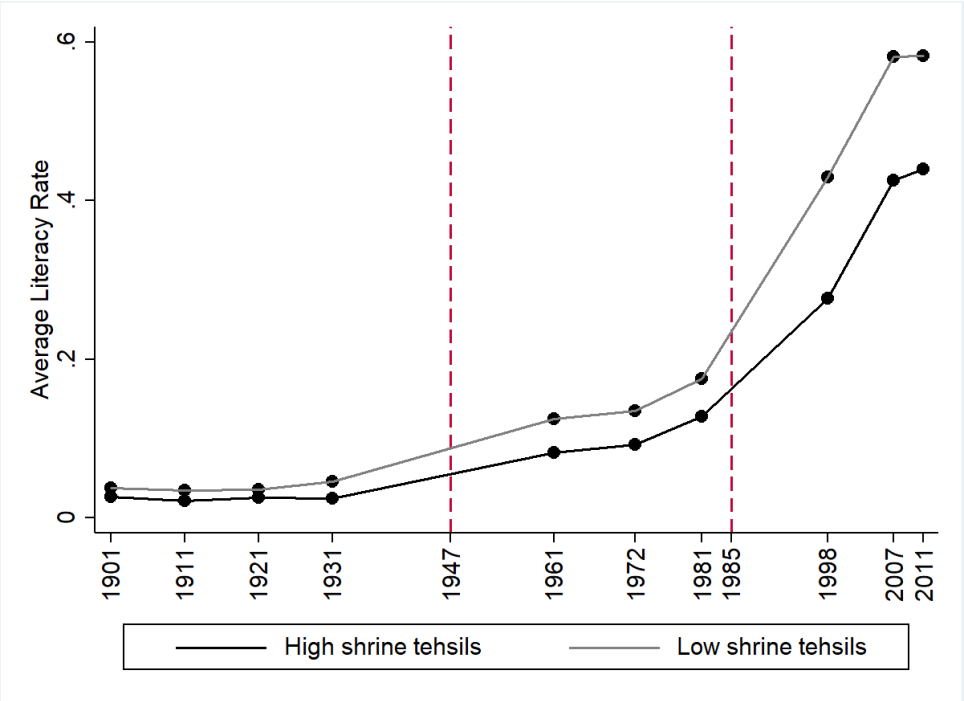

FIGURE 5. Evolution of Literacy in High and Low Shrine Regions. The figure plots mean literacy rates for high and low shrine tehsils over time. The tehsil classifications are based on the 95th percentile of the distribution of historic shrines per capita. The dashed lines for 1947 and 1985 signify the partition of Indian sub-continent and the coup-induced policy shock, respectively.

period, indicating a more retarded growth of literacy in shrine-dense regions. These findings are corroborated by our formal empirical analysis which shows that, conditional on baseline controls including the impact of partition, there is no evidence of any pre-trends.

4 Empirical Strategy

To empirically examine the impact of shrine elites on literacy after the coup-induced administrative shock, we set out a difference-in-differences (DID) specification:

$$Lit_{it} = \beta(Shrines_i^{hist} \times Post_t) + \gamma(x_i' \times Year_t) + \delta_i + \eta_t + \varepsilon_{it}. \quad (2)$$

Here, Lit_{it} is the literacy ratio in tehsil i in year t. $(Shrines_i^{hist} \times Post_t)$ is the interaction between the number of shrines per thousand persons in tehsil i and a post-shock dummy variable that takes a value 1 for years after the coup-induced administrative shock in 1985 and 0 otherwise. $(x_i' \cdot Year_t)$ is the interaction between a vector of initial tehsil-level characteristics and the year fixed effects. Importantly, these characteristics include amongst others a set of baseline controls to be discussed later.[22] To control for any unobservable time-invariant differences across tehsils, we include tehsil fixed effects (δ_i), and to account for any perturbations that apply equally to all tehsils in a given year we include year fixed effects (η_t). We also cluster standard errors by tehsil. Our coefficient of interest is β, which measures the observed change in literacy in tehsils that had greater concentration of shrines (relative to those that had lower concentration) after the coup-induced administrative shock (relative to before).

Our identification strategy rests on the assumption that, conditional on the set of baseline controls, the interaction effect $(Shrines_i^{hist} \times Post_t)$ is exogenous with respect to literacy. Several challenges could arise in this regard. First, shrine dense areas could be on a different trajectory in terms of their literacy prior to the coup-induced shock and also be the main catalyst behind the coup itself. Second, even if shrine-dominated areas were not trending differently in terms of their literacy prior to the coup they could still have differed along some other dimension that mattered for literacy. Finally, there could be other tehsil characteristics not included in our baseline controls that could somehow be generally related to shrine location and also shape the relationship between the coup-induced shock and literacy.

To address the first challenge, we estimate a fully flexible specification that allows us to investigate *trends* in literacy in tehsils with greater concentration of shrines relative to tehsils with lower concentra-

[22] Each control is described in detail as and when it is introduced in the analysis.

tion of shrines prior to the coup-induced policy shock:

$$Lit_{it} = \Gamma_t(Shrines_i^{hist} \times Year_t) + \Pi_t(x_i' \times Year_t) + \delta_i + \eta_t + \varepsilon_{it}. \quad (3)$$

The main difference from equation (2) corresponds to the term, $(Shrines_i^{hist} \times Year_t)$, whereby our historic shrine measure is interacted with the full set of year fixed effects. The vector of estimated interaction coefficients, Γ_t, shows the relationship between shrine concentration and literacy in each time-period of our panel. If, for instance, areas with a greater shrine concentration were not on a different trend in terms of their literacy prior to the administrative shock then we would expect the coefficients to be more or less constant over time for the years prior to 1985. Moreover, if shrines were to adversely influence literacy after the policy shock then we would expect the coefficients to become more negative as we move further into the post-shock period.[23]

We address the second threat to our identification assumption by testing for *levels* differences in public infrastructure that matter for literacy between high and low shrine tehsils prior to the administrative shock.[24] Finally, we address the third challenge to our identification strategy by including interactions between additional tehsil-level characteristics, which we believe are more generally related to shrine location and could have a direct impact on literacy, and the year fixed effects. These characteristics are included alongside the baseline controls in the term, $(x_i' \times Year_t)$, in equations (1) and (2). Given that our estimation is not based on a structural model, we interpret our main result as a "reduced form" relationship between historically-embedded religious power and literacy in the post-shock period.

[23] Given that our proxy for the power of religious elites, $Shrines_i^{hist}$, in equation (2) is time-invariant and also because equation (2) includes year and tehsil fixed effects, the estimated coefficients in Γ_t have to be measured relative to a base time period, which we take to be the first census decade in our panel beginning in 1901.

[24] Whilst we would have preferred to have carried out tests for differences in *trends*, data limitations have meant that we were only able to test for differences in *levels*.

We do, however, provide specific evidence on the pathways through which informal religious power might have shaped the impact of the coup-induced policy shock on literacy.

5 Results

In this section, we first provide a detailed motivation of our baseline controls whose inclusion in the main specification forms an important part of our identification strategy. Next, we discuss our main results that show the average effect of historic shrine concentration on post-coup literacy. We then present results from estimating a fully flexible specification that tests for differential trends in literacy between high and low shrine tehsils prior to the coup. In addition to testing for pre-trends in literacy we also test for pre-coup differences in infrastructure related to literacy between the two types of regions.

5.1 Baseline Controls

In section 2.1 we highlighted that historic shrines were more likely to be located in areas that were initially considered marginal to the Delhi Sultanate and had higher agricultural potential. To account for the former, we construct a tehsil-level measure of distance from Delhi, defined as the shortest straight line distance of the centroid of each tehsil in our dataset to Delhi, and include its interaction with year fixed effects in our analysis. Additionally, given the importance of hydrology in determining initial agricultural potential across different regions of Punjab, we construct a comprehensive set of land classifications based on water access regimes and include their interactions with year fixed effects in our specifications. Developed during the Mughal period under its ruler Akbar (1556-1605), these classifications categorize cultivable land based on access to water (Grover, 1960). They include cultivable land as being dependent on: rainfall (*Barani*), flood and river inundation (*Sailabi*), water courses from streams and ponds (*Abi*), wells (*Chahi*), and canal irrigation (*Nahri*). Using data from colonial-era District Gazetteers, which re-

tain these land classifications, we construct separate measures for the proportion of total cultivable area classified as falling in one of the above five categories.

An advantage of including the measure of canal irrigated land (*Nahri*) in our baseline controls is that we are able to account for one of the most profound historical legacies of colonial Punjab, commonly known as the canal colonization. The British Empire built the world's largest canal irrigation scheme in Punjab during the late nineteenth century. As part of this scheme, dense networks of perennial canals were laid down across the plains of the province, which made cultivation possible in areas that were hitherto considered as agriculturally insecure or pure waste lands. Newly irrigated lands were distributed to upper segments of the agrarian hierarchy who were considered loyal to colonial rulers. Thus, canal colonization not only expanded agricultural possibilities it also influenced the initial distribution of economic and political power (Ali, 2014). If this was somehow related to the historical power base of shrines and simultaneously determined the evolution of literacy then its omission could result in a spurious correlation between our measure of shrine density and literacy.

Next, we control for rainfall by including the interaction between a dummy variable for high rainfall regions, which is equal to one for tehsils where average annual rainfall between 1917 and 1923 lied above the sample mean, and year fixed effects. The inclusion of a rainfall dummy as a baseline control is motivated by the strong and well-established association between patterns of rainfall and land inequality in Punjab. In one of the earliest official enquiries into land inequality in the province, Calvert (1925, pp. 15) observed that an important "factor determining the size and distribution of holdings in the Punjab" was rainfall. While data on contemporary tehsil-level measures of land inequality is unavailable in Pakistan, it is possible to correlate our rainfall measure with a general measure of landlessness, defined as the proportion of National Identity Card holders who self-classify themselves as landless tenants

(*muzaara*).[25] As Figure 6 shows, average rainfall between 1917 and 1923 is strongly and negatively correlated with landlessness in 2011, providing suggestive evidence that high rainfall regions have lower incidence of landlessness.

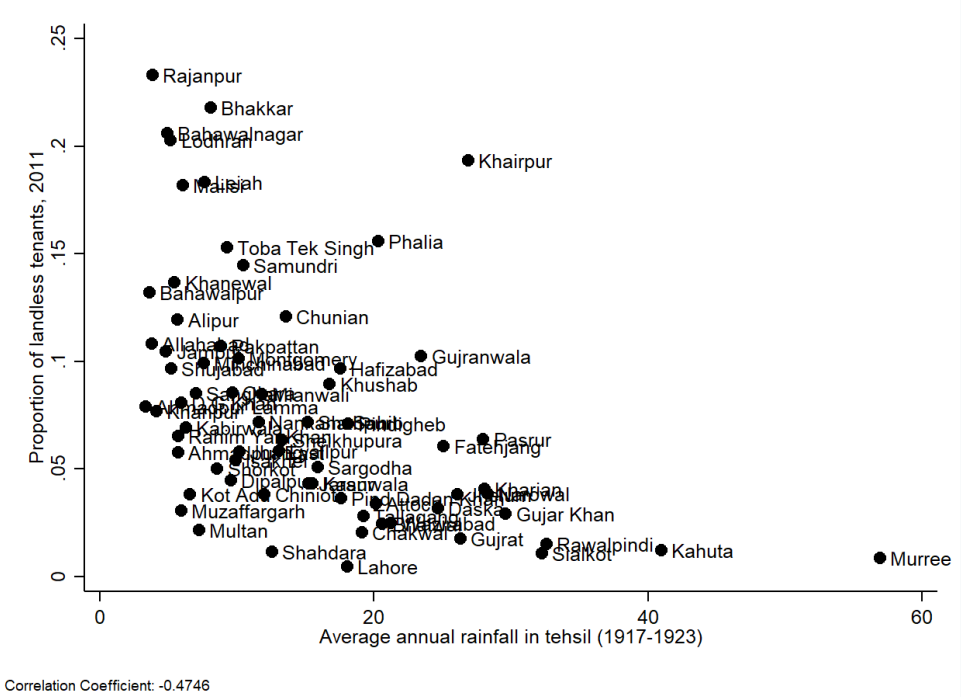

FIGURE 6. Rainfall and Landlessness. The figure offers a simple scatter plot of the proportion of landless tenants against average historical rainfall (1917-1923). The former is constructed as the proportion of National Identity Card holders in a tehsil who self-classify themselves as landless peasants. Rainfall data is obtained from colonial-era District Gazetteers of Punjab. The sample consists of 68 historical tehsils.

Finally, another important confounding factor in our analysis is partition-induced displacement. Previous research shows that the mass population displacement triggered by the partition of British India in 1947 left an enduring legacy for economic development in the post-independence era (Bharadwaj, Khwaja, and Mian, 2008, 2015; Bharadwaj and Mirza, 2019; Mirza, 2020). If high shrine regions also witnessed greater displacement at partition then this could bias our results. To preclude this possibility,

[25]The identity database is maintained by the National Database and Registration Authority (NADRA) and consists of over 96 million records. Applicants for the identity card are required to select a profession from the detailed list of occupational categories. Since researchers do not have access to the database, NADRA was requested to compute the ratio for all tehsils of Punjab.

we flexibly control for the impact of displacement at partition using the pre-1947 proportion of minorities. Our measure is motivated by prior evidence that population outflows were largely determined by the "relative importance of minorities" whereby "places with greater minorities saw greater outflows", a pattern that was particularly strong in Pakistan where the "exchange was almost one to one" (Bharadwaj, Khwaja, and Mian, 2008, pp. 11).

5.2 Baseline Estimates

Table 2 presents the results for our main specification in equation (2). In column (1) we estimate a parsimonious model that only includes tehsil and year fixed effects without any additional controls. The estimated coefficient of interaction between our historic shrine measure and the post-shock dummy is negative and statistically significant at 1% level. This provides strong initial evidence that tehsils with higher shrines per thousand persons experienced smaller increases in literacy (relative to tehsils with fewer shrines) after the coup-induced administrative shock (relative to before). Next, in column (2), we add a powerful set of baseline controls to ensure that the shrine effect is not confounded by differences in political geography, hydrology, and partition-induced displacement over the same time-period. Although the coefficient on shrine interaction term is halved in magnitude, it remains strongly negative and statistically significant at 1% level. In columns 3-5 we progressively add interactions of a series of additional tehsil-level characteristics with year fixed effects. First, we flexibly control for a measure of the distance of a tehsil from the nearest river (in km) in column 3, which can be correlated with shrine location (see section 2.1). The inclusion of distance from river further strengthens our set of hydrology-related controls (i.e. agricultural land classifications and rainfall).

Next, in column 4, we introduce a historic measure of urbanization based on data from colonial District Gazetteers and defined as the proportion of population classified as urban in 1931. This should

help to account for the fact that initial differences in urbanization could be correlated with historic shrine location and affect literacy over time. As we will argue later, initial urbanization is also a powerful correlate of partition-induced population flows. Finally, in column 5, we include a measure of land revenue per capita in 1901. Land revenue was a major source of income for the colonial administration and was strongly influenced by underlying land tenurial arrangements. It can thus serve as a proxy for initial tehsil-level differences in state capacity and land inequality. As the results show, despite the inclusion of these additional controls in columns 3-5, the estimated coefficients on the shrine interaction remain stable, consistently negative, and statistically significant at 5% level across all columns. The effect is also economically meaningful. According to the estimate in column (5), a ten percentage point increase in our shrines measure is associated with a reduction in the literacy rate of 0.0957.[26] This is equivalent to 18% of the average post-shock literacy rate.[27]

To further reinforce the magnitudes of our estimates, we carry out a simple calculation to determine the extent to which the increase in the mean literacy of Punjab during the post-shock period was restrained by our shrine measure. We start by noting that the observed increase in average literacy of Punjab during the post-shock period was 0.15, increasing from 0.420 in 1998 to 0.574 in 2011. We want to compare these numbers to what the counterfactual post-shock increase in mean literacy would have been in the absence of shrines. In order to do so we first calculate the counterfactual literacy rate for each tehsil in 2011 using the estimate reported in column (5) of Table 2. This is simply the tehsil's observed literacy rate in 2011 minus the estimated impact of shrines, β, multiplied by the number of shrines per thousand persons in the tehsil $(Lit_{i,2011} - \beta \cdot Shrines_i^{hist})$. Next, we compute the average counterfactual literacy of Punjab in 2011 using the counterfactual literacy rate of each tehsil in 2011. Based on our calculations, the counterfactual mean literacy of Punjab in 2011 would have been 0.589 (instead of 0.574)

[26] This is calculated by multiplying 0.1 with the coefficient on the shrine interaction in column 5 of Table 2, which is -0.957.
[27] This is arrived through the following calculation: 100 x (0.0957/0.522)

in the absence of shrines. Moreover, the increase in the Punjab's literacy would have been 0.169 (instead of 0.150) without the restraining influence of shrines. As a consequence, the increase in mean literacy of Punjab would have been 13% higher than the actual observed increase had the impact of shrines not been there to begin with. Overall, our results provide clear evidence that the expansion of literacy that occurred after the coup-induced administrative shock was considerably more restrained in areas with greater concentration of historic shrines.

Test for Selection on Unobservables.—While our baseline specification accounts for a wide range of tehsil-level characteristics, we also conduct sensitivity analysis to any remaining omitted variable bias. Following the tests proposed by Altonji, Elder, and Taber (2005) and Oster (2019), we calculate the bounds that show the robustness of the shrine effect to unobservable characteristics under the assumption that the selection on unobservables is proportional to the selection on observed controls. Results for this exercise are reported in Table 3. Columns 1 and 2 report the main shrine effect from a regression with baseline controls (column 2, Table 2) and additional controls (column 5, Table 2). Column 3 reports the bounded estimates for the shrine effect using the procedure recommended by Oster (2019). The upper bound is based on the assumption that the selection on observables is zero ($\delta = 0$) while the lower bound is estimated under the scenario that the selection on observable characteristics is equal to the selection on unobservables ($\delta = 1$). The latter is a particularly reasonable assumption in specifications with high R-squared. The bounds are calculated using the more conservative threshold of R_{max} of 1 (see Altonji, Elder, and Taber (2005)). As column 3 shows, the identified set consists of negative values and excludes zero. Finally, column 4 reports the estimated value for δ, which provides an indication of the relative degree of selection that would be needed to eliminate the result. Reassuringly, we find that the selection on unobservables has to be around two and a half times stronger than the selection on observables in

order to drive away our estimated shrine effect to zero. Taken together, this sensitivity analysis shows that any omitted variable concern in our analysis is likely to be modest, at best.

5.3 Flexible Estimates

Going beyond the average effects presented in Table 2, we next provide more fine-grained evidence on how the relationship between historic shrines and literacy evolved over time. To this end, we estimate the flexible specification in equation (3) that interacts the historic shrine measure with year fixed effects and report the results in Table 4. Replicating the empirical set-up in Table 2, we first estimate the flexible specification with only year and tehsil fixed effects (see column 1). The estimated coefficients on the shrine interaction are negative and increasing in magnitude over time. Subsequently, in column 2 we re-estimate our preferred specification with baseline controls, which include distance from Delhi, five agricultural land classifications, high rainfall dummy, and pre-partition proportion of minorities. As expected, conditional upon these controls, the coefficients on shrine interaction now become statistically insignificant and more or less indistinguishable from zero for the pre-shock period. Moreover, the estimated coefficients for the post-shock period are highly negative and statistically significant. Thus, it is only after the coup-induced administrative restructuring of 1985 that the literacy performance of tehsils with greater informal religious power becomes worse relative to tehsils that lacked such power.

Next, in columns 3-5 we progressively add interactions of three further controls (distance to river, urbanization, and land revenue per capita) with year fixed effects, which we expect to be correlated with shrine location and trends in literacy. As expected, the basic pattern continues to hold in that the coefficients of shrine interaction only become statistically significant after 1985. Scrutinizing the individual coefficients on shrine interaction over time and across columns, we find a stable and consistent pattern after the addition of baseline controls (columns 2-5). The p-value for the F-test, reported in Table

4, fails to reject the null of joint insignificance of shrine interactions in the pre-period (1901-1981) in our preferred specifications in columns 2-5. This lends further support to the absence of pre-trends.

The top panel in Figure 7 provides a visual representation of these patterns by plotting the coefficients and confidence intervals of the shrine interaction in column 2 of Table 4. Reassuringly, there are no clear observable trends of the estimated interaction effects before the coup-induced policy shock (represented by the vertical dashed line corresponding to the year 1985). In fact, the coefficients are consistently placed on or extremely close to the zero line. The second figure in the bottom panel provides a related visual demonstration of the absence of pre-trends. Taking inspiration from (Kahn-Lang and Lang, 2020), we estimate an alternative flexible specification that considers the year prior to treatment to be the base year (i.e. 1981) and estimates the difference between the high and low shrine regions in each previous and subsequent year relative to 1981. This allows us to test whether average literacy rate prior to the policy-induced shock in 1985 exhibited parallel trends. As the bottom panel of Figure 7 shows, all coefficients in the pre-period are close to zero and statistically significant. Together, both figures provide reassuring evidence that tehsils with a greater concentration of historic shrines did not follow a differential trend in terms of literacy prior to the administrative shock, thereby supporting a key component of our identification strategy. Importantly, it is only after 1985 that the coefficients on shrine interaction become strongly negative and statistically significant. This confirms that the shrine effect remains latent prior to the coup-induced administrative shock in the mid-1980s and only becomes instrumentalized once the policy shock gave politicians direct control over public goods provision. The negative interaction effect is strongly persistent after the coup, which squares well with the fact that administrative arrangements for public goods provision introduced by General Zia continue to persist long after his departure in 1988.

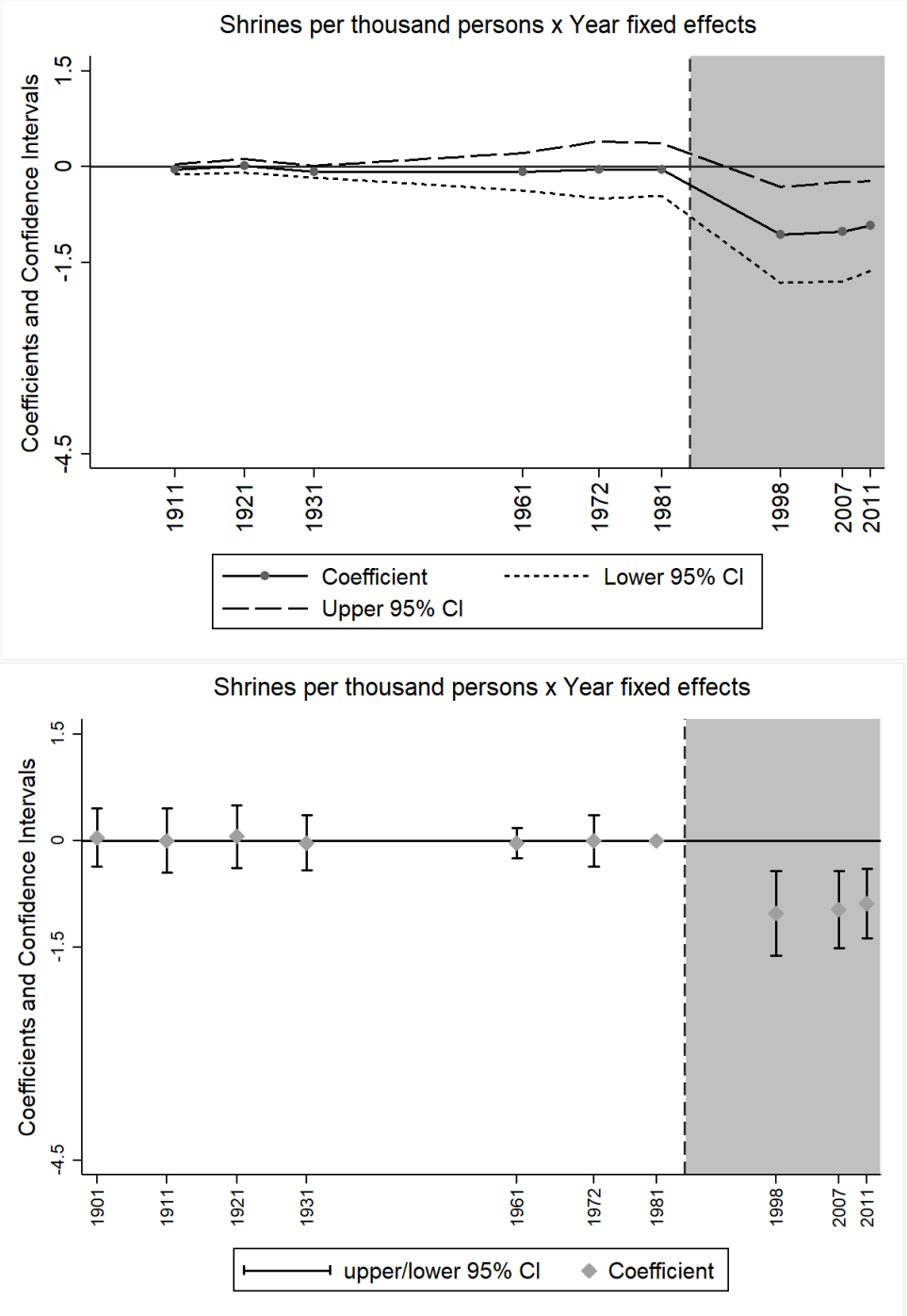

FIGURE 7. The Shrine Effect over Time. This figure plots the point estimates and confidence intervals of shrines per thousand persons interacted with year fixed effects. The shaded area corresponds to the post-shock period, 1985-2011. The top panel corresponds to the flexible specification in Table 4 (column 2) where the base year is 1901. The bottom panel is based on an alternative flexible specification that uses the year prior to the policy shock as the base year (i.e. 1981) and estimates the difference between the high and low shrine tehsils in each previous and subsequent year relative to 1981.

5.4 PRE-SHOCK DIFFERENCES IN LITERACY DETERMINANTS

Despite there being no systematic trends in literacy between high and low shrine tehsils prior to the coup-induced administrative shock, it could still be the case that high shrine tehsils were different along other dimensions that mattered for literacy. Unfortunately, we are limited by the extent to which data is available prior to the shock on characteristics of tehsils that could potentially influence literacy. What we are able to do, however, is to use data from a single pre-shock year (i.e, 1971 or 1973) to demonstrate that, at least in levels, there is no marked difference in the provision of literacy-related infrastructure between high and low shrine tehsils. Accordingly, we regress different measures of literacy-related infrastructure provision on each one of the three shrine measures: historic shrines per thousand persons, a dummy variable for high shrine regions, and historic shrines per area. All regressions include district fixed effects and the full set of baseline controls.

The results are reported in Table 5. In columns (1)-(4) we report estimates for models of schools per capita, run separately for total schools per capita as well as disaggregated by different educational levels (i.e. primary, middle, and high schools per capita). Finally, in columns (5)-(6), we present results for canal infrastructure and healthcare provision, measured as proportion of irrigated area fed by canals in 1973 and health units per capita, respectively. The underlying data is compiled from the annual editions of *Punjab Development Statistics*. As the results show, there are no statistically significant levels differences in the pre-shock period in the supply of public infrastructure (e.g., schools, irrigation, and health units) between high-shrine and low-shrine tehsils. Regardless of the type of infrastructure or shrine measure used, the coefficient on our shrine measure remains statistically insignificant.

6 Extended Analysis and Robustness

Historical shrines and post-coup enrolment.—Having shown that regions dominated by shrine elites witnessed a retarded growth in literacy after the coup-induced administrative shock of 1985, we investigate whether these regions also experienced lower enrolment rates. To this end, we compile a tehsil-level panel of annual enrolment data from 1982 to 1998 that encompasses the period during which the state implemented a large-scale programme for public school expansion (see section 2.2). We then regress these enrolment rates on our historic shrine measure and the full set of baseline controls. Note that we do not include tehsil fixed effects in these regressions since our explanatory variable, shrines per thousand persons, remains fixed for a tehsil over time. However, all regressions do include year fixed effects and control for within tehsil correlation over time by clustering the standard errors at the tehsil level.

Results are reported in Table 6 for both total enrolment rates (0-19 years) and disaggregated by primary (5-14 years) and secondary (15-19 years) enrolment. For each regression model we report the coefficient estimates for shrines per capita with and without the baseline controls. As shown in columns 1-2, tehsils with a greater concentration of historic shrines have systematically lower total enrolment rates. Disaggregating by primary and secondary enrolment rates, we show that the result is mainly driven by consistently lower enrolment in primary schools (columns 3-4). Whether the model is estimated with or without baseline controls, the coefficient on shrines per capita remains negative and statistically significant at 1% level. This suggests that shrine dense regions witnessed a relatively more retarded growth in primary enrolment rates than the shrine-poor regions during the post-shock period.

Placebo test.—Our empirical analysis has so far used the measure of historic shrines per capita to proxy for the power of shrine elites. To reinforce our argument that it is religious elites attached to historic shrines and not shrines in and of themselves that matter for literacy, we conduct a placebo

exercise that replaces our historical shrine measure with a measure based on the universe of all shrines in Punjab, covering many lesser known shrines that are unattached with elite power. To construct this measure, we leverage our *Auqaf* database where we compiled information on all shrines in Punjab (see section 3.1). Results are reported in Table 7. Replicating the empirical set up in Table 2, we start by regressing the total literacy rate on the interaction between the all-shrines measure and the post-shock dummy, while controlling for tehsil and year fixed effects only. Subsequently, in column 2 we flexibly account for baseline controls and the additional controls are successively included in columns 3-5. In none of the specifications, whether with or without controls, do we find a statistically significant coefficient on the interaction between the all-shrines measure and the post-shock dummy.

This reaffirms our argument that it is only the subset of shrines that were recognized by the British colonial administration and supported the religious and political authority of shrine elites that shape the impact of the coup-induced administrative shock on literacy. Aside from clarifying the impact of religious elites, this placebo exercise also furnishes crucial evidence against any remaining selection concern on shrine location that our baseline controls might not have fully accounted for. If shrines self-selected into areas that were predisposed to lower literacy expansion then this selection on location would also apply to all shrines rather than just the historically-significant shrines that form the basis of our shrine measure. However, such a concern is assuaged by the absence of any strong predictive power of the all-shrines measure in Table 7.

Alternative baseline controls.—To assess the robustness of our results, we include alternative proxies for some of the baseline controls in our empirical analysis. We first replace the binary classification for high and low rainfall regions with a continuous historical measure of rainfall obtained from colonial district gazetteers and averaged over the period 1917-1923. Next, we replace our rainfall dummy

with the natural logarithm of elevation in feet.[28] The corresponding results are reported in columns 6-7, respectively, in Table 8. As the results show, if anything, the coefficient on shrine interaction becomes stronger in magnitude and retains its statistical significance. Finally, we replace the urbanization control with a big city dummy, which uses the classification in Burki (1973) and codes all major cities of Punjab at the time of partition as one (and 0 otherwise). As Bharadwaj, Khwaja, and Mian (2008) show, large cities in Pakistan were particularly impacted by the partition-related population flows. The inclusion of big city dummy thus allow us to further strengthen our partition-related controls over and above the proportion of minorities already included in the baseline specification. As column 8 in Table 8 shows, our headline result on historic shrines per capita remains robust to flexibly controlling for the big city dummy.

Land inequality.—Land inequality is a potentially important confounding factor in our analysis. If tehsils with a greater shrine concentration also had more unequal distribution of land then this could bias our empirical results. As argued in section 2.2, shrine guardians are sufficiently differentiated from landed elites both in terms of their incentives and capacity to oppose education. Nevertheless, we try and address this concern in several ways. Firstly, to the extent that patterns of land inequality are highly persistent in Pakistan, especially in the absence of any meaningful land reforms, tehsil-level fixed effects should capture any time-invariant cross-tehsil differences in land inequality. Secondly, given the well-established association between patterns of rainfall and land inequality in Punjab, we have consistently included a dummy for high rainfall regions as a baseline control in all specifications and assessed the robustness of our results to replacing it with a continuous measure of rainfall. Thirdly, some of our main control variables could serve as indirect proxies for land inequality. These include, in particular, our agricultural land classification indicators and colonial land revenue per capita. As discussed in section

[28] We replace the rainfall measure with elevation since both are highly correlated.

4.2, British policies for land grants in canal colonies shaped earlier patterns of land inequality that have persisted over time (Ali, 2014). Similarly, aside from serving as a measure of state capacity, land revenue per capita is strongly correlated with the size and distribution of landholdings.

Our final strategy is to include a more direct proxy for colonial-era land inequality, defined as the proportion of landlord-based land tenurial contracts. As Banerjee and Iyer (2005) argue, regions in British India where proprietary rights were historically given to landlords (*zamindars*) had higher gini coefficients of land inequality and suffered from relatively lower investments in health and education in the long-run. Taking cue from this, in column 9 of Table 8 we replace historical land revenue per capita with the proportion of landlord contracts interacted with year fixed effects. As the results show, the coefficient on shrine interaction retains its statistical significance despite the inclusion of Banerjee-Iyer type land tenure variable.

Christian Missions.—Recent research on the relationship between religion and human capital has established that early exposure to Christian missionary activity, especially Protestantism, shaped long-run educational outcomes (e.g. Becker and Woessmann (2009); Gallego and Woodberry (2010)). A recent study establishes a similar finding for India (Calvi, Hoehn-Velasco, and Mantovanelli, 2020). The presence of historical Christian missions can be a possible omitted variable in our analysis, since it can both have a direct impact on contemporary human capital and be correlated with shrine presence. This is likely to be an important concern as historical accounts suggest that missionaries were less likely to be located in regions with substantial Muslim presence (Richter, 1908). If this were the case, our negative shrine effect on literacy could be spurious. To account for this, we construct a measure of the presence of historic Christian missions, defined as the number of Protestant missions per thousand persons in a tehsil in 1908. As in Calvi, Hoehn-Velasco, and Mantovanelli (2020), the underlying data for this measure is drawn from the *Statistical Atlas of Christian Missions*, which provides comprehensive

information until 1908 on the presence of Protestant Missions across the world, including British India. We include the interaction between our measure of historical Christian missions per capita and year fixed effects in column 10 of Table 8 and demonstrate that the shrine effect is robust to its inclusion.

Alternative shrine measures.—In Table A3 we investigate the robustness of our main findings to two alternative measures of religious power: the number of historic shrines per square mile and a high shrine dummy. As our results suggest, the coefficient on shrine interaction remains negative and statistically significant both in specifications with high shrine dummy (Panel A) and shrines per area (Panel B). Our results thus remain highly robust to the use of alternative shrine measures. Separately, in the Online Appendix (Table A4), we present results for a shrine measure that captures the extensive margin through the construction of a simple dummy variable for shrine presence. As Table A4 shows, the interaction of this shrine dummy with the post-coup indicator lacks any predictive power. This further reinforces that that our argument is based on the intensive margin of shrines (i.e. how shrine dense a region is relative to others).

Disaggregating by gender.—We next estimate our baseline specification in Table 2 separately for male and female literacy. Since literacy data disaggregated by gender is not available for the years 1972, 2008 and 2011, our estimations are conducted on a smaller sample. We find a relatively stronger effect of our historic shrines per capita measure on female literacy rate in the post-shock period (see Table A5 in Online Appendix). However, given the loss of data, this result should be interpreted with caution.

Further robustness tests.—We next consider a battery of additional robustness tests. To conserve space we report these results in the Online Appendix (section 6). In each of our robustness exercises we preserve the basic set-up in Table 2 where we only include the tehsil and year fixed effects in column 1, add the set of baseline controls in column 2, and progressively include further controls in columns 3-5.

We first recognize the possibility of a trend break in the data between the pre- and post-partition periods and therefore restrict the sample to the post-partition period (1961-2011). Re-estimating the baseline specification on the post-partition sample delivers a highly consistent set of results whereby the shrine effect remains negative and statistically significant at 1% level in all specifications (see Table A6).

In Table A7 we subject our results to a strict test, whereby tehsils at the top and bottom 5th percentiles of literacy (top panel) and shrines per thousand persons (bottom panel) are successively dropped from the sample. As the results show, dropping tehsils at the bottom 5th percentile of literacy or shrine per thousand persons (columns 1-5) preserves our findings. Next, we show robustness to dropping observations in the top 5th percentile of literacy and shrines per thousand persons (columns 6-10). Overall, our findings are fairly robust and consistent to the exclusion of these extreme observations. Next, we replace tehsil fixed effects with more loosely defined district fixed effects, which effectively allows us to compare tehsils within the same district that have more or less historic religious power (see Table A8). Again, results remain unchanged. Our findings are similarly robust to clustering the standard errors by district rather than tehsil (see Table A9) and to alternative functional forms that use the natural logarithm of the dependent and independent variables, respectively.[29] Finally, we probe the robustness of our findings to dropping the imputed observations. To do so, we re-estimate our baseline and flexible specifications in Tables 2 and 4 on the unbalanced panel and show that our main results remain robust to such an exercise (see Tables A10-A11).

7 Mechanisms

We have argued that shrine elites preside over a hierarchical social structure and are more averse to educational expansion. What remains to be shown, however, are the channels through which shrine

[29] Results on functional forms available upon request.

elites tend to undermine education. Broadly speaking, shrine elites could affect educational outcomes by influencing the supply or demand for education, or some combination of both. The supply-side story would be relevant if shrine elites were able to influence the construction of schools or provision of school inputs (e.g. teachers). As an alternative supply-side strategy, shrine elites could also influence educational outcomes by making school provision defective. This would be the case, for example, if schools were constructed in more remote and distant locations, if they lacked essential facilities (e.g. electricity and boundary walls) and if schooling resources were spread too thinly. On the other hand, a demand-side explanation would be relevant if shrine elites were able to influence the conditions that shape the demand for education in their regions. Testing both of these explanations, we find stronger evidence in favour of a supply-side story that is based on defective school provision.

We begin our discussion by first showing that shrine-dominated regions have a higher presence of shrine elites in electoral politics in the period after the 1977 military coup. We then show that these elites used their political power to restrain education by making school provision defective along three specific dimensions: school siting, school size and the quality of infrastructure. We conclude our discussion by presenting evidence on demand-side factors.

Growing electoral presence of shrine elites.—While shrine elites have been a permanent feature of the traditional power structure, they established a stronger electoral foothold during the Zia-era (1979-1988) and became key actors in patronage politics. Using the electoral database discussed in section 4.1, Figure 8 shows a noticeable increase in the number of shrine contestants per constituency under the Zia regime. There was a three-fold increase in this ratio between the last election before Zia (1977) and the first election after Zia (1988). A growing proportion of shrine contestants also got elected into the parliament (shrine electables) during the same period. As Figures A4-A5 in Online Appendix show, the growing electoral participation of shrine families persisted into the post-Zia period. While this provides

indicative evidence of the direct participation of shrine elites in politics, it is important to emphasize that shrine elites are also able to impact public goods provision through their indirect political influence on whomsoever is elected in their constituency.[30] Such growing politicization of shrines is rooted in the weakening of party politics during the Zia-era when elections were held on a non-party basis. This gave electoral advantage to natural formations, thereby elevating the role of religious prestige, besides wealth and kinship (*biraderi*), as a crucial determinant of electoral success.[31]

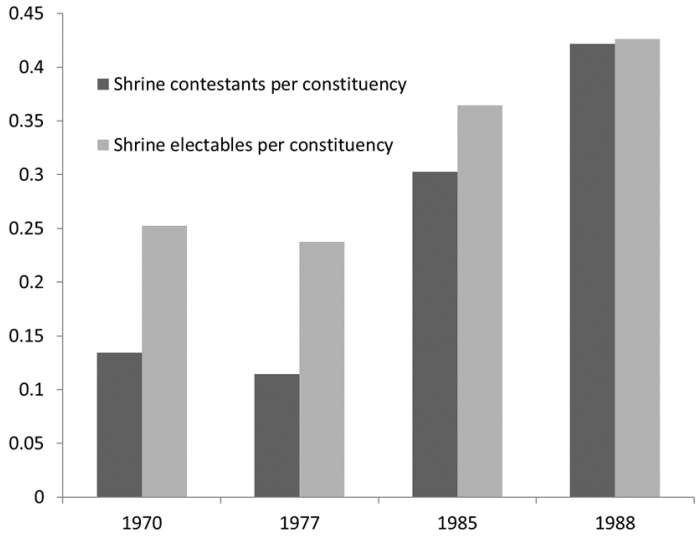

FIGURE 8. Growing Shrine Presence in Electoral Politics. The figure shows the proportion of all candidates in a constituency who either contested or won in National and Provincial Assembly elections in Punjab. The former are described as contestants and the latter as electables. Each year on the horizontal axis refers to an election round.

Supply-side explanations.—The 1977 military coup and the associated administrative restructuring thus ushered a period when shrine elites controlled both political power and access to public spending on development. This allowed shrine elites to systematically influence the ecosystem of schooling in ways that undermined mass literacy. An obvious strategy would be for shrine elites to directly oppose educa-

[30] In shrine dense regions, election candidates are dependent on the support of influential shrine elites. A prominent example in this regard is the shrine of Sheikh Fazil in Sahiwal whose guardians desist from directly contesting elections but their support is decisively important for candidates in several neighbouring constituencies. For more illustrations and analysis, see Malik and Malik (2017).

[31] Affiliation with a notable shrine becomes a vital political asset in a milieu where, "it is not wealth alone, but wealth plus either kinship or spiritual prestige, or both, that gives political power" (Lieven, 2012, pp.137).

tional expansion by reducing public spending on education and obstructing the construction of schools in their regions. While a direct tehsil-level measure of educational spending is unavailable,[32] we explore the spending explanation by using a dataset on the dispersal of development funds for all national electoral constituencies of Punjab. The data comes from Malik (2020), and covers the electoral cycle, 1993-1996. In Table 9 we empirically examine whether constituencies represented by shrine families systematically under-utilized development funds. We regress the proportion of the maximum possible dispersal of development funds that was actually spent in each constituency on a binary measure that equals 1 if the legislator is a shrine elite (0, otherwise). The unit of analysis is electoral constituency-year. The results show no evidence that shrine-linked legislators systematically under-utilized development funds in their constituencies. Since education forms a major component of development funds in Pakistan, the results in Table 9 provide suggestive evidence against a simple supply-side story based on educational spending. Additionally, we do not find evidence that shrine-dominated regions have systematically lower supply of schools or teachers (see Table A12, Online Appendix).

Besides restraining spending and opposing the construction of new schools, shrine elites could also oppose schooling by rendering existing educational provision defective. Plentiful evidence exists on how political interference has distorted the quality of educational provision through suboptimal siting of schools, poor school infrastructure, and uneconomical school size. The politicization of schooling became a particularly noteworthy concern in the wake of Social Action Programme (SAP), a multi-donor initiative launched in 1992 to rectify Pakistan's historic deficit in social sector spending. The programme was subjected to such widespread political abuse that independent evaluators termed it a 'failure', and concluded that "politicians used staff recruitment, construction contracts, and site selection for schools and clinics to enrich their kith and kin" (Birdsall, Malik, and Vaishnav, 2005, pp. 26). A more recent

[32] Development spending data is only available at a highly aggregate level (i.e. provincial or district-level)

assessment on the quality of school infrastructure shows that around 60% of primary schools do not have electricity, 36% lack any drinking facility, and 42% have no wash-rooms (GOP 2014).

To determine whether shrine regions were more adversely affected by such politicization, we investigate three dimensions of political capture for which tehsil-level data is available. We start by focusing on school location. Elected politicians are known to have influenced the "selection of school sites" (Birdsall, Malik, and Vaishnav, 2005, pp.40). A remote location can make schools practically inaccessible to students, especially females, and allows local notables to divert them for private use (e.g. as personal residence, cattle-sheds or stables). To investigate whether schools were more distant in shrine-dominated regions, we use cross-sectional household data from the Multiple Clusters Indicators Survey (MICS 2007) that reports the distance of a household from the nearest government or private school in the year 2007. Analysis is carried out for 123 contemporary tehsils of Punjab.

We rely on three categories of physical access to schools provided by the MICS database, all based on distance from the nearest school. Physical access is closest if the nearest school is situated less than two kilometres away from the surveyed household. Schools that are located between 2 and 5 kilometres away are relatively more distant. Finally, schools that are more than five kilometres away are the farthest. We explore variation in these categories across two metrics: gender (boy versus girl) and provider (public versus private). Besides the main variables, each specification contains latitude, longitude, elevation, the incidence of landlessness, population density, and region-specific fixed effects as controls. As the results in Table 10 show, shrine presence increases the likelihood of a school being distant (the positive and statistically significant coefficients in columns 2 and 5) and decreases the likelihood of a school being situated nearby (the negative and significant coefficients in columns 1 and 4). Importantly, the magnitude of the shrine effect is noticeably higher for girls' schools, indicating a gender dimension to the problem of school access.

Next, we test whether the quality of school infrastructure is worse in shrine dense regions. Drawing on a recent database on school facilities, we focus on two infrastructure measures for which tehsil-level data is available: electrification and the presence of boundary walls. In Table 11 we present the results from a regression of proportion of schools with electricity (columns 1-2) and proportion of schools with boundary walls (columns 3-4) on our historic shrine measure, using the same set of controls included in Table 10. The results show that shrine dominated regions have significantly lower proportion of schools with access to electricity and boundary walls. The results are stronger if we control for the area of the tehsil (see columns 2 and 4).

Finally, since the mid-1980s political elites have used the construction of new schools as a source of rents, preferring brick and mortar investments that afford opportunities for lucrative construction contracts. Such perverse political incentives result in an inefficient dispersion of school capacity in the form of reduced school size (i.e. fewer pupils per school) rather than better educational provision. As Gazdar (2000, pp. 31) argues:

> "the deterioration in standards has been blamed, at least partly, on the large expansion in the school building programme, particularly since the mid-1980s...The growth in the number of schools might have compromised quality by spreading administrative capacity too thinly. In many instances the construction of a new school meant the reduction in the size of another school, as children from formerly school-less villages withdrew from the main school. The reduction in size may have adversely affected quality".

Accordingly, we investigate whether schooling resources were spread more thinly in shrine-dominated regions. To do so, we construct a quantitative measure of school size, compiled using annual data on pupils per school for the post coup period (1982-1998), and regress it on our shrine measure along with

our baseline controls. Results are presented in Table 12, columns 1 to 3, for three school types: primary, middle and high. As the results show, the coefficient on our historic shrine measure is negative and statistically significant across all specifications (columns 1-3). Thus, relative to non-shrine areas, tehsils with greater shrine concentration had fewer pupils per school at all levels, including primary, middle and high schools.

Demand-side explanations.—Shrine elites could also have restrained literacy in their areas by affecting the conditions that shape the demand for education. We examine whether this was the case by focusing on two leading candidates for a demand-side explanation: urbanisation and economic migration. Both can increase exposure to non-agricultural opportunities, change the returns to schooling, and increase the demand for education. In Table A13 (Online Appendix) we include a time-varying measure of urbanization (proportion of the population classified as urban) as an additional control in our baseline specification represented by equation 1. To construct a historic panel on urbanization, we used data from both Colonial and District Census Reports. As expected, urbanization is a positive and statistically significant correlate of literacy. However, its inclusion in the model does not eliminate our shrine effect, even if it somewhat reduces its magnitude. The coefficient on shrine interaction continues to be negative and statistically significant at 5% level.

Additionally, when we re-estimate our baseline specification using urbanization as the dependent variable, the coefficient estimate on the shrine interaction is negative but statistically insignificant (See Table A14, Online Appendix). There is thus no evidence to suggest that shrine-dense regions witnessed a differential growth of urbanization in the period after the coup-induced policy shock. Together, these results indicate that the effect of shrines on post-coup literacy is, at best, only partially mediated through urbanization. Next, we test whether our results are due to systematic differences in patterns of migration between high and low shrine regions. Accordingly, in Table A15 (Online Appendix) we regress two

contemporary proxies for economic migration, the proportion of households receiving remittances from abroad and from within the country, on our shrine measure.[33] The results show that there is no statistically significant difference between high and low shrine tehsils in either models of remittances from abroad (column 1) or from within the country (column 2).

Overall, the weight of evidence presented above points towards a supply-side explanation. We show that, rather than suppressing education by restraining public spending or blocking the construction of new schools, shrine elites seem to have deployed a more sophisticated strategy that rested on making the educational system defective by influencing the location of schools, quality of school infrastructure, and school size. This is unsurprising in the context of institutional changes brought by General Zia's military coup, which by assigning elected politicians greater control over public goods provision, made the latter strategy (i.e. defective provision) more incentive-compatible for shrine elites. With more financial resources available for political capture, restraining spending or school construction, is now politically sub-optimal.

8 Conclusion

This paper provides novel evidence on the impact of religious elites on economic development using a rich empirical setting in the second largest Muslim-majority country of the world, Pakistan. Focusing on elites whose religious authority is derived from *Sufi* shrines, we examine their role in suppressing literacy in the wake of the 1977 military coup that devolved control over public goods provision to elected politicians. Shrine elites—with their increasing presence in politics and their greater aversion to literacy—suppressed its expansion in shrine dense regions in the post-coup period. They were able to do so by making making existing school provision defective.

[33] Unfortunately, tehsil-level data on outmigration is unavailable. Data for our dependent variables comes from MICS Household Survey 2007-08. See section 3.2 for a description of MICS.

Our results shed light on an under-studied dimension of Islam: the impact of Islamic mystical orders (*Sufism*) on long-run development outcomes. *Sufism* has long been understood as a central force in the transmission of Islam across vast swathes of Africa, Asia and the Middle East. The missionary activities of mystical Islamic brotherhoods not only extended the borders of Islam but left a deep imprint on local social, economic and political structures. Our paper offers a first systematic empirical enquiry on the longue durée impact of this aspect of Islam.

While our findings emanate from a specific historical context, they have broader relevance for other Muslim societies where mystical religious orders are an important part of public life. Morocco offers a case in point where powerful *Sufi* orders are re-asserting their influence on the political stage and lending legitimacy to authoritarian rule (Werenfels, 2014). The impact of such religious elites in different societies will depend on how they are structurally positioned within the prevailing power structure. In contexts where the power of these religious elites is combined with political influence and landed power, and where they are able to influence the provision of public goods, we can expect to see a negative effect on literacy. However, each context is different. As Starrett (1998, p. 235) argues for the Egyptian case, Islam has been "put to work" through the "changing intersections of power, interest, and circumstance". Future scholarship needs to take into account the considerable heterogeneity in the relationship between Islam, politics and development across Muslim societies (Cammett and Luong, 2014).

Beyond the world of Islam, our paper also has relevance for long-standing debates on the role of religion in development. In this regard, our analysis highlights the importance of considering the incentives and capacities of religious elites in shaping development outcomes. Furthermore, our empirical framework echoes the important insight of Avner Grief that the impact of informal institutions, includ-

ing religion, is shaped by historical context and through the interaction between informal and formal institutional structures.

Finally, our work has concrete implications for public policy on education. A report prepared by a global task force on education concluded that "fixing the learning crisis will take systemic reform stretching beyond the education sector".[34] This paper has shown that elite incentives and institutional structures that govern public goods provision can together influence the eco-system of schooling. This is especially pertinent for countries facing a major education emergency. With its 23 million out-of-school children, Pakistan ranks as second (after Nigeria) in the list of top ten countries with the "highest out-of-school populations" (UNESCO, 2014). It is also described as "severely lagging" in its goal of achieving universal education. In this milieu, educational expansion is not just about scaling up public spending. It also requires addressing structural inequalities—in this case defined by the powerful configuration of religion and politics.

[34] https://www.cgdev.org/sites/default/files/archive/doc/full_text/CGDReports/3120290/schooling-is-not-education.html

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Table 1—Summary Statistics

	(1) Mean	(2) s.d.	(3) Min	(4) Max	(5) N
Shrine Concentration (1931)					
No. of shrines X 1000 / tehsil population	0.015	0.024	0	0.110	68
No. of shrines / tehsil area	0.002	0.003	0	0.017	68
High Shrine Dummy	0.500	0.504	0	1	68
No. of auqaf shrines X 1000 / tehsil population	0.003	0.005	0	0.028	68
School Size (1982 to 1999)					
Average Pupils per Primary School	77.227	28.139	24.169	187.5	896
Average Pupils per Middle School	232.834	64.988	62.5	529.851	896
Average Pupils per High School	565.877	131.799	181.818	1580.873	896
School Access (2007)					
Proportion of Boys Public Schools less than 2km	0.928	0.078	0.497	1	123
Proportion of Boys Public Schools from 2km to 5km	0.051	0.049	0	0.216	123
Proportion of Boys Public Schools greater than 5km	0.021	0.044	0	0.379	123
Proportion of Girls Public Schools less than 2km	0.910	0.105	0.421	1	123
Proportion of Girls Public Schools from 2km to 5km	0.056	0.059	0	0.273	123
Proportion of Girls Public Schools greater than 5km	0.034	0.065	0	0.486	123
Proportion of Boys Private Schools less than 2km	0.779	0.238	0.102	1	123
Proportion of Boys Private Schools from 2km to 5km	0.079	0.089	0	0.394	123
Proportion of Boys Private Schools greater than 5km	0.143	0.177	0	0.780	123
Proportion of Girls Private Schools less than 2km	0.778	0.240	0.102	1	123
Proportion of Girls Private Schools from 2km to 5km	0.078	0.089	0	0.389	123
Proportion of Girls Private Schools greater than 5km	0.145	0.180	0	0.780	123
Literacy Rates					
Average Total Literacy Rate (1901 to 2011)	0.214	0.225	0.013	0.814	680
Average Total Literacy Rate (1901 to 1981)	0.082	0.069	0.013	0.365	476
Average Total Literacy Rate (1998 to 2011)	0.522	0.149	0.157	0.814	204
Average Male Literacy Rate (1901 to 2011)	0.180	0.181	0.024	0.841	457
Average Male Literacy Rate (1901 to 1981)	0.117	0.091	0.024	0.449	389
Average Male Literacy Rate (1998 to 2011)	0.539	0.143	0.224	0.841	68
Average Female Literacy Rate (1901 to 2011)	0.069	0.117	0.000	0.638	457
Average Female Literacy Rate (1901 to 1981)	0.030	0.045	0.000	0.284	389
Average Female Literacy Rate (1998 to 2011)	0.297	0.142	0.075	0.638	68
Baseline Controls					
High Rainfall Dummy (1931)	0.047	0.032	0.013	0.214	68
Proportion Nahri (1931)	0.360	0.337	0	0.993	68
Proportion Abi (1931)	0.006	0.010	0	0.043	68
Proportion Chahi (1931)	0.231	0.226	0	0.804	68
Proportion Sailabi (1931)	0.091	0.101	0	0.509	68
Proportion Barani (1931)	0.312	0.374	0	0.997	68
Proportion Minorities (1931)	0.121	0.047	0.023	0.276	68
Distance to Delhi (km)	414.146	93.963	249.166	629.725	68
Additional Controls					
Distance to River (km)	20.706	18.686	1	77	68
Urbanization (1931)	0.095	0.109	0	0.647	68
Land Revenue per capita (1901)	1.859	0.854	0.306	4.801	68

Table 2—Historical Shrines and Total Literacy

	(1)	(2)	(3)	(4)	(5)
	Total Literacy Rate				
Post Coup X Shrines per thousand persons	-1.906***	-0.965***	-0.977***	-0.979***	-0.957**
	(0.382)	(0.324)	(0.341)	(0.344)	(0.370)
Baseline Controls X (Year Fixed Effects):					
High Rainfall Dummy (1931)	N	Y	Y	Y	Y
Agrarian Land Classifications (1931)	N	Y	Y	Y	Y
Proportion Minorites (1931)	N	Y	Y	Y	Y
Distance to Delhi (km)	N	Y	Y	Y	Y
Additional Controls X (Year Fixed Effects):					
Distance to River (km)	N	N	Y	Y	Y
Urbanization (1931)	N	N	N	Y	Y
Land Revenue per capita (1901)	N	N	N	N	Y
Mean Outcome	0.215	0.215	0.215	0.215	0.215
Observations	680	680	680	680	680
Adjusted R-squared	0.945	0.972	0.971	0.971	0.971

Notes: Observations are at the tehsil-census year level. All regressions use a consistent sample of 68 tehsils measured at the 1931 boundaries. The census years are 1901, 1911, 1921, 1931, 1961, 1972, 1981, 1998, 2007 and 2011. The dependent variable is the proportion of the total population that is literate. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. The Post Coup indicator variable equals zero for the period 1901–1981 and one for the period 1998–2011. All regressions include year fixed effects and tehsil fixed effects. Each control variable listed is interacted with a full set of year fixed effects. The inclusion of a control variable interacted with the full set of year fixed effects is indicated by a Y; N indicates that the control is not included in the specification. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 3—The Role of Selection on Unobservables

	(1)	(2)	(3)	(4)
	Total Literacy Rate (Rmax = 1)			
Treatment Variable	Baseline Effect (Std. Error), [R^2]	Controlled Effect (Std. Error), [R^2]	Identified Set	$\tilde{\delta}$ for $\beta = 0$ Given R_{max}
Post Coup X Shrines per thousand persons	-0.96511*** (0.324) [0.978]	-0.95730*** (0.370) [0.979]	[-0.95730,-0.75865]	2.52225

Notes: This table validates our results for the impact of historic shrines on literacy. Baseline effect includes the full set of baseline controls in column 2 of Table 2. Controlled effect includes the full set of controls (baseline + additional) in column 5 of Table 2. The identied set in Column (3) is bounded below by $\beta^{\sim}$ and above by β^{*}, calculated based on R_{max} given in the top row and $\delta = 1$. Column (4) shows the value of $\delta^{\sim}$ which would produce $\beta = 0$, given the value of R_{max} reported in the top row. Observations are at the tehsil-census year level. All regressions use a consistent sample of 68 tehsils measured at the 1931 boundaries. The census years are 1901, 1911, 1921, 1931, 1961, 1972, 1981, 1998, 2007 and 2011. The dependent variable is the proportion of the total population that is literate. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. The Post Coup indicator variable equals zero for the period 1901–1981 and one for the period 1998–2011. All regressions include year fixed effcets and tehsil fixed effects. Each control variable is interacted with the full set of year fixed effects. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 4—Historical Shrines and Total Literacy by Time Period

	(1)	(2)	(3)	(4)	(5)
	Total Literacy Rate				
Shrines per thousand persons X 1911	-0.0722*	-0.0429	-0.0406	-0.0406	-0.0322
	(0.0382)	(0.0410)	(0.0424)	(0.0426)	(0.0382)
Shrines per thousand persons X 1921	-0.0789	0.0118	0.0114	0.0128	0.0239
	(0.0489)	(0.0544)	(0.0552)	(0.0516)	(0.0479)
Shrines per thousand persons X 1931	-0.262***	-0.0785	-0.0794	-0.0758	-0.0665
	(0.0725)	(0.0473)	(0.0477)	(0.0487)	(0.0466)
Shrines per thousand persons X 1961	-0.595***	-0.0805	-0.0900	-0.0832	-0.0598
	(0.173)	(0.149)	(0.141)	(0.176)	(0.168)
Shrines per thousand persons X 1972	-0.750***	-0.0500	-0.0605	-0.0554	-0.00502
	(0.229)	(0.228)	(0.216)	(0.240)	(0.209)
Shrines per thousand persons X 1981	-0.791***	-0.0443	-0.0582	-0.0515	-0.0285
	(0.234)	(0.211)	(0.206)	(0.240)	(0.239)
Shrines per thousand persons X 1998	-2.347***	-1.070***	-1.084***	-1.077**	-1.008**
	(0.505)	(0.383)	(0.407)	(0.407)	(0.458)
Shrines per thousand persons X 2008	-2.318***	-1.018**	-1.032**	-1.032**	-0.999**
	(0.497)	(0.398)	(0.409)	(0.412)	(0.449)
Shrines per thousand persons X 2011	-2.146***	-0.930**	-0.953**	-0.952**	-0.937**
	(0.444)	(0.360)	(0.377)	(0.379)	(0.402)
Baseline Controls X (Year Fixed Effects):					
High Rainfall Dummy (1931)	N	Y	Y	Y	Y
Agrarian Land Classifications (1931)	N	Y	Y	Y	Y
Proportion Minorities (1931)	N	Y	Y	Y	Y
Distance to Delhi (km)	N	Y	Y	Y	Y
Additional Controls X (Year Fixed Effects):					
Distance to River (km)	N	N	Y	Y	Y
Urbanization (1931)	N	N	N	Y	Y
Land Revenue per capita (1901)	N	N	N	N	Y
Mean Outcome	0.215	0.215	0.215	0.215	0.215
Observations	680	680	680	680	680
Adjusted R-squared	0.943	0.971	0.971	0.971	0.971
F-stat for Joint Significance (1911-1981)	3.68	1.26	1.18	1.03	0.97
P-value for Joint Significance (1911-1981)	0.003	0.290	0.327	0.412	0.453

Notes: Observations are at the tehsil-census year level. All regressions use a consistent sample of 68 tehsils measured at the 1931 boundaries. The census years are 1901, 1911, 1921, 1931, 1961, 1972, 1981, 1998, 2007 and 2011. The dependent variable is the proportion of the total population that is literate. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. The shrines per thousand persons variable is interacted with each of the year fixed effects. All regressions include year fixed effects and tehsil fixed effects. Each control variable listed is interacted with a full set of year fixed effects. The inclusion of a control variable interacted with the full set of year fixed effects is indicated by a Y; N indicates that the control is not included in the specification. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 5—Historical Shrines and Pre-Coup Infrastructure

	(1) Schools per thousand persons in 1971 (Total)	(2) Schools per thousand persons in 1971 (Primary)	(3) Schools per thousand persons in 1971 (Middle)	(4) Schools per thousand persons in 1971 (High)	(5) Proportion of irrigated area fed by canals in 1973	(6) Health Units per ten thousand persons in 1973
			Panel A			
Shrines per thousand persons	-0.155	0.0676	0.0287	-0.251	-0.621	-0.145
	(2.736)	(2.161)	(0.375)	(0.435)	(1.180)	(0.615)
Mean Outcome	1.168	1.026	0.098	0.044	0.665	0.078
Observations	66	66	66	66	66	66
Adjusted R-squared	0.448	0.419	0.518	0.484	0.761	0.365
			Panel B			
High shrine dummy	0.0589	0.0454	0.0230	-0.00950	0.0252	-0.0173
	(0.126)	(0.102)	(0.0155)	(0.0196)	(0.0761)	(0.0205)
Mean Outcome	1.168	1.026	0.098	0.044	0.665	0.078
Observations	66	66	66	66	66	66
Adjusted R-squared	0.450	0.422	0.545	0.483	0.761	0.374
			Panel C			
Shrines per area	-9.687	-7.619	-0.899	-1.169	-2.215	0.328
	(18.07)	(13.91)	(2.491)	(2.788)	(7.178)	(3.667)
Mean Outcome	1.168	1.026	0.098	0.044	0.665	0.078
Observations	66	66	66	66	66	66
Adjusted R-squared	0.451	0.423	0.520	0.482	0.760	0.364
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes : Each panel uses a different measure for the power of shrine elites. Panel A uses our preferred measure, which is is the number of historically important shrines per thousand persons in 1931. Panel B uses a high shrine dummy that takes a value 1 when the number of shrines is above its median value (and 0 otherwise). Panel C uses the number of shrines per spuare kilometer of area. The dependent variables in columns 1 to 4 are the supply of 'total', 'primary', 'middle' and 'high' schools normalized by the population in the Pre Coup year of 1971. The dependent variable in column 5 is a measure for the supply of canal infrastructure in the Pre Coup year of 1973. This measure is contructed by taking the ratio of the total irrigated area to the area that is fed through canals. Finally, the dependent variable in column 6 is the supply of health units normalized by the population in the Pre Coup year of 1973. The unit of observation is tehsil. All regressions use a consistent sample of 66 tehsils measured at the 1931 boundaries for which the data on infrastructure variables is available. The baseline controls included in all regressions are: high rainfall dummy, agrarian land classifications, proportion minorities and distance to delhi. Variables are historically defined using consistently available information from district gazetteers in 1931. As these are cross-sectional regressions the controls have not been interacted with year fixed effects. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 6—Historical Shrines and Post-Coup Enrolment

	(1)	(2)	(3)	(4)	(5)	(6)
	Total Enrolment Rate (0-19)		Primary Enrolment Rate (5-14)		Secondary Enrolment Rate (15-19)	
Shrines per thousand persons	-106.7***	-36.95**	-91.49***	-46.25***	-218.1***	-24.83
	(28.41)	(15.53)	(25.66)	(11.91)	(69.33)	(51.85)
Mean Outcome	22.857	22.857	21.150	21.150	60.022	60.022
Observations	924	924	924	924	924	924
Adjusted R-squared	0.196	0.607	0.128	0.535	0.237	0.545
Baseline Controls						
High Rainfall Dummy (1931)	N	Y	N	Y	N	Y
Agrarian Land Classifications (1931)	N	Y	N	Y	N	Y
Proportion Minorities (1931)	N	Y	N	Y	N	Y
Distance to Delhi (km)	N	Y	N	Y	N	Y

Notes: The above table shows the impact of historic shrines on Post Coup school enrolment during the period 1982-1998. Three seperate measures of enrolment are used. Columns 1-2 use total enrolment normalized by the population of school going age (i.e. age bracket 0-19). Columns 3-4 use primary enrolment normalized by the population of primary school going age (i.e. age bracket 5-14). Finally, columns 5-6 use secondary enrolment normalized by the population of secondary school going age (i.e. age bracket 15-19). The unit of observation is tehsil-year. The panel upon which the regressions are based encompass the years 1982, 1984, 1985, 1986, 1988, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997 and 1998. We do not include tehsil fixed effects in these regressions since our explanatory variable, shrines per thousand persons, remains fixed for a tehsil over time. However, all regressions do include year fixed effcets. The baseline controls include: high rainfall dummy, agrarian land classififcations, proportion minorities and distance to delhi. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 7—All Shrines and Total Literacy

	(1)	(2)	(3)	(4)	(5)
	Total Literacy Rate				
Post Coup X All shrines per thousand persons	-2.332	-0.135	-0.108	-0.0128	-0.119
	(1.753)	(1.433)	(1.426)	(1.587)	(1.622)
Baseline Controls X (Year Fixed Effects):					
High Rainfall Dummy (1931)	N	Y	Y	Y	Y
Agrarian Land Classifications (1931)	N	Y	Y	Y	Y
Proportion Minorities (1931)	N	Y	Y	Y	Y
Distance to Delhi (km)	N	Y	Y	Y	Y
Additional Controls X (Year Fixed Effects):					
Distance to River (km)	N	N	Y	Y	Y
Urbanization (1931)	N	N	N	Y	Y
Land Revenue per capita (1901)	N	N	N	N	Y
Mean Outcome	0.215	0.215	0.215	0.215	0.215
Observations	680	680	680	680	680
Adjusted R-squared	0.936	0.969	0.969	0.969	0.969

Notes: Observations are at the tehsil-census year level. All regressions use a consistent sample of 68 tehsils measured at the 1931 boundaries. The census years are 1901, 1911, 1921, 1931, 1961, 1972, 1981, 1998, 2007 and 2011. The dependent variable is the proportion of the total population that is literate. All shrines per thousand persons is the total number of shrines per thousand persons in 1931–these include the number of historically important shrines. The Post Coup indicator variable equals zero for the period 1901–1981 and one for the period 1998–2011. All regressions include year fixed effcets and tehsil fixed effects. Each control variable listed is interacted with a full set of year fixed effects. The inclusion of a control variable interacted with the full set of year fixed effects is indicated by a Y; N indicates that the control is not included in the specification. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 8—Robustness to Additional Controls

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Total Literacy Rate									
Post Coup X Shrines per thousand persons	-1.906***	-0.965***	-0.977***	-0.979***	-0.957**	-1.022***	-1.301***	-0.960**	-0.973***	-0.903**
	(0.382)	(0.324)	(0.341)	(0.344)	(0.370)	(0.280)	(0.414)	(0.367)	(0.347)	(0.358)
Baseline Controls X (Year Fixed Effects):										
High Rainfall Dummy (1931)	N	Y	Y	Y	Y	N	N	Y	Y	Y
Agrarian Land Classifications (1931)	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Proportion Minorities (1931)	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Distance to Delhi (km)	N	Y	Y	Y	Y	Y	Y	Y	Y	Y
Additional Controls X (Year Fixed Effects):										
Distance to River (km)	N	N	Y	Y	Y	Y	Y	Y	Y	Y
Urbanization (1931)	N	N	N	Y	Y	Y	Y	N	Y	Y
Land Revenue per capita (1901)	N	N	N	N	Y	Y	Y	Y	N	Y
Average Annual Rainfall (mm)	N	N	N	N	N	Y	N	N	N	N
Elevation (feet)	N	N	N	N	N	N	Y	N	N	N
Big City Dummy (1931)	N	N	N	N	N	N	N	Y	N	N
Proportion Landlord (1931)	N	N	N	N	N	N	N	N	Y	N
Christian Missions per capita (1931)	N	N	N	N	N	N	N	N	N	Y
Mean Outcome	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215	0.215
Observations	680	680	680	680	680	680	680	680	680	680
Adjusted R-squared	0.945	0.972	0.971	0.971	0.971	0.977	0.966	0.972	0.971	0.973

Notes: The above table shows the robustness of our main results to the inclusion of a whole series of additional controls. Columns 1-5 are copied over from the Table 2. From column 6 onwards we start including, on top of the full set of controls included in Table 2, a series of additonal controls. These include 'average annual rainfall in mm', 'elevation of the tehsil headquarter in feet', 'a dummy for a big city in 1931', 'proportion of land tenurial contracts that are classified as landlord (*zamindari*) in 1931' and 'the number of christian missions per capita in 1931'. Observations are at the tehsil-census year level. All regressions use a consistent sample of 68 tehsils measured at the 1931 boundaries. The census years are 1901, 1911, 1921, 1931, 1961, 1972, 1981, 1998, 2007 and 2011. The dependent variable is the proportion of the total population that is literate. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. The Post Coup indicator variable equals zero for the period 1901–1981 and one for the period 1998–2011. All regressions include year fixed effcets and tehsil fixed effects. Each control variable listed is interacted with a full set of year fixed effects. The inclusion of a control variable interacted with the full set of year fixed effects is indicated by a Y; N indicates that the control is not included in the specification. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Table 9—Shrines in Electoral Politics and Development Funds

	(1)	(2)	(3)	(4)	(5)	(6)
	Utilization rate			Log amount		
Shrine MNA in 1993	0.090	0.090	0.090	0.126	0.126	0.126
	(0.140)	(0.141)	(0.142)	(0.192)	(0.193)	(0.195)
Controls:						
Region fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Region-specific linear time trends	No	Yes	No	No	Yes	No
Region-by-year fixed effects	No	No	Yes	No	No	Yes
Mean Outcome	0.572	0.572	0.572	1.005	1.005	1.005
Observations	364	364	364	364	364	364
Adjusted R-squared	0.203	0.205	0.200	0.297	0.299	0.298

Notes: The above models regress the utilization rate (proportion of maximum allowable allocation of development funds actually realized) and the log amount of development funds over the electoral cycle 1993-1996 on a binary variable indicating whether the constituency returned a shrine affiliated Member of National Assembly (MNA) at the start of the cycle in 1993. The unit of observation is constituency-year. All regressions include year fixed effects and region fixed effects. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by district in parentheses, unless otherwise indicated.

Table 10—Historical Shrines and Physical Access to Schooling in 2007

	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: *Public Schools*					
	Proportion of Boys Public Schools			Proportion of Girls Public Schools		
	< 2km	2km to 5km	> 5km	< 2km	2km to 5km	> 5km
Shrines per thousand persons	-0.241**	0.214***	0.0273	-0.432***	0.397***	0.0353
	(0.0975)	(0.0773)	(0.0521)	(0.159)	(0.134)	(0.0689)
Mean Outcome	0.928	0.051	0.021	0.910	0.056	0.034
Observations	123	123	123	123	123	123
Adjusted R-squared	0.451	0.344	0.335	0.419	0.332	0.345
	Panel B: *Private Schools*					
	Proportion of Boys Private Schools			Proportion of Girls Private Schools		
	< 2km	2km to 5km	> 5km	< 2km	2km to 5km	> 5km
Shrines per thousand persons	-0.614***	0.375**	0.240	-0.613***	0.388**	0.226
	(0.190)	(0.158)	(0.266)	(0.204)	(0.150)	(0.271)
Mean Outcome	0.779	0.079	0.143	0.778	0.078	0.145
Observations	123	123	123	123	123	123
Adjusted R-squared	0.470	0.351	0.384	0.456	0.357	0.368
Controls	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The above table shows the impact of historic shrines on physical access to primary schools in a contemporary year (2007). The access measures are diaggregated by type of school (public vs private) and by gender (boys vs girls). Columns 1-3 of Panel A are the proportion of boys public schools within a <2km, 2km-5km and >5km radius, respectively. Columns 4-6 of Panel A are the proportion of girls public schools within a <2km, 2km-5km and >5km radius, respectively. Columns 1-3 of Panel B are the proportion of boys private schools within a <2km, 2km-5km and >5km radius, respectively. Finally, Columns 4-6 of Panel B are the proportion of girls private schools within a <2km, 2km-5km and >5km radius, respectively The unit of observation is tehsil. All regressions use a consistent sample of 123 tehsils measured at the 2007 boundaries. The controls are region dummies, latitude, longitude, elevation, population density and incidence of landlessness. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. Standard errors clustered by tehsil in parentheses, unless otherwise indicated. ***Significant at 1%, **Significant at 5%, *Significant at 10%.

Table 11—Historical Shrines and School Facilities in 2011

	(1)	(2)	(3)	(4)
	Proportion of schools with electricity		Proportion of schools with boundary walls	
Shrines per thousand persons	-0.434*	-0.434*	-0.177*	-0.186**
	(0.238)	(0.240)	(0.0926)	(0.0867)
Controls:	Yes	Yes	Yes	Yes
Mean Outcome	0.641	0.641	0.869	0.869
Observations	123	123	123	123
Adjusted R-squared	0.380	0.375	0.428	0.441

Notes: The above table shows the impact of historic shrines on the quality of school infrastructure in a contemporary year (2007). The unit of observation is tehsil. All regressions use a consistent sample of 123 tehsils measured at the 2007 boundaries. The controls are region dummies, latitude, longitude, elevation and incidence of landlessness. Columns 2 and 4 include land area in (square kilometers) as an additional control. Shrines per thousand persons is the number of historically important shrines per thousand persons in 1931. Standard errors clustered by tehsil in parentheses, unless otherwise indicated. ***Significant at 1%, **Significant at 5%, *Significant at 10%.

Table 12—Historical Shrines and Post-Coup School Size

	(1) Primary	(2) Middle	(3) High
Shrines per thousand persons	-297.9***	-557.9***	-864.7***
	(72.84)	(204.4)	(264.2)
Baseline Controls			
High Rainfall Dummy (1931)	Y	Y	Y
Agrarian Land Classifications (1931)	Y	Y	Y
Proportion Minorities (1931)	Y	Y	Y
Distance to Delhi (km)	Y	Y	Y
Mean Outcome	77.169	233.160	562.668
Observations	924	924	924
Adjusted R-squared	0.471	0.438	0.443

Notes: The above table shows the impact of historic shrines on Post Coup school size (pupils per school) during the period 1982 to 1998. The underlying data for school size comes from the annual reports of Punjab Development Statistics. Column 1 is the number of primary school pupils per primary school. Column 2 is the number of middle school pupils per middle school. Finally, column 3 is the number of high school pupils per high school. The unit of observation is tehsil-year. We do not include tehsil fixed effects in these regressions since our explanatory variable, shrines per thousand persons, remains fixed for a tehsil over time. However, all regressions do include year fixed effects. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by tehsil in parentheses, unless otherwise indicated.

Online Appendix

for

"Pre-colonial Religious Institutions and Development:

Evidence through a Military Coup"

Malik and Mirza (2021)

Section 1: The political economy of shrines

Below the celestial domain, shrines also shape the lived reality of citizens. For the seeker the shrine offers both a sight of spiritual devotion and a temporary refuge from precarious existence. The tombs of saints have historically been revered for their inclusive approach and social services. Shrine guardians provide food to the poor, housing to the homeless, medicine to the ill, and solace to the depressed. Shrines also have an important distributive function, whereby offerings of land, livestock and produce are collected as alms and distributed to the poor. While such support for the local populace is not always driven by altruism, it helps to sustain dense religious networks and bind the shrine and its devotees in reciprocal and mutually dependent exchanges. People from all walks of life, irrespective of caste, creed, or religion, regularly pay their homage to these holy sites, especially around annual religious festivals that usually coincide with key agricultural seasons. Attendance at these festivals (*urs*) can sometimes run into hundreds of thousands and generates handsome amounts in monetary contributions. They also provide a space where markets are formed and social networks are consolidated.

Privilege.—Given their deep influence on local populations, shrine elites have served as important intermediaries for rulers. Central to this intermediary role of shrine is the dialectic of dependence where both rulers and subjects are dependent on them. While rulers depend on shrine elites for the construction and maintenance of political authority (Gilmartin 1998, Ansari 1992), the believers seek their attention both for divine intercession and access to state resources. In return, shrine guardians are rewarded for lending their legitimacy and support to rulers. The Mughal and Sikh rulers rewarded the loyalty of shrine guardians through land grants, a practice that continued under British rule and was complemented with other forms of appeasement, such as honours, titles and appointments. A structural transformation that significantly entrenched the power of shrine elites was the Punjab Land Alienation Act of 1900 that forbade the sale of land to non-agrarian castes. Muslim religious elites, such as Syeds, Sheikhs, and Qureshis, were considered as "agrarian castes" despite the fact that colonial documents described them as being "of no great usefulness in the capacity of colony landlords" and taking "little personal interest'' in agriculture. As Talbot (2012, pp. 211) argues, "[T]he Punjab government's recognition of the Syeds who were generally pirs as agriculturists and eligible for 'landed gentry' status possessed profound political repercussions. It gave them common interests with other controllers of land". Although not typically recognized as agrarian castes, religious families "had to be incorporated into the British system of

social control" (Talbot 2008: pp.213). Such accommodation was conspicuously absent for Hindu religious families.

An illustrative example is the Kirmani Syeds of Shergarh, caretakers of the shrine of Daud Bandagi, who were recognized by colonial administration and rewarded through a sizeable land grant (1,168 acres). The colonial archives indicate this as a recurring pattern. The 1904 Gazetteer of the Bahawalpur State, for example, contains several records of landed estates (*jagirs*) and wells being awarded to shrine leaders. Shrine caretakers in Multan, Montgomery, Muzaffargarh, and Dera Ghazi Khan, among others, were given *jagirs* (grants in perpetuity). Supplementary grants were offered in the form of revenue-free gardens, orchids and vegetable farms. When the crown wasteland was brought under canal irrigation in Punjab in the late nineteenth century, shrine guardians were given preferential access to colony land. There are numerous references to this in historical archives. The leader of a ``powerful shrine in Attock District'', for example, ``was given a personal landed gentry grant of ten rectangles in 1916, along with the lease of 15,000 acres of rakh land in his home district'' (Ali 2014, pp. 106). In Multan, close to twenty thousand acres of land was reserved for religious shrines, with 99 percent of these grants were allocated to Muslim shrines. Other prominent shrines that received land grants included: Sultan Bahu and Uch Gul Imam Shah from Jhang; Shergarh and Pakpattan Sharif from Montgomery District; Shah Gardez, Musa Pak Shahid and Shaikh Kabir Qureshi from Multan; and Dera Din Panah from Muzaffargarh District. Several other shrines received maintenance grants and life *muafis* (revenue-free assignments). These included the shrine of Bhai Pheru and Mohammad Ghaus in Montgomery District. Life *muafis* were also assigned to shrines in Mianpur, Ghaunspur and Baghdad in Khanewal District.

If the recipients were incapable, due to death or indebtedness, of managing their estates, their lands were temporarily taken over by the state under the Court of Wards, restored to a profitable condition and subsequently returned to the awardee. Leading religious families who benefited from this facility included the Pīr of Makhad (Attock), Makhdoom of Shah Jewana (Jhang) and Syeds of Jalalpur Pirwala and Musa Pak Shahid (Multan). The former held, in proprietary rights, more than 34 thousand acres of agricultural land. Leading shrine families were also incorporated into officialdom through appointments in provincial *darbars*, legislative councils, district boards and assemblies. Others became Honorary Magistrates, Extra Assistant Commissioners and revenue collectors (zaildars). Recognizing the de facto power of local chiefs, the zaildari system selected men of influence as tax collectors. In many regions, prominent shrine families

were natural contenders for this role. Shrine caretakers in Karor Lal Isan, Shah Jewana, Alipur and Shahpur, among others, were appointed as *zaildars*.

Political persistence.—The access of shrine families to high office and valuable economic resources was significant in that it prepared them for a subsequent role in politics. Affiliation with a notable shrine becomes a vital political asset in a milieu where, "it is not wealth alone, but wealth plus either kinship or spiritual prestige, or both, that gives political power" (Lieven 2012, pp. 137). This paves the way for a shrine family's entry into electoral politics:

> "A leading shrine is a gold mine, which catapults him into the aristocratic category and brings him riches large enough to enter into politics directly at the highest level" (Aziz 2001, pp. 109).

Leading shrine families participated in the first wave of elections held under colonial rule in the pre-partition era. When an alliance of Punjab's landed aristocracy was formed under the banner of Unionist Party shrine leaders became its core members. The 1937 and 1946 elections in British India saw many prominent religious families from Punjab taking part in them. When the demand for Pakistan gained strength, religious families readily joined the ranks of Muslim League and "played a decisive role in mobilizing support for Pakistan" (Gilmartin 1979).

Figure 1 in the main paper—and Table A1 in this Appendix—demonstrate the remarkable persistence of shrine elites in electoral politics. Such political persistence is not exceptional, since prominent landed elites of Punjab have similarly survived on the electoral stage. Figure A1 in this Appendix charts the electoral strength of a major landed clan of Punjab, the Legharis of Dera Ghazi Khan district. As Figure A1 shows, the Legharis have survived for close to a century since first entering the legislative assembly of 1921. The family has held around 80 parliamentary seats since 1921 and have consistently participated and won in all elections. Despite such similarities in the political persistence of shrine and landed families, the former have some distinct advantages in the electoral domain.

Hereditary succession of religious authority facilitates the political persistence of shrine elites over time as it spreads religious power across several generations. Like feudal elites, shrine aristocrats are adept at switching political allegiances. However, such party switching is less costly for shrine elites as they have a captive vote bank due to the stability and portability of their religious network. Owing to more dense ties of shrine

brotherhood, shrine elites also tend to have stronger brokerage capacity in and outside parliament (Malik and Malik 2017). These common interests are further solidified through marital ties. Figure A2 provides a further illustration of these by showing the nuptial ties of Yusuf Raza Gilani, a shrine aristocrat. As the Figure shows, the Gilani clan is connected through marriage with six major shrine families. This affords them a larger influence on the national stage.

Finally, while the political footprint of several leading landed families has reduced over time, most shrine leaders who were influential during the British era have maintained their political influence. Some of the major landed clans whose power has waned over time include: Daultanas of Vehari district; Hayats of Attock district; Tiwanas of Sargodha; Qazalbash family of Lahore; Kharals of Tobatek Singh; Nawabs of Bahawalpur; Barq family of Muzaffargarh district. By contrast, there are few notable examples for similarly situated shrine families who witnessed a subsequent loss of political power in the post-independence period.

Literacy.—Complementing the discussion in section 2.1 in the paper, we offer the following quote from Aziz (2001) that emphasizes shrine leaders' opposition to education:

> "The pir-zamindar, in order to protect his supremacy against any plebeian questioning and to retain intact the loyalty of his followers, discourages the spread of education in his area. Even the most superficial and inferior kind of public instruction and the ensuing rents in the veil of ignorance might push some of his spiritual slaves out of their prison of superstition and unthinking obedience. Education is a plague which he does not want his flock to catch" (Aziz 2001, pp. 159).

In many shrine-dominated regions, prominent religious leaders associated with influential shrines have a domineering control over the life of the poor. This aligns with historical accounts of Punjab during the British era. Recalling a description of the Alipur tehsil of Muzaffargarh, British civil administrator Sir Malcolm Darling noted how "every five miles or so is the house of a tribal or religious leader, who maintains a band of retainers to enforce his influence on his poorer neighbours" (Lyall 1928). In this milieu, the shrine elites' opposition to schooling is unsurprising as it can weaken the hierarchical structures of control and obedience in shrine regions.

TABLE A1: Persistence of leading shrine families in Politics

District/Tehsil	Shrine/Gaddi	Selected Family Representation in Politics
Okara/Shergarh	Daud Bandagi	Syed Mohammad Hussain (1921, 1924) Pir Mohammad Hussain Shah Kirmani (1927) Syed Ashiq Hussain Kirmani (1946) Syed Shahnawaz Kirmani (1962) Syed Sajjad Haider Kirmani (1985, 1988, 1990, 1997) Syed Sabtain Shah (2002) Syed Ashiq Hussain Shah Kirmani (2013)
D.G. Khan/ Taunsa	Taunsa Sharif	Khwaja Ghulam Murtaza (1945) Khawaja Ghulam Moeen-ud-Din (1985) Khwaja Kamal-ud-din Anwar (1988; 1993) Khwaja Sheraz Mahmood (2002; 2008) Khawaja Muhammad Nizam-ul-Mehmood (2013)
Pakpattan	Pakpattan Sharif (Baba Farid)	Pir Ghulam Ali Chishti (1962; 1970) Pir Ali Gohar Chishti (1965) Dewan Ghulam Qutub-ud-din (1965) Pir Allahyar Chishti (1985, 88, 90, 93) Mian Ghulam Ahmad Khan Maneka (1985; 1988)† Ahmad Raza Maneka (2002)† Pir Kashif Ali Chishti (2002; 2013) Dewan Azmat Said Muhammad Chishti (1997; 2013) Mian Atta Mohammad Maneka (2013)†
Attock/ Pindigheb	Makhad Sharif	Mohy-ud-din Lal Badshah (1946, 1951) Pir Syed Safi-ud-din (1970, 1977) Syed Abbas Mohy-ud-din (1993, 2002)
Jhang	Shah Jewana	Syed Hussain Shah (1924) Syed Abid Hussain (1946) Major Syed Mubarik Ali Shah (1946, 1951) † Zulfiqar Ali Bokhari (1962, 1977) Syed Abida Hussain (1972, 1985, 1997) Makhdum Faisal Saleh Hayat (1970, 1988, 1993, 2002, 2008) Syed Fakhr-e-Imam Shah (1985, 1990, 1997) † Syeda Sughra Imam (2002)
Jhang/Chiniot	Shrine of Shaikh Ismail	Syed Ghulam Mohammad Shah (1946, 1965) Sardarzada Mohammad Ali Shah (1977, 1985) Muhammad Tahir Shah (2002) Syed Anayat Ali Shah (2008)
Multan	Shah Rukn-e-Alam	Pir Zahoor Hussain Qureshi (1951, 1956, 1962) Makhdum Muhammad Sajjad Hussain Qureshi (1962, 1965, 1977) Makhdum Shujaat Hussain Qureshi (1977, 1990, 1993) Makhdum Shah Mahmood Qureshi (1985, 1988, 1990, 1993, 2002, 2008; 2013)
Multan	Musa Pak Shahid	Syed Raza Shah Gilani (1921, 1924, 1936) Syed Alamdar Raza Gilani (1951)

District/Tehsil	Shrine/Gaddi	Selected Family Representation in Politics
Multan (*cont'd*)		Syed Hamid Raza Gilani (1962, 1965, 1977, 1985) Syed Yousaf Raza Gilani (1985, 1988, 1990, 1993, 2008) Syed Asad Murtaza Gilani (2002)
Rahimyar* Khan/Sadiqabad	Shrine of Jamal Din Wali	Makhdum-ul-Mulk Ghulam Miran Shah (1965) Makhdum Hassan Mehmood (1956) Makhdum Syed Ahmad Mehmood (1990, 1993, 1997) Jahangir Khan Tarin (2008)† Makhdum Ali Akbar Mehmood (2013) Makhdum Mustafa Mehmood (2013)
Rahimyar Khan*	Mau Mubarak and other shrines of the families of Mianwali Qureshian	Makhdum Hamid-ud-Din Shah (1956, 1962, 1972) Makhdum Sultan Ahmad (1965) Makhdum Noor Mohammad Hashmi (1970, 1977) Makhdum Rukn-ud-Din Hashmi (1988) Makhdum Altaf Ahmad (1985, 1988, 1993) Makhdum Emad-ud-Din (1985, 1997) Makhdum Shahab-ud-Din (1990, 1993, 2008) Makhdum Khusro Bakhtiar (2002, 2013) Makhdum Ashfaq Ahmad (2002) Makhdum Irtiza Hussain (2008) Makhdum Khusro Bakhtiar (2002, 2013)
Toba Tek Singh	Darbar Sandhlianwali	Makhdum Nasir Hussain Shah (1937) Makhdum Syed Ali Raza Shah (1977, 1988, 1990, 1993, 2002, 2008, 2013)

Notes:

† Related to the shrine family.

*Previous political and administrative appointments with the Bahawalpur State not mentioned (Rahimyar Khan was part of the former Bahawalpur state).

Year in the bracket represents the year elected to the National or Provincial Assembly. Information in the Table is purely illustrative; the list of individuals and their respective election years is not comprehensive.

Source: Adapted from Malik and Mirza (2015).

Figure A1——The political persistence of a major landed dynast, Sardar Farooq Ahmed Khan Leghari

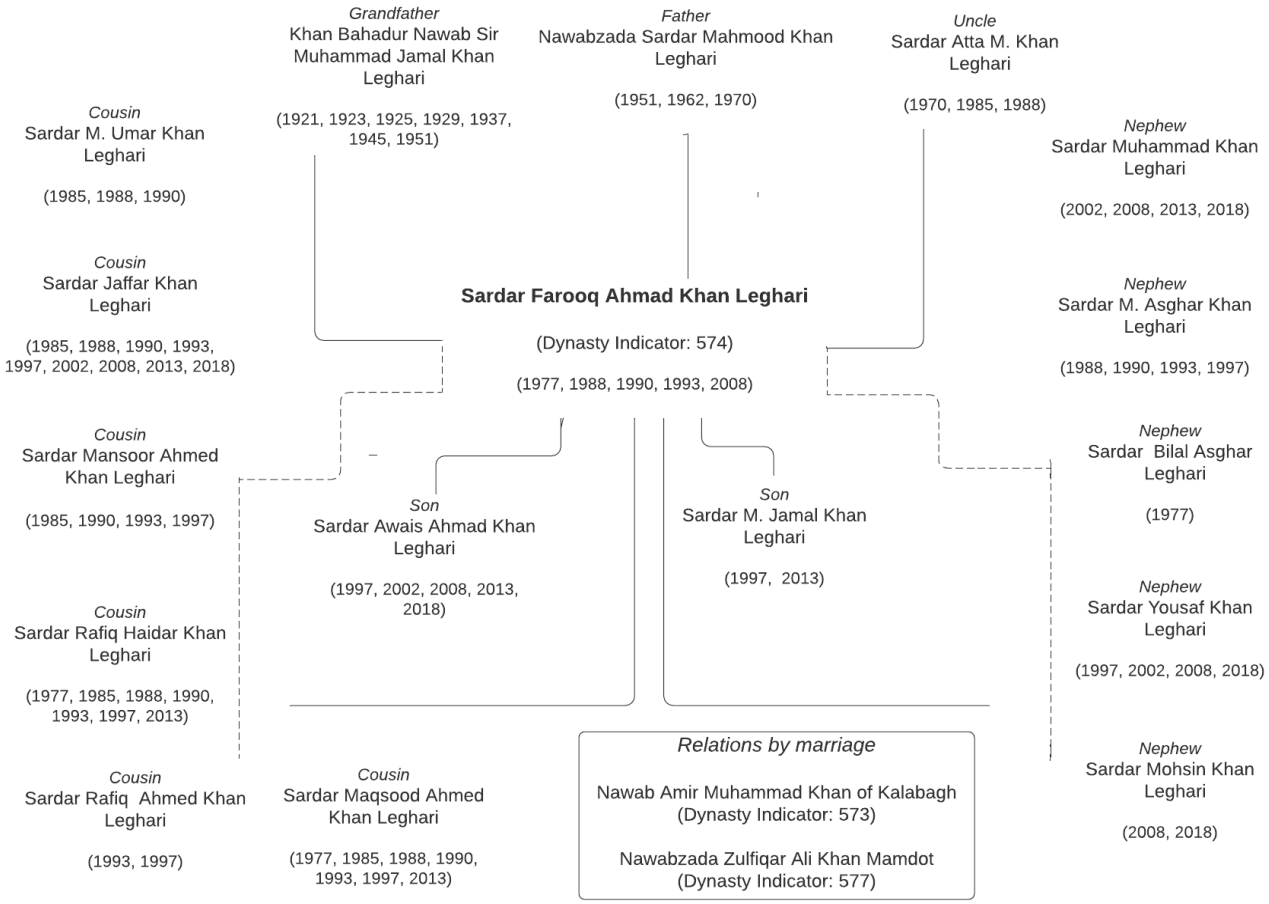
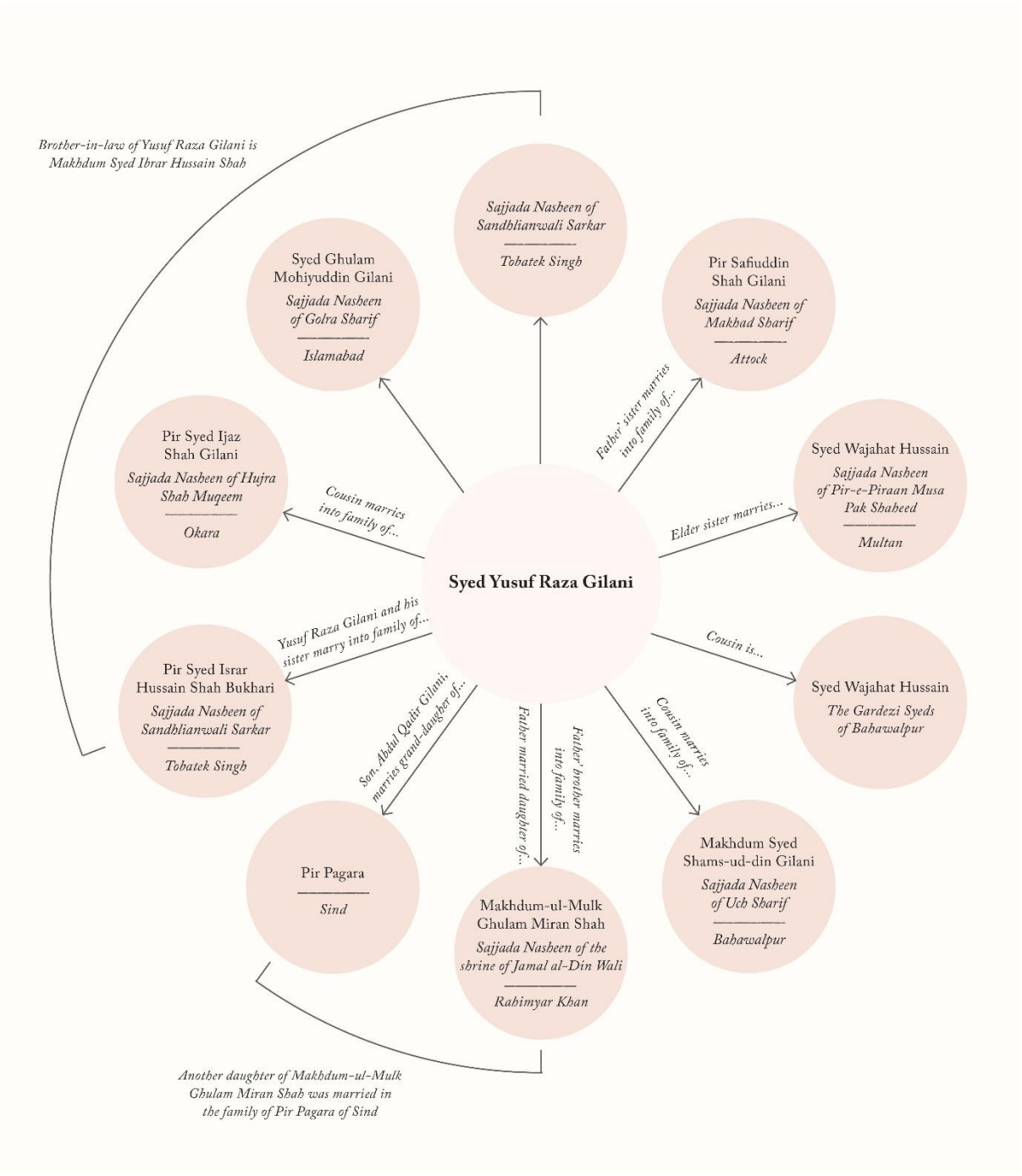


Figure A2—Marital Alliances of Syed Yusuf Raza Gilani



Source: Malik and Malik (2017).

Section 2: Educational policies and spending in the 1980s

The decade of 1980s stands out both in terms of the number of educational policies and public spending. As Bengali (1999, p. 10) notes:

> "The 1980s was a decade of a series of initiatives in the field of education and literacy. The Literacy and Mass Education Commission (LAMEC) was established in 1981, the 10-point education programme was announced in 1983, the Sixth Five Year Plan with an ambitious educational component was launched the same year, and the two year National Literacy Plan was launched in 1984. In 1985, the Literacy Ordinance was promulgated, the Iqra Tax was levied, and the Drop-in Schools Programme was launched. The following year in 1986, the Nation-wide Literacy Programme was launched and, in 1988, the Seventh Five Year Plan with an equally ambitious educational component was unveiled."

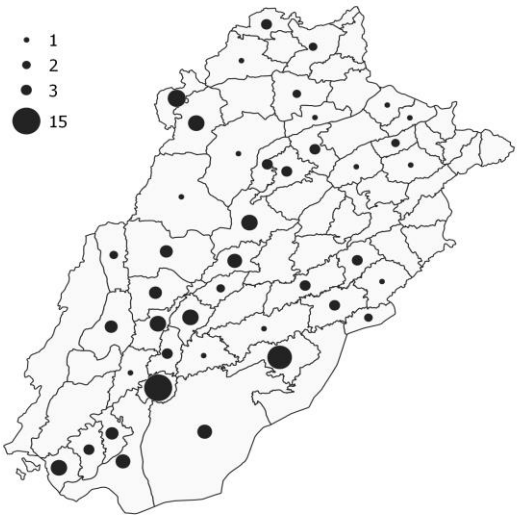
Source:

Bengali, Kaiser. (1999). "History of Educational Policy Making and Planning in Pakistan", *SDPI Working Paper Series No. 40*, Sustainable Development Policy Institute, Islamabad, Pakistan.

Section 3: Shrine clusters and elite competition

Figure A3 shows the spatial distribution of historically recognized shrines in different tehsils of Punjab. Shrine presence is larger in tehsils with bigger circles. As Figure A3 shows, while shrines recognized by District Gazetteers are scattered throughout the Punjab, some regions have a greater concentration of historic shrines than others.

Figure A3—Spatial distribution of historic shrines



Notes: The figure shows the spatial distribution of historically recognized shrines in Punjab. Each circle in the tehsil boundary represents the number of historic shrines. The bigger the size of the black circle the larger the number of historic shrines.

TABLE A2: Shrine leaders (*Pirs*) as candidates for NA-194, Rahimyar Khan III

Candidates (ordered by votes received)	Party Affiliation
Makhdum Khusro Bakhtiar	Independent
Makhdum Shahab ud Din	Pakistan Peoples Party (PPP)
Makhdum Moin ud Din Hashmi	Pakistan Muslim League (Nawaz)
Makhdum Imad ud Din Hashmi	Pakistan Tehreek-e-Insaf (PTI)

Source: Malik and Malik (2017), Table 5. Underlying data from the Election Commission of Pakistan, Gazette Notification, 2013.

Competition among shrine elites

It is not unusual for shrine families to sometimes compete against each other in the political domain. In some constituencies, the political space is completely captured by shrine notables. An example is provided by Table A2 where all the top four candidates belonged to a shrine family. Further examples and illustrations from the following extract from Malik and Malik (2017, pp. 1850-1851):

> "The pīrs have a direct interest in protecting this power of political intermediation. Sometimes, this entails controlling the space for contestation. In many regions members of the same shrine family are often pitted against each other on the electoral stage. A noted example is the family contest between Syeda Abida Hussain and Makhdum Faisal Saleh Hayat, both descendants of the shrine of Shah Jewana in Jhang. The family rivalries of the Mianwali Qureshian clan in Rahimyar Khan are also regularly played out in the political domain. Similar political struggles exist outside the family when competing shrine centres jostle to gain electoral influence. Political competition among rival families belonging to different shrines is not a rare sight on Punjab's political landscape. Electoral competition between the Gilanis and Qureshis has been a traditional feature of Multan's politics through the ages. Even when such competition is not a product of grand design, having shrine families represented on both sides of the electoral divide allows an almost complete domination of the political space and an assured protection of their shared interests. While intra-family political rivalries have sometimes opened space for new challengers, such competition is also part of a larger effort to

consolidate the influence of the *gaddi* (seat of religious power). By reducing electoral struggles to intra-family competition for political office, such family rivalries can pre-empt genuine competition from emerging, effectively erecting entry barriers for new challengers. In such tightly contested spaces, political parties have few options but to work through existing political brokers from within the same family. Even if opponents on the electoral stage, shrine elites sit on the same table to protect their common class interests. They are an important resource for political parties, since the pīrs bring with them, not just the support of their devotees, but also a wider class consciousness that greases the wheels of political brokerage."

Section 4: Additional information on shrine dataset

4.1 Varying Significance of Shrines.

The colonial-era district gazetteers provide a concrete indication of the differential importance of shrines across various regions of Punjab. For example, the 1904 Gazetteer of the Northern Chenab Colony District reports that "there are no shrines of any note in the Colony" (Punjab District Gazetteers, Volume XXXI, part A. 1904, pp. 62.). In Rawalpindi division, the Kahuta tehsil is shown to have "a number of small fairs, which take place at various intervals, but none of them are of great importance", while "there are no fairs of any importance" in Murree tehsil (Punjab District Gazetteers, Volume XXVIII, Part A. 1907, pp. 102-3.). The shrine landscape changes as we move to the Montgomery District where, "fairs of a religious or semi-religious nature (all connected to shrines) are recorded as taking place in no less than 219 places in the district" (Punjab District Gazetteers: Montgomery District. Volume XVIII. Part A. 1933. pp. 117.) Further down in south Punjab, the Uch Sharif region was described as "unrivalled for the number of its shrines, and it is said that every inch of the ground is occupied by the grave of a saint" (Bahawalpur State Gazetteer, Vol. 36, 1908.)

4.2 Auqaf and political databases

We furnish here further information on shrines included in the *Auqaf* lists. We also provide additional information for our database on political shrines. The *Auqaf* lists are maintained by the Provincial *Auqaf* Department, which was originally established to look after the administration, construction, decoration and management of shrines. The Auqaf lists provide information on shrine names and their location. A key challenge was to slot each shrine to its contemporary tehsil boundary as administrative boundaries have changed since the lists were first compiled. However, we used information on sub-tehsil units (i.e. *Moza*) and Union Councils and combined it with files from the National Reconstruction Bureau (NRB) to assign each shrine to its relevant tehsil. For shrines with missing or incomplete location details, we used specialized web-searches (including information from google maps and government websites for tehsils/districts, etc.). This consistency check tried to ensure that no shrine worth a mention is excluded from our list. Any major errors or omissions were likely to be identified and corrected at this stage. Further details on the compilation of *Auqaf* lists is included in Malik and Mirza (2015).

To map the presence of shrine elites in electoral politics, we identified all shrine families that have directly participated in electoral politics and entered in national or provincial assemblies. The following election rounds were considered: 1937, 1946, 1950/51, 1962, 1965, 1970, 1977, 1985, 1988, 1990, 1993, 1997, 2002, 2008, and 2013. Results for National Assembly elections (1970-2008) were obtained from FAFEN (2010). The 1962 and 1965 results were compiled using Gazette notifications available at the National Assembly library. Pre-partition election

results (1937 and 1946) were obtained from various monographs published in Urdu (Anjum 1995; Jaffri 2007). Finally, Punjab Provincial Assembly results were directly retrieved from the websites of ECP and Punjab Assembly. The next challenge was to identify shrine-related families in the electoral database. In many con-stituencies, shrine caretakers enter the electoral race with names that have "Pir" or "Makhdum" attached as an honorific title. Since 2002 election results are available with the winners' address details, which usually contain name of the shrine complex. A final useful resource for mapping shrine families was the Urdu literature on political dynasties. The detailed district-level mapping of political families in Anjum (1990, 1995), Jaffri (2007) and Ismail (1986) served as useful references. Like the Auqaf lists, the electoral connection of shrines was verified with district resource persons. We were able to identify 64 shrines with a direct political connection, in the sense that their caretakers were elected into various national or provincial parliaments. In 42 tehsils there was at least one politically influential shrine.

Figures A4-A5 plot the number of shrine-affiliated candidates running (Figure A4) and winning (Figure A5) in National Assembly elections during the period, 1970-2013.

Figure A4

Number of shrine candidates in National Assembly elections

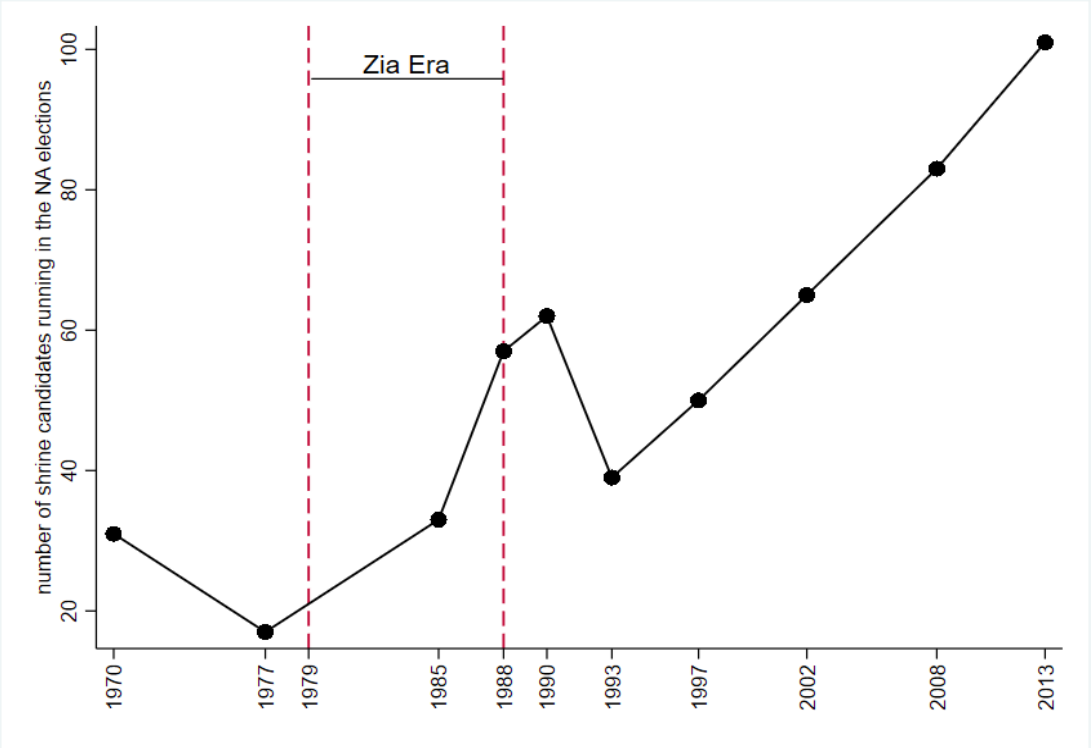
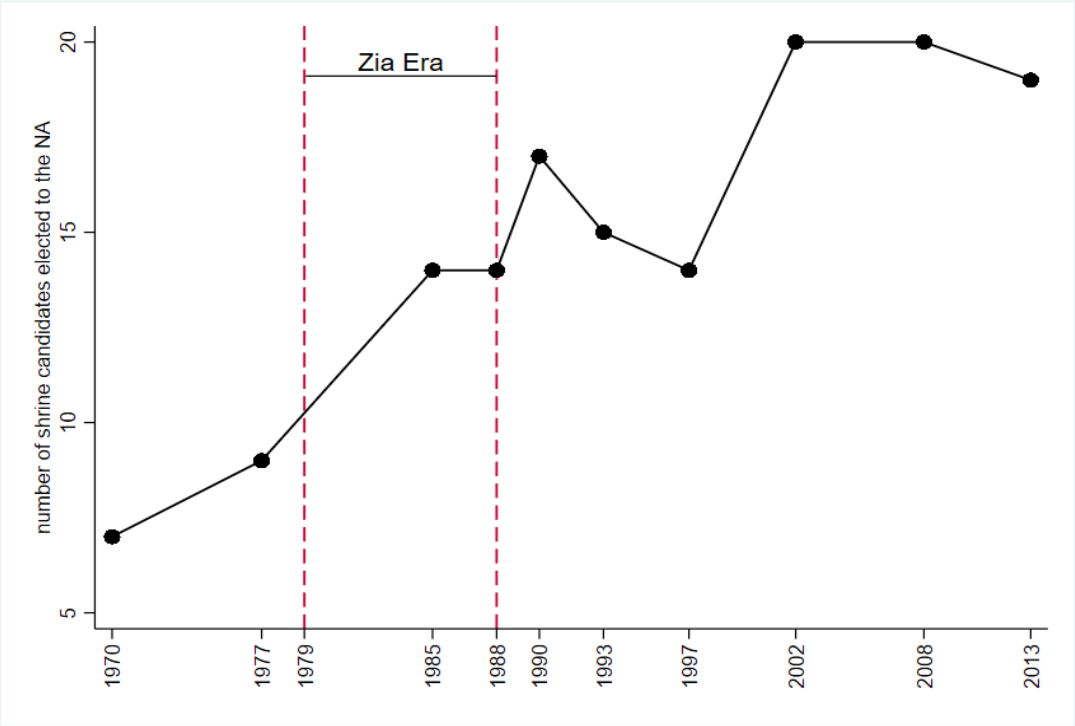


Figure A5

Number of shrine winners in National Assembly elections



SECTION 5: Historical Mapping

A key challenge in using historical information to explain variation in current development outcomes is the mapping of geographical boundaries. Over time, *tehsil* boundaries have undergone periodic changes due to several rounds of administrative restructuring. Our historical data on religious diversity, education, population, rainfall and other development dimensions is available at the level of colonial *tehsils*. In contrast, data on current development outcomes is available for contemporary *tehsil* boundaries. Using historical data to predict variation in current development outcomes requires mapping current *tehsils* onto historical boundaries.

While such mapping has been previously conducted at the district level by Bharadwaj, Khwaja, and Mian (2008), this is the first time a mapping has been undertaken at the lowest available level of geographic unit (i.e. *tehsil*). In order to accomplish this, we used a mapping procedure that allowed us to collapse data based on the current boundaries of 115 *tehsils* into data based on boundaries of the 68 historical (colonial) *tehsils*. In this section, we will describe the details of our mapping procedure. Our computations in this mapping exercise involve two steps. The *first* step is to select a base year—in our case, the 1931 census year—that will serve as the reference point for consistently calculating variables across the same *tehsil* boundaries. The 1931 census year is our preferred reference point, since it was the first census year prior to the 1947 partition of India when reliable data was consistently made available for all historical *tehsils* of Punjab. Our second step is to identify all the administrative restructurings that took place in each *tehsil* from 1931 to 1998, which is the most recent census year for Pakistan. In fact, the MICS data on current development outcomes corresponds to 2008, but *tehsil* boundaries in 2008 are, for the most part, similar to those in 1998 census.

Essentially, there were two main types of administrative restructuring. Both of these are explained below with the aid of relevant examples.

Type 1

The first kind of restructuring corresponds to cases when a *tehsil* in 1931, or any of the later census years, was split into two or more smaller *tehsils* during the period leading up to 1998. In such cases, we first identified all instances of administrative restructuring from 1931 to the latest census year. Then, starting from 1931, as the number of *tehsils* increased, we collapsed them to their previous census round. For example, if, in between two census rounds, *tehsil Z* was split into *tehsils X* and *Y* we used the following formula to make *tehsil* data comparable over the two rounds:

$$[\text{(No. of literates for } \textit{tehsil}\ \text{X)} + \text{(No. of literates for } \textit{tehsil}\ \text{Y)}] \text{ in the } \textit{latter round} =$$

$$[\text{No. of literates for } \textit{tehsil}\ \text{Z}] \text{ in the } \textit{earlier round}$$

Example

We select one district, Muzaffargarh, to illustrate this type of mapping exercise. We need to consider four *tehsils* of Muzaffargarh in 1931 (Muzaffargarh, Alipur, Kot Addu) and then map the administrative restructuring through subsequent census rounds: 1951, 1961, 1972, 1981, and 1998. *Tehsil* boundaries for Muzaffargarh did not change until 1981. However, between 1981 and 2008, a new *tehsil* of Jatoi was carved out of the pre-existing Alipur *tehsil*. Similarly, the old Leiah *tehsil* was divided up into three *tehsils* that included a smaller Leiah *tehsil* and two new *tehsils*, Kahror and Chaubara.

We use this information on administrative restructuring to compute variables that are geographically comparable over time. For example, for all the *tehsils* of Muzaffargarh, we compute the current number of literates at their historical *tehsil* boundaries in the following manner:

Muzaffargarh: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates

Alipur: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates + 2008 No. of Literates for Jatoi

Kot Addu: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates

Leiah: 2008 No. of Literates at the 1931 *tehsil* level for Leiah = 2008 No. of Literates + 2008 No. of Literates for Kahror + 2008 No. of Literates for Chaubara

Type 2

The second type of restructuring is relatively more complicated. It involved instances where parts of two or more *tehsils* in 1931—or any of the later census years—were combined to form a new *tehsil* between any two census rounds. As before, we first identified each instance of administrative restructuring from 1931 to the latest census year. Then, starting from 1931, if between two census rounds a new *tehsil X* was formed by carving out portions of *N* pre-existing *tehsils*, we used the following formula to make data comparable between the two rounds:

[(Area given to *X* from *tehsil* 1/total area of *X*)*(data for *X*) + (data for *tehsil* 1)] in the *later round* = [data for *tehsil* 1] in the *earlier round*

[(Area given to X from *tehsil* 2/total area of X)*(data for X) + (data for *tehsil* 2)] in the *later round* = [data for *tehsil* 2] in the *earlier round*

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[(Area given to X from *tehsil* n/total area of X)*(data for X) + (data for *tehsil* n)] in the *later round* = [data for *tehsil* n] in the *earlier round*

where N=1,2,....n are the pre-existing *tehsils* from which areas were taken to form new *tehsil* X.

Example

We use an illustration from Rawalpindi to describe this. In 1931 the Rawalpindi district consisted of four *tehsils*: Rawalpindi, Gujar Khan, Murree and Kahuta. *Tehsil* boundaries did not change until 1981. Between 1981 and 2008, administrative boundaries of Rawalpindi *tehsils* were altered in the following way. A new *tehsil* of Kotli Satian was formed by combining portions of the previous Murree and Kahuta *tehsils*. Another *tehsil* of Taxila was formed by taking out a portion of the pre-existing Rawalpindi *tehsil*.

Again, we utilize this information on administrative restructuring to compute the current number of literates at their historical *tehsil* boundaries. The following example will illustrate the mapping procedure set out above:

Rawalpindi: 2008 No. of literates at the 1931 *tehsil* level = 2008 No. of literates + 2008 No. of literates for Taxila

Gujar Khan: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates

Kahuta: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates + (Area given to Kotli Sattian from Kahuta/Total area of Kotli Sattian) x 2008 No. of literates in Kotli Sattian

Murree: 2008 No. of Literates at the 1931 *tehsil* level = 2008 No. of Literates + (Area given to Kotli Sattian from Murree/Total area of Kotli Sattian) x 2008 No. of literates in Kotli Sattian

We repeat this procedure for administrative restructuring between any two census years. While this appeared to us as an eminently feasible mapping strategy it is not without limitations. One pitfall of this mapping strategy is that it assumes a direct correspondence between the proportion of area and the proportion of literates. It assumes that development outcomes are uniformly distributed across different areas of a *tehsil*. If, for example, development outcomes are more unevenly distributed in urban areas then the bias induced by our mapping procedure will be stronger. Unfortunately, we do not have a procedure for capturing such within *tehsil* variation. In the absence of other feasible means of aggregation, this is an imperfect but the best available option.

Online Appendix: List of Punjab *tehsils* in the historical sample

Year	District	Tehsil
1931	Jhang	Jhang
1931	Jhang	Chinniot
1931	Jhang	Shorkot
1931	Jhelum	Jhelum
1931	Jhelum	Pind Dadan Khan
1931	Jhelum	Chakwal
1931	Attock	Attock
1931	Attock	Fateh Jang
1931	Attock	Pindi Gheb
1931	Attock	Talagang
1931	Bahawalpur	Bahawalpur
1931	Bahawalpur	Ahmedpur Sharqi
1931	Bahawalpur	Ahmedpur Lamma
1931	Bahawalpur	Allahabad
1931	Bahawalpur	Bahawalnagar*
1931	Bahawalpur	Khairpur
1931	Bahawalpur	Khanpur
1931	Bahawalpur	Minchinabad
1931	Dera Ghazi Khan	Dera Ghazi Khan
1931	Dera Ghazi Khan	Taunsa
1931	Dera Ghazi Khan	Jampur
1931	Dera Ghazi Khan	Rajanpur
1931	Lyallpur	Lyallpur*
1931	Lyallpur	Jaranwala*
1931	Lyallpur	Sumundri*
1931	Lyallpur	Toba Tek Singh*
1931	Gujranwala	Gujranwala
1931	Gujranwala	Wazirabad
1931	Gujranwala	Hafizabad
1931	Gujrat	Gujrat
1931	Gujrat	Kharian
1931	Gujrat	Phalia
1931	Mianwali	Mianwali
1931	Mianwali	Bhakkar
1931	Mianwali	Essa Khel
1931	Montgomery	Montgomery
1931	Montgomery	Depalpur
1931	Montgomery	Okara
1931	Montgomery	Pak Pattan
1931	Multan	Kabirwala
1931	Multan	Khanewal
1931	Multan	Multan
1931	Multan	Lodhran
1931	Multan	Shujabad
1931	Multan	Mailsi
1931	Muzaffargarh	Muzaffargarh
1931	Muzaffargarh	Kot Addu
1931	Muzaffargarh	Leiah*
1931	Muzaffargarh	Ali Pur

1931	Lahore	Lahore
1931	Lahore	Kasur
1931	Lahore	Chunian
1931	Rawalpindi	Rawalpindi
1931	Rawalpindi	Gujar Khan
1931	Rawalpindi	Kahuta
1931	Rawalpindi	Murree
1931	Shahpur	Bhalwal
1931	Shahpur	Khushab
1931	Shahpur	Sargodha
1931	Shahpur	Shahpur
1931	Sheikhupura	Sheikhupura
1931	Sheikhupura	Nankana Sahib
1931	Sheikhupura	Shahdara
1931	Sialkot	Narowal
1931	Sialkot	Pasrur
1931	Sialkot	Shakargarh*
1931	Sialkot	Sialkot
1931	Sialkot	Daska

Notes:

*This tehsil was given to India at Partition and is not included in our sample.

SECTION 6: Brief description of Tables (A3 – A11)

Table A3—Results for alternative shrine measures

In Table A3 we present results with two alternative shrine measures: the number of historic shrines per square mile and a dummy for high shrine tehsil. To define the latter, we use the median cut-off for the overall distribution of our tehsil-level measure of historic shrines per capita. Results for specifications using high shrines dummy are presented in panel A, whereas those for shrines per area are documented in panel B.

Table A4—Results for extensive margin of shrines

To ascertain that our results are capturing the intensive margin of shrines, we construct a binary dummy variable for shrine presence that takes a value of 1 if there is at least one historic shrine that is present in a tehsil, and 0 otherwise. The corresponding results are presented in Table A3. As is clear from the results, the interaction of this shrine dummy with the post-shock indicator lacks any predictive power in any of our preferred specifications (columns 2-5).

Table A5—Results by gender

In Table A4 we re-estimate the baseline specification separately for male and female literacy. Please note that this exercise is carried out on a smaller sample, since literacy data by gender is not available for the following census years, 1972, 2008, and 2011. Within these data constraints, we find a relatively stronger effect of our historic shrines per capita measure on female literacy rate in the post-shock period. As the estimates in Panel B in Table A4 show, the coefficients on shrine interaction in regressions of female literacy remain negative and statistically significant at 1 percent level in columns 1-5. Overall, these disaggregated results suggest a possibly stronger effect of shrine presence on female literacy rate. However, given the sample attrition, these results should be interpreted with caution.

Table A6—Results for the Post-Partition sample

In Table A6 we re-estimate the baseline specification on the post-partition sample. The panel upon which the regressions are based comes from the post-partition period and encompasses the following census years: 1961, 1972, 1981, 1998, 2008 and 2011. The remaining empirical se-up remains exactly the same.

Table A7—Robustness to outliers

In Table A5 we probe the robustness of our findings to outliers. In Panel A we first remove observations in the bottom 5^{th} percentile of literacy (columns 1-5) and, subsequently remove top 5^{th} percentile of literacy (columns 6-10). In Panel B we repeat the same procedure for the top and bottom 5^{th} percentiles of shrines per capita variable. The results remain robust to the exclusion of the extreme observations in the data.

Tables A8-A9—Alternative fixed effects and alternative clustering of standard errors

In Table A6 we re-estimate the baseline specification by controlling for district, rather than tehsil, fixed effects. In Table A7 we present our main results after clustering the standard errors by district. Our results remain robust to both alterations.

Tables A10-A11—Robustness to dropping the imputed observations

For the early historical census years (1901-1921), data for literacy and population was missing for the following 17 tehsil-year combinations: Allahabad (1901), Bahwalnagar (1901, 1911, 1921), Rahimyar Khan (1901, 1911), Jaranwala (1901, 1911), Khanewal (1901, 1911), Sargodha (1901), Nankana Sahib (1901, 1911), Shahdara (1901, 1911), and Sheikhupura (1901, 1911). To impute the missing data for these 17 observations, we used a simple strategy inspired by Bharadwaj et al. (2009, 2015) and computed decadal growth rates of literacy and population of west Punjab. Imposing this decadal growth rate on the adjacent non-missing tehsil-years, we computed the data for missing observations.

Although the missing data only constitute 2.5 percent of the total observations included in our empirical analysis, we test the sensitivity of our main results to this

data imputation. To do so, we re-estimate Tables 2 and 4 using the unbalanced panel without the imputed observations. Results for this sensitivity exercise are presented in Tables A8 and A9. In A8 we re-estimate our baseline specification on the unbalanced panel and show that our main results remain robust to dropping the imputed observations. Note that the drop in the sample size in column 5 is attributable to the dropping out of a few tehsils from our entire dataset for which either the land revenue or population data or both are missing for the first census year, 1901. In Table A9 we re-estimate the fully flexible specification in Table 4 on the unbalanced panel and show that our main pattern of results continues to hold.

Table A12—Supply of schools and teachers

To investigate whether shrine-dense regions experienced a relatively lower supply of schools and teachers, we construct two measures of school supply using data from Punjab Development Statistics available annually for the period 1982-98: schools per child and teachers per child. Both measures are separately constructed for primary and secondary schools. The former includes children in the age bracket, 5-14, and the latter in the 15-19 bracket. These measures of schools and teachers per child are then regressed on our historic shrine variable. The results are documented in Table A10. Noticeably, there is no evidence to suggest that tehsils with greater shrine concentration had either fewer schools provided per child (Panel A) or had fewer teachers per child (Panel B). These findings are robust to the inclusion of division-specific linear time-trends and average annual rainfall.

Table A13-A14—Role of urbanization

While the military coup brought a radical shock to the administration of public goods, it could also have changed the returns to education and industry. To examine this, we first include a time-varying measure of urbanization in our main empirical specification. Table A13 presents the results for this exercise and shows that the negative effect of shrines holds up after controlling for the proportion of population classified as urban in each census year.

Next, in Table A14, we examine whether shrine-dominated regions witnessed differential patterns of urbanization relative to non-shrine regions after the 1977 military coup. To this end, we replace the dependent variable in our benchmark

specification in Table 2 with a time-varying measure of urbanization defined as the proportion of population that is classified as urban in a tehsil. The remaining empirical set-up is the same as in Table 2. In column (1), which does not include any controls, the coefficient on the interaction between our historic shrine measure and post-coup dummy variable is negative and statistically significant. However, as we successively include our controls in columns 2-5, the negative coefficient on the interactive shrine term loses its statistical significance. Overall, as the results in Table A14 show, there is no evidence to suggest that shrine-dense regions witnessed a differential growth of urbanization in the period after the coup-induced policy shock.

Table A15—Role of economic migration

In A15 we investigate whether shrine-dense regions had a systematically lower proportion of households who received remittances from *abroad* (column 1) or *within* the country. As the results show, there is no statistically significant relationship between shrine density and proportion of remittance receiving households.