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

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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. Compiling a unique database covering the universe of holy Muslim shrines across Pakistani Punjab, we show that historically embedded religious power shapes persistent differences in literacy. Using the 1977 military take-over as a universal shock that gave control of development expenditures to politicians, our difference-in-differences analysis suggests that areas with a greater concentration of shrines experienced a substantially retarded growth in literacy after the coup. We argue that the coup devolved educational spending to local politicians, and shrine elites, being more wary of education since it undermines their power, suppressed its expansion in shrine-dense areas.

*JEL Codes*: I25, N55, O15, Z12

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# 1 INTRODUCTION

*The long-run implication of the cultural processing of information that underlies informal constraints is that it plays an important role in the incremental way by which institutions evolve and hence is a source of path dependence* North (1990, pp. 44)

Informal institutions have long been considered as a fundamental building block of institutional analysis but have remained both poorly understood and significantly understudied. Prior work on the impact of informal institutions on development has primarily focused on the role of culture and social norms (Qian, Xu, Yao, et al., 2015; Glaeser, Ponzetto, and Shleifer, 2007; Tabellini, 2008; Platteau, 2000; Guiso, Sapienza, and Zingales, 2003). The impact of religious norms and beliefs is relatively understudied. This is surprising given that "moral and ethical behavioural norms" form a central component of Douglass North's original conceptualization of institutions.

Religious beliefs not only "enable, motivate and guide" human behaviour, they are also by their very nature self-enforcing and reproducing. Given that such beliefs are relatively time invariant and transmittable from one generation to next, they can have a profound influence on long-run development outcomes. However, a key empirical challenge in exploring their impact is the difficulty of measuring informal institutions (Helmke and Levitsky, 2004). Another challenge is that the impact of a society's self-enforcing informal institutions is usually conditioned by history and the interaction between formal and informal institutions (Greif, 2006).

We surmount these twin challenges by studying a rare encounter between historically-embedded religious power and a change in formal institutional arrangements in an important Muslim context, Pakistan. While existing literature has focused on the role of religious beliefs typically measured through survey data, we examine the impact of religious elites—whose power is based on these beliefs—on development. Our analysis highlights the role of influential Muslim religious elites who are affiliated with holy shrines and derive their power from sacred lineage. The religious authority of these elites is mainly derived from their association with shrines. An advantage of focusing on these elites is that, with their ability to shape cognitive processes, moral perceptions, and beliefs, they can exert a more durable form of control over local populations.

Our focus on shrine elites is motivated by an extensive literature in history and Islamic studies that treats shrines as the "symbolic cultural outposts of the power of Islam and

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the Muslim state" (Gilmartin, 1988). Originally credited with the spread of Islam in the sub-continent, these shrines are the face of popular religion and the exemplars of historically-embedded structures of religious authority. Shrines dispense important welfare functions. They are non-exclusionary, open to all, and funded by the communities they serve. Their caretakers organize free kitchens for the poor, offer healing to the ill, and help to resolve local disputes. While largely organized in an informal capacity, such social exchange carries profound implications for power relations. Given their tremendous religious legitimacy and influence over local populations, the shrine elites (commonly described as Pirs) have historically acted as a crucial link between the rural populace and central political authority. From Mughal rule to the Sikh interregnum and from colonial India to post-partition Pakistan, shrine guardians have been courted and rewarded by every ruler.

Structurally positioned within the prevailing distribution of economic and political power, Punjab's leading shrines form an important component of de facto power. They provide an important lens for studying the interplay between religious authority and formal institutions, and for tracing its impact on development. It is surprising, however, that the political economy dimension of shrines remains hitherto unexplored. Prior work has studied the religious ecosystem of shrines, and has been mostly carried out by scholars of Islamic studies, history and anthropology (Gilmartin, 1979, 1988; Ansari, 1992; Martin, 2015). This is the first empirical enquiry that probes the impact of shrine-affiliated religious elites on the political economy of development, focusing on their role in obstructing the growth of literacy.

Our focus on literacy is inspired by a wealth of qualitative literature that indicates how the religious authority of Pirs 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 could compromise their ability to control the underlying social and economic structure.[1] To identify the effect of religious power on literacy we use a dramatic shock to the administrative regime for allocation of public goods induced by the military coup in 1977 that brought General Zia-ul-Haq to power. By reassigning control over allocation of government resources earmarked for development from centralized bureaucrats to elected representatives, the coup brought a major shake-

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[1] A large body of theoretical and empirical research emphasizes the role of human capital in advancing development (Lucas Jr, 1988; Klenow and Rodriguez-Clare, 2005; Glaeser, La Porta, Lopez-de Silanes, and Shleifer, 2004; Gennaioli, La Porta, Lopez-de Silanes, and Shleifer, 2012).

up in the administration of public goods provision. Given the greater aversion of shrine elites to educational expansion, we hypothesize that the interplay between shrine-based religious power and this de jure change in the administrative regime for public goods provision should be adversely associated with literacy.

While the new institutional arrangement affected all regions—and was, therefore, a universal policy shock—its effect on the trajectory of literacy should be more pronounced in regions where shrines have historically enjoyed greater religious power. To measure informal religious power, we rely on the unique historical information contained in the colonial-era district gazetteers that systematically document the name and number of notable shrines in each district. We then construct the total number of historically recognized shrines per thousand persons as our measure of historical religious power, measured at the tehsil level, the lowest administrative unit for which literacy data are available. Drawing on a range of supplementary sources, we also compile data on the full universe of shrines in Punjab. Taken together, this is the first and most comprehensive data collection efforts on shrines to date.

Our empirical strategy exploits two important sources of variation: cross-sectional variation in the number of historically important shrines per capita and temporal variation arising from the administrative shock to public goods provision after the 1977 military coup. Prior to the coup, elected politicians had no direct control over public goods provision. However, after the coup, elected politicians, including shrine elites, gained direct control over development funds earmarked for their constituencies. 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.

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 shrines-based religious power. We show that growth in literacy is slower in tehsils where the number of historically important shrines per capita was higher (relative to regions where it was lower) after the coup-induced administrative shock (relative to before). Importantly, these literacy differences between high and low-shrine tehsils persist through time even after the restoration of electoral democracy in late 1980s. Shrine dense regions also had lower enrolment rates in the post-coup period.

We recognize and address potential empirical concerns that might arise in identifying how informal religious power shapes the impact of the coup-induced administrative shock on literacy. Firstly, our empirical strategy allows for both the timing of the coup-induced administrative shock and the presence of historically important shrines to be endogenous. It is only the interaction of these two variables that needs to be exogenous for identifying the impact of informal religious power on the evolution of literacy before and after the shock. There are, however, two obvious challenges to this.

First, tehsils with historically-recognized shrines may have always had a literacy deficit (even in the absence of administrative shock) and could have actually been prime drivers of the coup itself. If these possibilities are true, then the interactive effect between religious power and the coup-induced policy shock will be spuriously negative. These concerns are easy to rule out, since the coup and the associated administrative restructuring were the result of changes in high geo-politics that had little to do with the localized power space within which shrine elites operated. In fact, we argue that shrine elites were not prime drivers of the coup. We also show that there were no systematic differences prior to the coup-induced administrative shock in literacy between high and low-shrine tehsils. Results from our fully flexible specifications suggest that high-shrine tehsils did not follow a divergent trajectory with respect to literacy compared with low-shrine tehsils for an extended period prior to the shock.

Even if shrine-dominated regions were not on a differential trajectory in terms of literacy prior to the shock, they could still systematically differ along other dimensions that could potentially influence literacy. Whilst we are restricted in our ability to perform a similar test for *trends* in other relevant development dimensions due to lack of data availability, we are at least able to show that there are no statistically significant differences in *levels* between high and low shrine tehsils for a range of public infrastructure variables that matter for literacy prior to the shock. Our evidence is thus consistent with the suggestion that the impact of religious power on literacy remains latent until the 1980s, and is only instrumentalized after the coup-induced policy shock gave politicians direct control over allocation of public goods.

The second challenge is that shrine presence could be correlated with initial tehsil-level characteristics that might have a bearing on literacy. In this regard, it is important to ensure that our findings are not driven by historically persistent differences in the power of landed elites. We demonstrate this through the inclusion of colonial-era land inequality (Banerjee and Iyer, 2005). Given the strong correspondence between rainfall and patterns

of political and economic inequality in Punjab, we also parse the sample into high and low rainfall regions and show that the effect of historic religious power is particularly salient in the high rainfall areas. We are also able to rule out the possibility that factors such as, historic literacy (Chaudhary, 2009), colonial infrastructure (Ali, 2014; Donaldson, 2010) and partition-induced displacement (Bharadwaj, Khwaja, and Mian, 2015) are behind the relationship we document. All controls enter flexibly in our analysis through their interactions with the full set of year fixed effects. Finally, we include both tehsil-level fixed effects and year fixed effects in our analysis. The former account for tehsil-level characteristics that are fixed over time, and the latter control for the influence of any broad secular trends in literacy at the tehsil-level.

Our results also hold up to the inclusion of key geographic characteristics that could be correlated with both literacy and shrine location (e.g., distance to river, distance to Delhi, elevation, and rainfall). Our main findings remain robust to including alternative measures of shrines per capita, the removal of outliers, the use of alternative functional forms and restricting the sample to the post-partition period. To reassure that our argument does not represent the generalized effect of shrines but corresponds to more influential and historically recognized shrines, we also carry out a falsification exercise that replaces the historic shrine measure with a general measure capturing minor shrines not recognized by District Gazetteers. The minor shrine measure lacks any explanatory power. Thus, although we are unable to rule out all possible identification concerns, the empirical patterns established in this paper are a highly robust and consistent feature of the data.

To explore plausible mechanisms behind this relationship, we draw on several auxiliary datasets and present an array of evidence consistent with the suggestion that shrine elites have undermined education through defective school provision. Rather than out-rightly opposing the construction of new schools or restricting the supply of teachers, shrine elites seem to have manipulated school provision in two ways: firstly, by spreading schooling resources too thinly and, secondly, by shaping the physical access to schools. Overall, our evidence points to the growing politicization of schooling since mid-1980s and suggests that governance issues affecting the quality of primary education are more acute in regions with a greater concentration of historically-embedded religious elites.

The remainder of this paper is structured as follows. Section 2 situates the paper in relevant bodies of literature. Section 3 sets out the historical background of shrines, especially their constitutive role in shaping political power, their relevance for shaping

differences in literacy, and the nature of administrative restructuring introduced after the military coup of 1977. Section 4 sets out the empirical strategy, while section 5 describes the data. Regression results are presented in section 5. Section 6 proposes plausible mechanisms for our results. Finally, section 7 concludes.

## 2  RELATED LITERATURE

Our work feeds into several related strands of literature. First, our paper adds to the nascent literature on the impact of informal institutions on 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.[2] We fill this important gap by identifying a novel measure of religious power and probing its impact on literacy. Our paper is more broadly situated at the intersection of a growing body of knowledge that maps the relationship between history, religion, and economic development (Barro and McCleary, 2003; Barro, McCleary, and McQuoid, 2011; Kuran, 2018).

Second, this paper also complements the growing body of scholarship arguing that the schooling differences across countries are grounded in history and political economy (Gallego and Woodberry, 2010; Gallego, 2010; Acemoglu, Gallego, and Robinson, 2014; Galor, Moav, and Vollrath, 2009). In particular, colonial experience—through early investments in education—is shown to have lingering effects on human capital development (Huillery, 2009). Relatedly, recent scholarship has studied the relationship between religion, human capital and development. Becker and Woessmann (2009) argue that the relationship between Protestantism and prosperity, originally highlighted by Max Weber, is mainly explained by the higher literacy of Protestants. Others have directly investigated the influence of protestant missionaries on education in former colonies (Woodberry, 2004; Gallego and Woodberry, 2010; Nunn, 2010; Wantchekon, Klašnja, and Novta, 2014). In the context of colonial India, Chaudhary and Rubin (2011) showed how early religious and political institutions shaped subsequent differences in human capital formation. Distinct from this literature, we consider the direct effects of informal and historically-embedded Islamic religious authority on the evolution of literacy.

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[2]A partial exception to this is the work by Barro and McCleary (2017), Barro, McCleary and McQuoid (2010) who study the socio-economic determinants of sainthood in Christianity.

Third, our analysis contributes to the literature on elites, institutions and development. As Acemoglu and Robinson (2000) argue, any deep understanding of the origins and impact of institutions requires a careful study of the role of elites and their interests. 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, 2002), or the institutional impact of overseas trade engagement (Acemoglu, Johnson, and Robinson, 2005; Jha, 2008), the role of elites is central to influential political economy accounts. However, despite such significance, the impact of elites on development remains under-studied for the most part. Recent work has sought to rectify this. A prominent example is Acemoglu, Reed, and Robinson (2014) who trace the impact of traditional structures of authority, built around chieftaincy in Africa, on contemporary development outcomes. We show how elites deriving their power from historically-constructed religious authority shape literacy outcomes.

Finally, this paper has a direct bearing on our understanding of the relationship between Islam, politics and development. While an influential literature in political science and Islamic studies has studied the role of Islam in the political domain, the overwhelming focus of this literature is on the role of religious ideas in structuring politics (Esposito and Voll, 1996; Hallaq, 2014; Mandaville, 2014; Hamid, 2016), and attitudes towards democracy (Tessler, 2002; Norris and Inglehart, 2002). Similarly, prior scholarship on Islam and development has studied this relationship largely through an ideational lens, focusing on the possible impact of religious law, beliefs, and behaviour (Kuran, 2010, 2012). Through our focus on the interface between historically-anchored religious institutions and political power, we are able to generate new insights for these scattered literatures.

## 3 Historical Background

This section offers the historical background on three critical inputs for our analysis: the role of shrines in shaping religious and material power, their relevance for literacy, and the administrative restructuring of public goods provision in the mid-1980s that helps to establish the impact of shrine elites on development.

## 3.1 The Political Economy of Shrines

The power of religious elites is historically embedded and has persisted through time. We first highlight how their religious authority is shaped by shrines and how these elites are able to combine their symbolic power with economic and political power.

*Shrines as source of religious power.*—Shrines have long shaped the religious culture of Punjab. Sufi saints served as important conduits of religious transmission. As Gilmartin (1988, p. 40) notes, "many rural Punjabi tribes have traced their conversion [to Islam] to these medieval saints". As inheritors of this spiritual legacy and by virtue of their sacred lineage with these founding saints, shrine guardians enjoy tremendous popular legitimacy. While the religious authority of shrine elites is primarily based on their privileged origins and association with shrines, "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). Deference to these norms creates a domain of obedience where shrine elites command the undisputed loyalty of their followers, and are able to control the social structure at a much deeper level through their influence on mental constructs, cognitive capacities, and the popular understanding of religious beliefs.

This regime of voluntary obedience, where shrine devotees are beholden to religious elites and owe allegiance to their "unquestionable authority", 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) argue:

> "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."

*Distributive function.*—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 are revered for their inclusive approach and social services. Shrine guardians provide food to the poor, housing to the homeless and traveller, medicine to the ill, and solace to the depressed. Shrines have an important distributive function, whereby offerings of land, livestock and produce are collected as alms and distributed to the poor. 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.[3] These annual festivals and fairs provide a meeting point for pilgrims, and provide a space where markets are formed and social networks are consolidated. An elaborate bazaar economy thrives at the footsteps of these shrines.

*Dependence.*—Although the influence of shrines is built on "sacred genealogies", their material power is shaped by the negotiation between the sacred and the secular. Central to the intermediary role of shrine is this dialectic of dependence where both rulers and subjects are dependent on them. While rulers depend on them for the construction and maintenance of political authority (Gilmartin, 1988; Ansari, 1992), the believers seek the Pir's attention both for divine intercession and access to state resources. Aided by superstition and economic deprivation many shrine subjects are tied in a vicious cycle of dependence. Guardians of influential shrines routinely deploy the tools of patronage and control. 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). This can reduce the life of the poor to one of virtual serfdom. Reinforcing this message, Aziz (2001) argues that, "as lords of the shrine...they commanded both the body and the soul of the poor villager" (Aziz, 2001, pp. 31).

*Privilege.*—Given their immense legitimacy, control over vast religious networks, and their capacity for intermediation, shrine families were rewarded by all rulers. In fact, "[N]o major ruler passed by the area without showing deference to their "spiritual power" (Eaton, 1984, pp. 347). The Mughals and Sikhs rewarded the loyalty of pirs through land grants, a practice that continued in British rule and was complemented with other forms of appeasement, such as honours, titles and appointments. Such rewards became more systematized during British colonial rule, especially after the establishment of property rights when shrine families became fit for landed gentry grants. This converted them into both "spiritual and feudal masters", appropriately termed as *pir-zamindars.*

Instances of colonial patronage to shrine guardians are extensively documented in the historical literature. The 1904 Gazetteer of the Bahawalpur State, for example, contains

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[3]Attendance at these festivals (urs) can sometimes run into hundreds of thousands. Even in colonial times some shrines received 50,000 people or more on an annual urs festivals. A" good urs", Albinia notes, "can bring in 30 lakh rupees". The pirs are often caricatured as leading a rich and extravagant life. Albinia (2008) described them as owning "expensive Italian clothes, fleets of Mercedes cars and credit cards from American Express."

several records of landed estates (jagirs) and wells being awarded to pirs.[4] Supplementary grants were offered in the form of revenue-free gardens, orchids and vegetable farms. When the crown wasteland was brought under canal irrigation, Pirs were given preferential access to colony land. There are numerous references to this in historical archives. The Pir 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, p. 106). In Multan, close to twenty thousand acres of land was reserved for religious shrines, with 99% of these grants being allocated to Muslim shrines[5].

While such colonial favour is part of a long tradition of patronage by rulers, the reward structure under British rule was more systematized and associated with significant legal and institutional changes. An important turning point was the establishment of formal property rights. Absolute property rights did not exist before the British. 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). While land grants by Mughal rulers could easily revert to the throne upon the death of the Pir, they were preserved under the British thanks to the establishment of formal property rights. Though property characterized as personal might be divided among heirs, endowed property passed on intact to the successor. In such cases, there was usually no accepted law of primogeniture. All of this made hereditary succession of shrines a powerful economic proposition.

Another structural transformation that led to significant entrenchment 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" and deemed eligible for landed gentry grants, in spite of the fact that colonial documents described Syeds and Qureshis 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

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[4]Shrine caretakers in Multan, Montgommery, Muzaffargarh, and Dera Ghazi Khan, among others, were given jagirs (grants in perpetuity).

[5]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.

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" in the canal colonies.[6] This systematic absorption of religious elites consolidated the nexus between religious and landed power from an early period.

*Persistence.*—Historians have long observed that the religious and political authority of shrine elites is co-constituted (Gilmartin, 1979; Ansari, 1992). With their vast network of devotees, considerable wealth, and a superior ability to mobilize, Punjab's shrine elites possess the three crucial elements of power: number, resources, and organization. The combination of religious and landed power became 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, p. 137). The unconditional allegiance of devotees serves as a crucial political resource that paves the way for a shrine family's entry into politics. A shrine thus provides an ideal political platform:

> "Medium-size shrine makes him a small landowner and a local squire. The big shrine gives him an entre into the zamindar club and makes a magnate of him. 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).

When the British opened the political arena shrine elites were thus natural contenders for power. In the 1920 and 1946 provincial elections, held under British rule, roughly 19% of total rural Muslim constituencies were represented by pirs. Nearly a century later, their corresponding representation in the national parliament only fell to 16% in 2013. Leading shrine families have protected their political turf since the pre-independence period, surviving through both military regimes and civilian governments. Appendix Table A1 provides a snapshot of the persistence of leading Pir families in politics.

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 family were appointed to key positions in the British era, including membership of district boards, municipal committees, judiciary, and legislative assemblies. Since then, the Gilanis have enjoyed an enduring electoral presence.

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[6]Talbot (2008: 213). Such accommodation was conspicuously absent for Hindu religious families.

Hereditary succession of religious authority facilitates their political persistence, since it spreads religious power across several generations. Transcending traditional party lines, the pirs are also adept at switching party loyalties. Beyond their role in providing religious intercession, the pirs also interact with their devotees in a clientelistic exchange. In this sense, like traditional political elites, shrine elites are important claimants to state resources for dispensing patronage.

## 3.2 WHY DO SHRINE ELITES MATTER FOR LITERACY?

Given their deep imprint on local political economy, shrine elites can shape many facets of development. But their impact on education is more profound and direct, since mass literacy poses an existential threat to the regime of voluntary obedience that sustains shrine power. This motivates our focus on literacy as the main outcome variable.

In rural Punjab, the Pir often acts as the overlord of an exploitative structure, where any material and human uplift is viewed as a threat. The attitude of shrine elites towards education is fairly well-documented in separate monographs on South Asian and Islamic Studies. As Sir Malcolm Darling presciently 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 which it is their one object to maintain" (Lyall, 1928, pp. 100).

Anatol Lieven echoes the same concern by highlighting the Pir's resistance to educational progress: "in practice the pirs and their families cannot genuinely advance either local education or local democracy, as this would strike directly at the cultural and social bases of their own power" (Lieven, 2012, pp. 138). To historian, K. K. Aziz, this 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). He further argues:

> "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

**Family Tree of Syed Yusuf Raza Gilani (YRG)**

Former Prime Minister of Pakistan, and Speaker of National Assembly

Key:

——————— First-degree or second-degree relative
*(e.g. parent, sibling, child, grandparent, uncle)*

- - - - - - - Third-degree or other relative
*(e.g. cousin)*

· · · · · · · · · Married to, or related by marriage
*(e.g. spouse, uncle by marriage)*

Syed Zain-ul-Abidin Gilani
*(cousin of Syed Sadr-ud-din Shah Gilani)*
—————
*Naib Tehsildar;
President of Muslim League, District Multan;
Member of Central Working Committee of Muslim League*

Mohammad Syed Mohammad Rajan Bakhsh Gilani
—————
*Member of the Municipal Committee of Multan*

Syed Sadr-ud-din Shah Gilani
*(great-grandfather)*
—————
*d. 1946*

Syed Sher Shah Gilani
—————
*District and Sessions Judge 1898;
Member Central Assembly 1945*

Syed Ghulam Yasin Shah Gilani
—————
*Honorary Magistrate 1918;
Mayor, Municipal Committee, Multan 1938*

Makhdum Syed Ghulam Mustafa Shah Gilani
*(grandfather)*
—————
*Sub-Divisional Magistrate in Muzaffargarh*
*d. 1949*

Makhdum Mohammad Raza Shah Gilani
*(brother of Makhdum Syed Ghulam Mustafa Shah Gilani?)*
—————
*MLA 1921; 1946;
President of Multan District Board*

Makhdum Syed Hassan Mehmood ——— *(spouse)*
*(maternal uncle of Syed Alamdar Hussain Gilani)*
—————
*Prime Minister of the Princely State of Bahawalpur;
Cabinet Minister, Government of West Punjab*

Syed Ghulam Mohiyuddin Gilani
*(relative of Syed Alamdar Hussain Gilani)*

Syed Rehmat Hussain Gilani

*(elder sister of Syed Alamdar Hussain Gilani)*

Syed Alamdar Hussain Gilani
*(father)*
—————
*MLA 1951;
Cabinet Minister 1953*
*d. 1978*

Syed Hamid Raza Gilani
—————
*Vice Chairman, District Board, Multan;
Cabinet Minister, Government of Pakistan, 1977*

Syed Wilayat Hussain Gilani
—————
*MLA;
Chairman District Board, Multan*

*(daughter of)*
Makhdum-ul-Mulk Ghulam Miran Shah
—————
*Minister in Bahawalpur State*

Pir Safi-ud-din Shah Gilani
—————
*Vice Chairman, District Board Cambelpur*

*(daughter of)*
Makhdum-ul-Mulk Ghulam Miran Shah
—————
*Minister in Bahawalpur State*

*(daughter of)*
Khan Bahadur Sir Mehdi Shah of Gojra
—————
*Honorary Magistrate;
Preseident, Municipal Committee*

Syed Tasneem Nawaz Gardezi
*(cousin of Syed Yusuf Raza Gilani)*
—————
*Member of National Assembly;
Federal Minister*

*(elder sister of Syed Yusuf Raza Gilani)*

Syed Wajahat Hussain
—————
*Sajjada Nasheen of Musa Pak Shaheed*

*(spouse in family of)*
Pir Syed Israr Hussain Shah Bukhari
—————
*Senator*

**Syed Yusuf Raza Gilani**

*(sister of Syed Yusuf Raza Gilani)*

Syed Shaukat Gilani
*(cousin of Syed Yusuf Raza Gilani)*

*(spouse in family of Pir Syed Israr Hussain Shah Bukhari)*

Pir Ibrar Hussain
—————
*Member of Provincial Assembly*

Abdul Qadir Gilani
*(son)*
—————
*Member of Provincial Assembly*

*(granddaughter of Pir Pagara of Sind)*

Syed Tanveer-ul-Hasan Gilani
—————
*Member of National Assembly*

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).

Shrine elites could also obstruct educational expansion due to economic reasons. By facilitating labour mobility, education can challenge a dependent social and economic structure by providing an exit option. In his monograph, *Politics, Landlords and Islam in Pakistan*, Nicolas Martin quotes a Pir as lamenting that the "introduction of schools decreased the labour force at his disposal—by creating unrealistic ambitions among his workers—hinted at the fact that he could no longer take this social influence for granted" (Martin, 2015, pp. 4).

*Difference from landed elites.*—In some respects, shrine elites face similar incentives to oppose education than other traditional landed elites (Galor, Moav, and Vollrath, 2009). While a rich propertied class in their own right, shrine elites differ in important respects from landed elites. Shrine families often combine landed power with control over symbolic and organizational resources, which allows them to combine instruments of control typically deployed by traditional elites—such as coercion and co-option—with voluntary compliance, enabling them to exercise a more comprehensive control over social structure. Compared with elites whose power solely rests on landed power, shrine elites have both greater aversion and capacity to oppose education.

Shrine elites supervise a more hierarchical social structure that is based on loyalty and obedience. With their unquestioned religious authority they are able to shape mental constructs and behaviour of followers, which can result in a voluntary suspension of agency. This can make collective action around common interest resources, such as education, even less likely. Many of the challenges of collective action highlighted by Shami (2012) are even more acute in regions dominated by shrine elites, since Pirs enjoy greater bargaining power with respect to their constituents, possess superior capacity to weaken horizontal ties among them, and are subjected to fewer sanctions given their religious status. Relative to traditional elites, the Pirs are thus better able to resist pressures for mass schooling.

As a fixed institution offering a "semi-permanent family seat" and durable religious legitimacy, shrines also provide a more stabilizing source of power. Although succession battles are not entirely uncommon, shrine families are generally less prone to factional division than landed elites. Being less susceptible to inheritance-related fragmentation

of land, the *gaddi* (seat of religious power) can provide an important "safeguard against dilution of landed power" (Malik and Malik, 2017).

The religious network sustained through the relationship of *piri-mureedi* (master-disciple) offers a ready-made resource in the political arena. With the unconditional allegiance of devotees, the Pirs have a stable constituency of followers—a captive vote bank of sorts—that makes them electable even in an uncertain political game. Pirs are also more accessible to ordinary people than a typical landed aristocrat. Beyond the ordinary voters, shrine elites can also mobilize other elite segments, including landlords, who often seek their divine intercession and are usually dependent on the Pir's support themselves for winning an election.[7] Thus, by controlling both elites and constituents, the Pirs could be more effective at restraining literacy.[8] Such reasoning aside, the relative strength of these explanations ultimately remains an empirical matter.

### 3.3   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 after the elections, elected representatives were given direct control over the allocation of public goods in 1985, which were previously determined largely by bureaucrats.

Typically, these funds were allocated to each member of National Assembly (MNA) in equal amounts. While the resources were not directly placed in the hands of elected representatives, the latter could identify development schemes in their constituencies and determine the corresponding resource allocation.[9] While the overall spending mandate is broad, covering such diverse items as water supply and electrification, education was a central expenditure component. Its salience in development spending increased in

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[7]For example, Sir Malik Khizar Hayat Tiwana, former Premier of Punjab and a leading landed aristocrat, paid such respect to shrine guardians that he would typically walk barefooted to the shrine.

[8]Such control is important because even when shrine guardians are out of power, they enjoy a controlling influence over other landed, political, and bureaucratic elites.

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

the wake of the Social Action Program (SAP), a multi-donor initiative to protect social expenditures during the period 1993-1998.

The administrative shake-up in 1985 gave elected representatives a controlling stake over development funds. Apart from indirectly deriving rents through collusion with contractors and bureaucrats, 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 appointments of school teachers and decide where schools were to be built. School construction witnessed a major expansion since the mid-1980s and education departments became the single largest employer at the provincial level. This converted education into an important arena of patronage and control for politicians.

There is growing evidence that the policy shift in the mid-1980s led to a significant "institutionalization of patron-client relationship between bureaucracy and local political elites" 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.[10] 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). With politicians gaining direct control over pubic resources, the education system 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 was exogenous to the latent power of shrines. The coup was the outcome of a complex interplay between geo-strategic compulsions and domestic power struggles. Neither did the shrine families drive the coup nor was the coup influenced by economic characteristics or the potential for literacy expansion in constituencies that elected shrine families into politics. The coup was preceded by public mobilization organized by Pak-

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

istan 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 continued even after Zia's departure and the resumption of democracy in 1988.[11]

## 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 (DD) specification:

$$Lit_{it} = \beta(Shrines_i^{hist} \times Post_t) + \gamma(x_i' \times Year_t) + \delta_i + \eta_t + \epsilon_{it}. \qquad (1)$$

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,[12] and $(x_i' \cdot Year_t)$ is the interaction between a vector of initial tehsil-level characteristics and the year fixed effects. To control for any unobservable time-invariant differences across tehsils, we include tehsil fixed effects ($\delta_i$), and to account for any perturbations that apply equally to all tehsils in a given year we control for year fixed effects ($\eta_t$). We also cluster standard errors by tehsil. Our coefficient of interest is $\beta$. It measures the observed change in literacy in tehsils that had greater concentration of historic shrines (relative to those that had lower concentration) after the coup-induced administrative shock (relative to before).

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[11]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."

[12]Specifically, the dummy is equal to one for all time periods after 1981 (i.e. 1998, 2008, and 2011).

As mentioned earlier, our identification strategy rests on the exogeneity of the the interaction effect $(Shrines_i^{hist} \times Post_t)$. Two specific challenges could arise in this regard. First, if shrine dense areas were on a different trend in terms of their literacy prior to the coup-induced shock and were also the main catalysts behind the coup itself then the assumption would be violated. Second, if there are tehsil characteristics that influence shrine location and also shape the relationship between the coup-induced shock and literacy then this would also violate the exogeneity assumption. To address the first challenge we estimate a fully flexible specification that allows us to investigate whether tehsils with greater shrine concentration were *trending* differently in terms of their literacy relative to tehsils with a lower shrine concentration prior to the coup-induced policy shock:

$$Lit_{it} = \Gamma_t(Shrines_i^{hist} \times Year_t) + \Pi_t(x_i' \times Year_t) + \delta_i + \eta_t + \epsilon_{it}. \qquad (2)$$

All variables are defined as in equation (2). The main difference corresponds to the term, $(Shrines_i^{hist} \times Year_t)$, whereby our historic shrine measure is interacted with time-period fixed effects. The vector of estimated interaction coefficients, $\Gamma_t$, describe the relationship between shrine concentration and literacy in each time-period of our panel. If these coefficients are more or less constant over time and statistically insignificant for the years preceding 1985, then this would provide evidence for the absence of differential trends in literacy between high and low shrine tehsils prior to the coup-induced shock. Similarly, if shrines were to adversely influence literacy in the post-shock period, then we would expect the coefficients to become more negative and statistically significant as we move further into the post-shock period. Given that our proxy for religious power, $Shrines_i^{hist}$, in equation (2) is time-invariant and also because equation (2) includes year and tehsil fixed effects, the estimated coefficients in $\Gamma_t$ have to be measured relative to a base year, which we take to be the first census year in our panel ending in 1901. As an auxiliary to our fully flexible estimation we also estimate a cross-sectional specification that tests for levels differences in public infrastructure that matter for literacy between high and low shrine tehsils prior to the administrative shock.

We address the second challenge to our identification by including interactions between tehsil-level characteristics, which we believe are correlates of shrine location and could have a direct impact on literacy, and the time period fixed effects. These interactions are represented by the term, $(x_i' \times Year_t)$, in equations (1) and (2). The justification

for the inclusion of each characteristic as a control in our analysis is given in section 5.3. Given that our estimation is not based on a structural model, we will interpret our main result as a "reduced form" relationship between historically-embedded religious power and literacy in the post-shock period. We do, however, provide specific leads on potential pathways through which informal religious power shaped the impact of the coup-induced policy shock on literacy.

# 5 DATA

## 5.1 INFORMAL RELIGIOUS POWER

*Historically-recognized shrines.*—In order 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. Such information was typically documented in a separate sub-section entitled, "Religious fairs and festivals".[13] While shrines are a ubiquituous feature of Punjab's sacred geography, their influence varies considerably across regions. For example, while regions such as Pakpattan, Taunsa, Multan, and Jhang are known for powerful shrines of great sufi mystics, other areas have shrines "dedicated to lesser known saints" that "had only the most localized significance" (Gilmartin, 1988, p. 41).

The colonial-era district gazetteers provide an indication of this varying significance of these shrines. For example, the 1904 Gazetteer of the Northern Chenab Colony District reports that "there are no shrines of any note in the Colony".[14] 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.[15] 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."[16] Further down in south Punjab, the Uch Sharif region was described as "unrivalled for the number

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[13]Attendance rates at shrines and size of public offerings were also recorded. But these are not consistently available for all shrines.

[14]Punjab District Gazetteers, Volume XXXI, part A. 1904, pp. 62.

[15]Punjab District Gazetteers, Volume XXVIII, Part A. 1907, pp. 102-3.

[16]Punjab District Gazetteers: Montgomery District. Volume XVIII. Part A. 1933. pp. 117.

of its shrines, and it is said that every inch of the ground is occupied by the grave of a saint".[17]

The gazetteers thus offer a critical historical resource, as no prominent shrine with pre-colonial influence would have missed the gazetteers attention. Importantly, shrines recognized as being influential by colonial administrators were also more likely to have received official patronage by the British.[18] We exploit this variation in shrine influence in our empirical analysis. 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:

$$Shrines_i^{hist} = \frac{\text{No. of shrines in tehsil (i) in 1931}}{\text{No. of persons in tehsil (i) in 1931}} \times 1000 \tag{3}$$

*Auqaf lists.*—We supplement the Gazetteer data with a unique and exhaustive compilation of the names and locations of the universe of minor shrines across Punjab. For this we draw on the shrine lists maintained by the Punjab Auqaf Department.[19] *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.[20] In the final stage, we conducted specialized interviews with informed respondents in each district circle. Any major errors or omissions were likely to be identified and corrected at this stage.[21] As before, our Auqaf-based measure of shrines is defined as the number of minor shrines per thousand persons in a tehsil. We will use this as an alternative measure of shrine concentration in our auxiliary regressions.

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[17]Bahawalpur State Gazetteer, Vol. 36, 1908.

[18]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). This is a recurring pattern in the historical data.

[19]Established in 1959 the Auqaf Department was originally made responsible for the administration, construction, decoration and management of shrines.

[20]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.).

[21]This consistency check tried to ensure that no shrine worth a mention is excluded from our list. For detailed information on the compilation of Auqaf lists, see Malik and Mirza (2015).

*Political shrines.*—Our final database mapped the direct participation of shrine families in electoral politics. Using electoral records from a variety of sources we developed a fine-grained database of shrines-politics linkage across Punjab. Specifically, we relied on multiple waves of election results since 1937 to identify all shrine families that have directly participated in electoral politics and entered in national or provincial assemblies[22]. 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 Punjab Assembly website.

Taken together, these three complementary databases provide a fairly comprehensive coverage of shrines across all tehsils of Punjab. Although the omission of a few minor shrines cannot be ruled out, no shrine of historical and contemporary significance is excluded from our list. Overall, there are a total of 598 shrines in our database. We identify 146 of these as historically significant (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 2 shows substantial variation in our measure. While the Ahmadpur East has the highest share of historic shrines other tehsils have fewer or no shrines recognized in Gazetteers (e.g., Gujrat, Narowal, and Phalia). We will exploit this spatial variation in historic shrine density to learn about the evolution of literacy over time.

## 5.2  LITERACY

The following three sources are used to collect data on literacy for our long panel: (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 between 1901 and 2011. The pre-independence data on literacy is obtained from decadal census reports of colonial Punjab, covering the years 1901, 1911, 1921 and 1931. The colonial census reports contain information on literacy by age, 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,

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[22]The following election rounds were considered: 1937, 1946, 1950/51, 1962, 1965, 1970, 1977, 1985, 1988, 1990, 1993, 1997, 2002, and 2008

1972, 1981, 1998, 2008 and 2011.[23] 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.

FIGURE 2: Proportion of historically-recognized shrines (by tehsil)
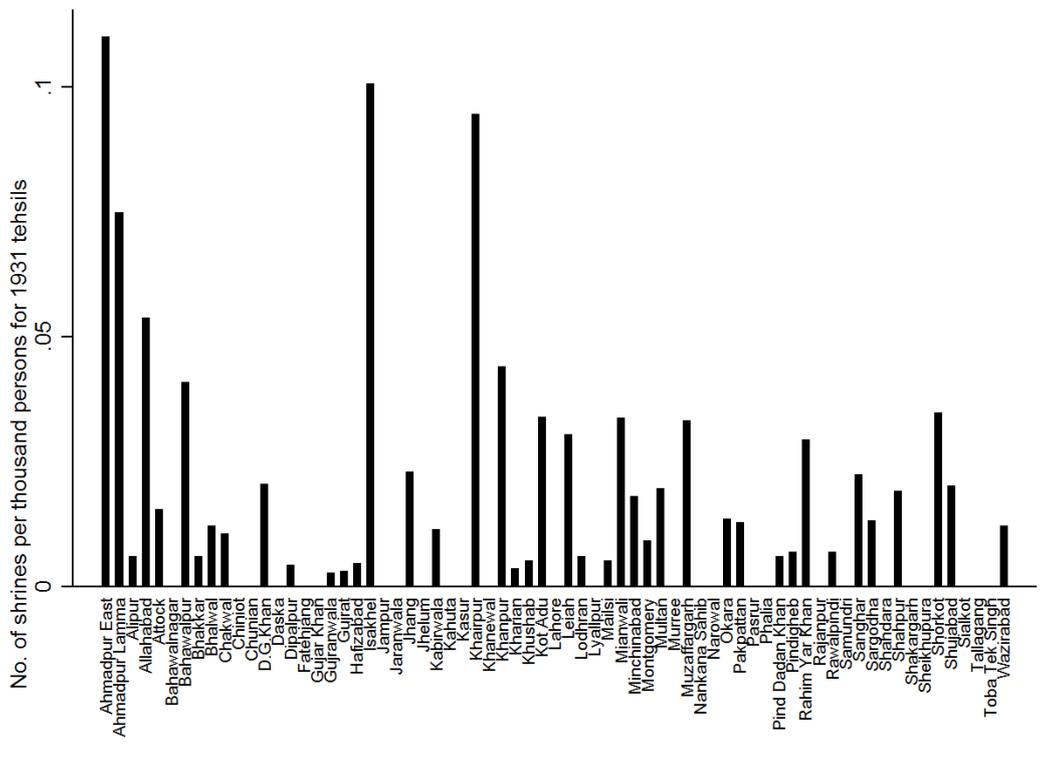


All of the above data sources use a minimum agreeable definition of literacy. Literacy is defined as being able to read and write in any language.[24] Although the definition of a literate person did not change during the colonial period, slight modifications were made after independence. These minor definitional changes should be captured by time-period fixed effects. Measurement error is a generic concern in historical datasets spanning a long time horizon. However, the inclusion of tehsil and time-period fixed effects in our specifications should capture the effect of any systematic measurement error that varies by time-period or by tehsil.

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[23]MICS Punjab is a representative household survey designed to produce statistically reliable estimates on key social indicators at the tehsil-level. The universe of this Survey consists of all urban and rural areas of Punjab defined by the 1998 population census. Additional information is available from: http://bos.gop.pk/mics

[24]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 and physical access to schools. Using the annual reports of Punjab Development Statistics, we constructed a panel of gross enrolment rates and pupils per schools 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.[25] We constructed this ratio separately for pupils enrolled in primary, middle and high schools. Next, we used household data from MICS 2007-8 to construct tehshil-level indicators of distance to primary schools. Our first indicator estimates the proportion of households in a tehsil reporting their nearest primary school as being less than 2 kilometers away. We construct two further indicators for schools situated within the 2-5 and greater than 5 kilometers ranges. These measures are disaggregated by gender (male and female) and type of school (public and private).

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.[26]

## 5.3 CONTROLS

*Historical features.*—To account for historical characteristics that might have a bearing on literacy performance and compete with our shrines-based explanation, we collected data on important tehsil-level characteristics. The primary sources for such historical data are District Gazetteers and Colonial Census Reports. Two initial historical characteristics critical for our empirical analysis are historical literacy rate and the penetration of canal infrastructure. Given evidence of strong persistence in literacy rates over time, we control for the total literacy rate measured in 1931 in all our specifications. We also construct a measure of canal irrigation, defined as the proportion of total area irrigated by canals in 1931 (area characterized as *Nahri* and *Chahi Nahri*). Canal irrigation represented a major agricultural investment in the colonial era, which shaped both agricultural possibilities

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[25]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

[26]This is also described in Malik and Mirza (2015: p. 38-39).

and the early distribution of economic and political power (Ali, 2014). If this was somehow related to the location of shrines it could potentially result in a spurious correlation between shrines and literacy.

Land inequality is another important confounding factor. To account for it, we construct a measure for initial land inequality, defined as the proportion of villages in a tehsil subjected to land tenure contracts that recognize the property rights of landlords (*zamindari* contracts). To do so, we rely on detailed information on land tenure contracts from various rounds of the Colonial District Gazetteers.[27] To account for the possible impacts of the displacement of minorities around partition, we construct a measure of the proportion of religious minorities, measured in 1931 and defined as the share of non-Muslims in the total population of a tehsil.

*Geographic attributes.*—Our analysis will include several geographic features that could determine both shrine location and conditions for literacy growth. The variable topography of Punjab correlates with spatial differences in development outcomes, as high elevation regions in north and central Punjab are generally more developed. Rainfall is another powerful correlate of development outcomes, especially land inequality (Calvert, 1925). To account for these dimensions, we construct measures of elevation of the tehsil headquarters (in feet) and rainfall (in millimetres), averaged between 1917 and 1923 and obtained from District Gazetteers. We also define a dummy variable for high rainfall regions that is equal to one for tehsils where average annual rainfall between 1917 and 1923 lies above the sample mean. Historical literature suggests that the gradual conversion to Islam took place between 13th and 19th centuries, and it mostly occurred in frontier regions considered as "marginal" to the Delhi Sultanate (Eaton, 2009). To account for this 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.[28]

Another potential determinant of shrine location is distance to river. Some of the oldest and most prominent shrines are situated along the river bank. As Lyall (1928, pp. 62) notes, "it is a curious feature of riverain tracts that they are mainly inhabited by Muhammedans". Riverine regions were also historically populated by pastoral nomads who lacked social hierarchy and were not fully incorporated into the Hindu cultural system, thereby providing an important base for religious conversions to Islam (Eaton,

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[27]Typically, district gazetteers divided land tenure contracts into four categories: *zamindari, pattidari, bhayachara, imperfect bhayachara* and government-owned lands.

[28]The measure was constructed using the near tool from ArcGIS

2009). 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. Beyond possibly shaping the location of historic shrines, riverine tracts also had some of the most productive 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). Riverine land was a prized economic asset and, therefore, the "domain of powerful landlords" (Albinia, 2008, pp. 107). We account for this important dimension by constructing a measure of the distance of a tehsil headquarter from the nearest river (in km).

## 5.4 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 22.5 percent, with female literacy less than half of this number. Noticeably, there is significant temporal variation in literacy, especially after 1980s. The total literacy rate during the 1981-2011 period is 46 percent compared to 6.4 percent during the 1901-1972 period (see Table 1). However, the literacy differential between males and females persists even beyond the 1980s.

The major expansion in literacy since the 1980s provides an important backdrop for our study. We would like to explore whether shrine-dominated regions witnessed a differential growth in literacy over time. Table 1 also provides summary statistics of main historical controls, and already points to key patterns of variation. For example, average elevation is 751 feet, but the range between minimum and maximum is very wide (249 and 6400 feet, respectively). Measures of colonial canal penetration, historic landlordism, and distance to the river also display considerable variation across tehsils as indicated by large standard deviations.

Figure 3 shows the spatial distribution of historic shrines per thousand persons and provides a parallel view of average literacy rate for the post-coup period (1981-2011). A quick glance at Punjab's sacred geography shows that shrines are more concentrated in the southern tehsils of Punjab, with significant inter-tehsil variation. 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-coup literacy rate (lighter shades in bottom panel). Even this crude spatial representation suggests a possibly inverse relationship between the concentration of historic shrines and mean literacy in the decades after coup-induced administrative shock takes effect. Additionally, in Figure 4 we chart the evolution of literacy rates across high and low shrine tehsils, defined for both above median and above 75 percentile thresholds. As can be observed, literacy rates between high and low-shrine tehsils have followed fairly similar trajectories prior to the coup-induced administrative shock in 1985. However, after the shock, a visible gap opens up between literacy rates of the two types of tehsils.

## 6 Results

### 6.1 Baseline Estimates

We now turn to the estimates from our baseline specification in equation (1), which are presented in Table 2. In column (1) we estimate a parsimonious model that only includes tehsil and year fixed effects without any additional controls. Subsequently, in columns (2)-(7), we progressively add our main historical and geographic controls, each interacted with year fixed effects. The controls include historic literacy rate, proportion canal area in 1931, distance to river, elevation, distance to delhi and a high rainfall dummy. We suspect these tehsil-level characteristics could be correlated with shrine location and could also directly shape the relationship between the coup-induced administrative shock and literacy. The justification for each of these controls has been provided in section 5.3.

The estimated coefficients on the interaction between our historic shrine measure and the post-shock dummy in columns (1) to (7) are consistently negative and statistically significant. While the successive inclusion of powerful historical and geographic controls reduces the magnitude of our coefficient of interest, it remains highly negative and statistically significant at 1 percent level. There is a strong suggestion 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). According to the estimate in column (7), a ten percentage point increase in our

27

FIGURE 3: Historic Shrines and Literacy: Heterogeneity

### Shrines per thousand persons (1931)



(.02001985,.1100893]
(.00610655,.02001985]
(0,.00610655]
[0,0]
No data

### Mean post coup literacy



(.51217037,.6679954]
(.42596379,.51217037]
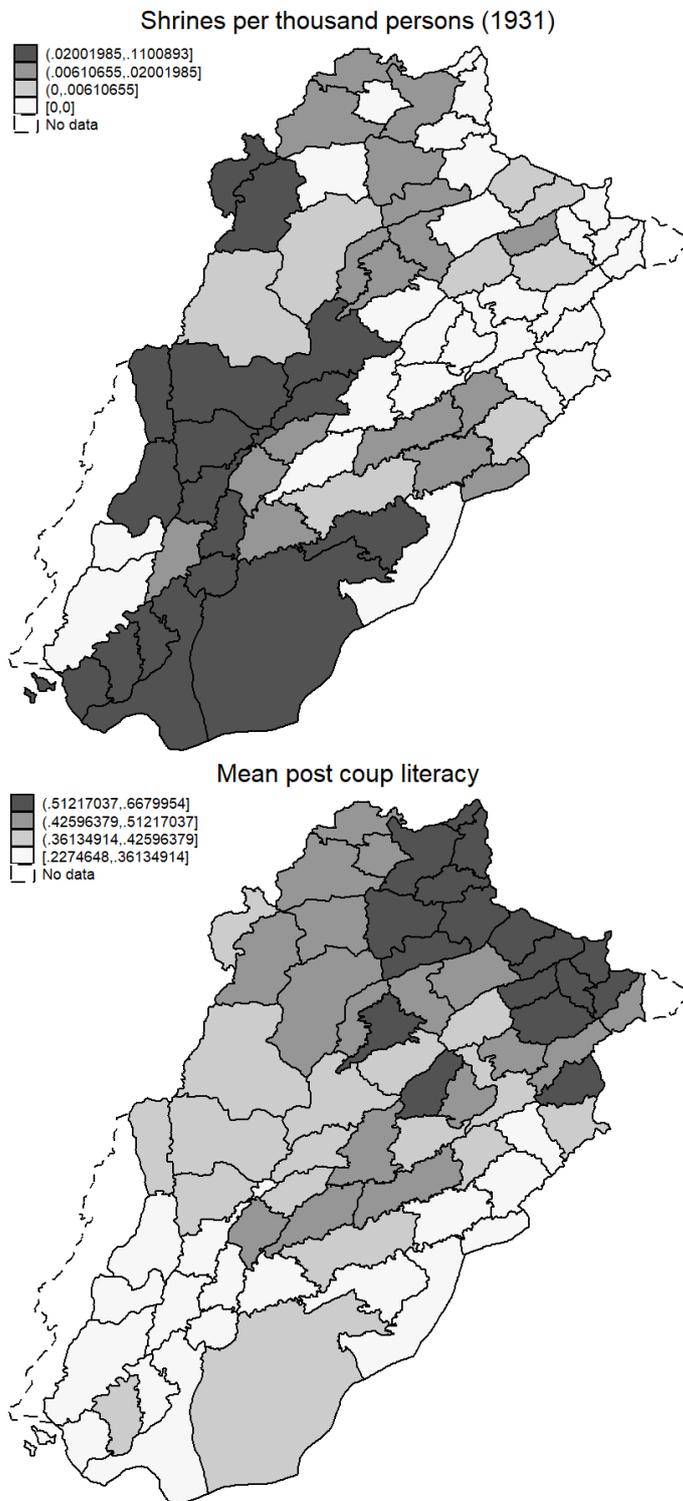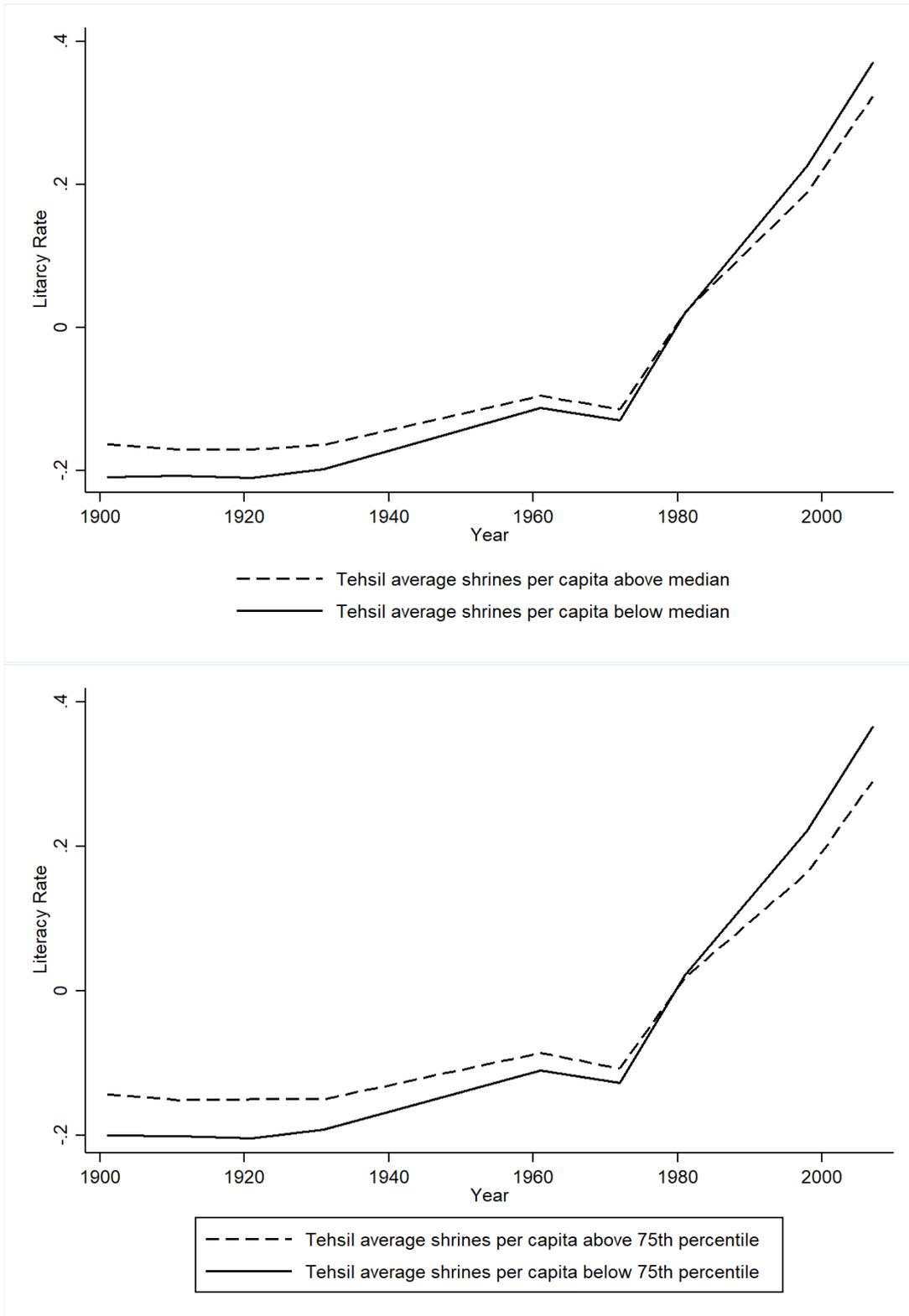(.36134914,.42596379]
[.2274648,.36134914]
No data

FIGURE 4: Historic Shrines and Literacy: Trends

shrines measure is associated with a reduction in the literacy rate of 0.0788.[29] This is equivalent to 17 percent of the average post-shock literacy rate.[30]

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 from 1985 and 2011 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 0.14, going from 0.434 in 1998 to 0.574 in 2011. We want to compare these numbers to what the counterfactual post-shock increase in the mean literacy of Punjab 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 (7) of Table 2. This is simply the tehsil's observed literacy rate in 2011 minus the estimated impact of shrines, $\beta$, 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 0.586 (instead of 0.574) in the absence of shrines. Moreover, the increase in the Punjabi literacy would have been 0.152 (instead of 0.140) without the impact of shrines. As a consequence, the increase in mean literacy of Punjab would have been 9 percent higher than the actual observed increase had the influence 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.

*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 evolves over time. To do so, we estimate the flexible specification in equation (2) that interacts the historic shrines measure with year fixed effects. Replicating the baseline set-up we flexibly add controls in columns 2-7 by including their interactions with year fixed effects. Results are reported in Table 3, and the estimated coefficients and their 95 percent confidence intervals for shrine interactions are plotted in Figure 5. There is clear evidence that, conditional upon the controls, the coefficient on shrine interaction only becomes statistically significant after 1981 (see column 7). It is only after the shock that

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[29]This is calculated by multiplying 0.1 with the coefficient on the shrine interaction in column 7 of Table 2, which is -0.789.

[30]This is arrived through the following calculation: 100 x (0.0789/0.452)

the literacy performance of tehsils with greater informal religious power becomes worse relative to tehsils that lack such power.

As Figure 5 shows, there are no systematic differences in literacy between high and low shrine tehsils prior to the administrative shock (represented in a dashed line that corresponds to the year 1985). Coefficients on the shrine interaction term are insignificantly different from zero in the pre-period and become strongly negative and statistically significant in the post-period. 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. Importantly, 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 have persisted long after his departure. These results also offer supportive evidence on a key component of our identification strategy, which was to argue that tehsils with a greater concentration of shrines did not follow a differential trend in terms of literacy prior to the administrative shock.

FIGURE 5: Historic Shrines and Literacy overtime
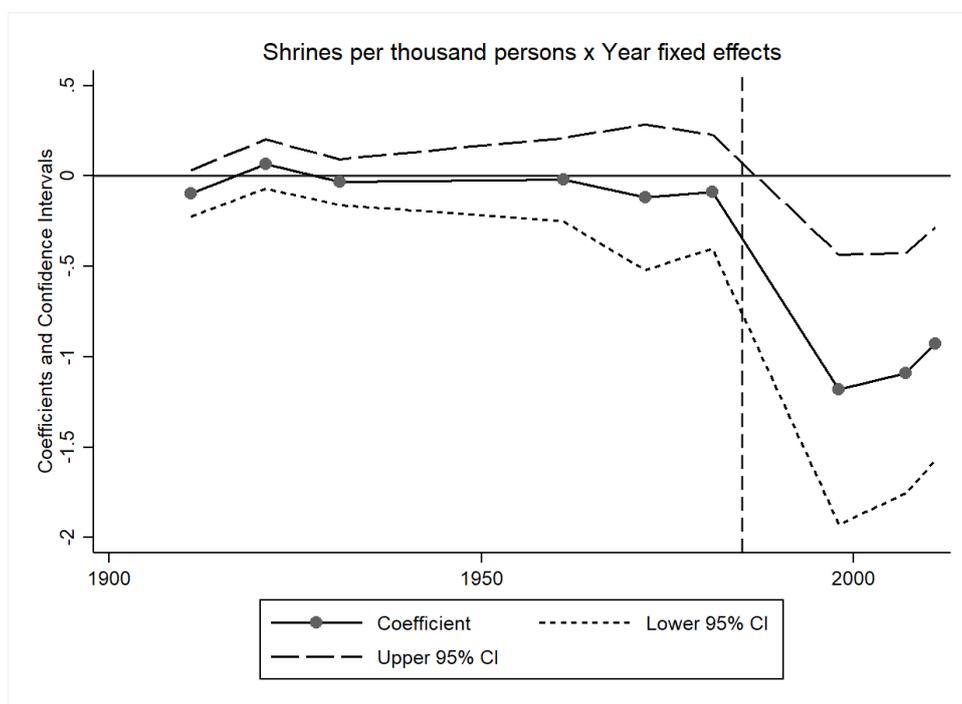


*Pre-shock differences in literacy determinants.*—Despite there being no systematic differences in literacy between high and low shrine tehsils prior to the coup-induced ad-

ministrative 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 literacy-related provision of infrastructure between high and low shrine tehsils.[31] Accordingly, we regress three relevant infrastructure indicators on each one of the three shrine measures: historic shrines per thousand persons, a dummy variable for high shrine regions, and shrines per area. All regressions include district fixed effects and geographic controls.

The results are reported in Table 4. In columns (1)-(4) we report estimates for models of schools per thousand persons, run separately for total schools per capita as well as disaggregated by different educational levels (primary, middle, and high schools per capita). Finally, in columns (5)-(6), we present results for health and canal infrastructure, measured as health units per thousand persons and proportion of irrigated area fed by canals in 1973, respectively. The results are reassuring in that there are no statistically significant differences in early 1970s (pre-shock period) in the supply of public infrastructure (e.g., schools, health units and irrigation) in high-shrine tehsils relative to low-shrine tehsils. Regardless of the type of infrastructure or shrine measure used, the coefficient on our shrine measure remains statistically insignificant.

*Historical shrines and post-coup enrolment.*—Having shown that regions dominated by shrine elites witnessed a retarded growth in literacy after the military coup, we show that these regions also suffer from lower enrolment rates. To demonstrate this, we use 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 3.3). As shown in columns 1-3 in Table 5, 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 enrolments in primary schools (columns 4-6). These findings are robust to the inclusion of division-specific linear time trends and average annual rainfall.

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[31]1972 is the only pre-shock year when data on these dimensions is consistently available at the tehsil-level.

## 6.2 Extended Analysis and robustness

*Falsification test.*—To demonstrate that the results we have presented are not attributable to the generalized effect of shrines but represent the impact of historically important shrines, we carry out a falsification exercise that replaces our historic shrines measure with a measure based on Auqaf lists. As explained in section 5.1, the Auqaf list principally consists of minor shrines that are not mentioned in district gazetteers.[32] Results are reported in Table 6. In neither of the specifications, whether with or without controls, do we find a statistically significant coefficient on the interaction between post-shock dummy and Auqaf shrines per thousand persons. This reaffirms our argument that it is only the historically-recognized shrines that are able to shape the impact of the coup-induced administrative shock on literacy.

*Partition.*—We next control for partition-induced displacement, an important political economy dimension that could directly influence literacy. We know from prior work that partition-induced displacement shaped economic development in the post-independence era (Bharadwaj, Khwaja, and Mian, 2008, 2015, 2009). If high shrine regions also witnessed greater displacement at partition then this could bias our results. To preclude such a possibility we flexibly control for the impact of displacement at partition using the pre-1947 proportion of minorities. Our measure is motivated by prior literature examining the impact of partition (Bharadwaj and Mirza 2017). The result is reported in Table 7, column 8. The coefficient on shrine interaction continues to be negative and statistically significant at 1 percent level.

*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. Even though, as argued in section 3.2, shrine guardians are sufficiently differentiated from landed elites we still try and address this concern through several means. 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 on this account. Secondly, taking cue from Banerjee and Iyer (2005), we include in our regressions a measure of colonial land inequality, defined as the proportion of landlord-based land tenurial contracts, interacted with the year fixed effects. The result is reported in Table

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[32]With few exceptions, the Auqaf list mainly includes names and location of small and medium-sized shrines that came under the administration of the Punjab Auqaf department and depended on it for their sustenance and upkeep.

7 (column 9). Reassuringly, the coefficient on shrine interaction retains its statistical significance despite the inclusion of Banerjee-Iyer type land tenure variable.

A third strategy is to use rainfall as a proxy for land inequality. Punjab's political and economic geography is highly correlated with ecological dimensions, especially rainfall patterns. In one of the earliest official enquiries into size and distribution of agricultural holdings in the Punjab, Calvert (1925, pp. 15) observed that an important "factor determining the size and distribution of holdings in the Punjab has been the rainfall". While contemporary tehsil-level measures of land inequality have not been compiled in Pakistan, it is possible to correlate rainfall with a general measure of landlessness, defined as the proportion of National Identity Card holders who self-classify themselves as landless tenants (*muzaara*).[33] Figure 6 shows that average historical rainfall between 1917 and 1923 is strongly correlated with our measure of landlessness in 2011, and provides suggestive evidence that regions with high rainfall have lower incidence of landlessness.

While a dummy variable for high rainfall regions is part of our baseline controls, we now replace this dummy with a continuous measure of average annual rainfall between 1917 and 1923. As column 10 in Table 7 shows, our results continue to hold to despite flexibly controlling for the continuous rainfall measure. Finally, we divide the sample into high and low rainfall regions and re-estimate our baseline specification for the two sub-samples. Restricting our analysis to regions with fairly similar rainfall levels can help to control for a variety of omitted development attributes that our analysis may not have adequately captured. We know from prior literature that low rainfall regions, lying mostly in south and west Punjab, are more disadvantaged in development (Cheema, Khalid, and Patnam, 2008). Dividing the sample according to rainfall can thus yield a better balance between the treatment and control groups, since development levels are fairly similar within the two sub-categories.[34] Importantly, if the interactive effect of shrines is stronger in high rainfall regions it will give more credence to our results, since these are precisely regions where the shrine effect will be more difficult to establish in the respective sub-sample.

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[33]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, NADRAs Analytics Department was requested to compute the ratio for all tehsils of Punjab.

[34]Furthermore, separately testing our relationship on high and low rainfall samples can help to capture possible non-linearities in the interactive effect of shrines. Conceptually, this is similar to a triple difference-in-differences analysis.

FIGURE 6: Rainfall and landlessness

To explore this we re-estimate our flexible specification on the two sub-samples and plot the coefficients and confidence intervals in Figure 7. As the figure shows, restricting the analysis to comparison within the two sub-samples, the interactive effect of shrines is in fact stronger in high rainfall regions. The corresponding impact is weak and statistically insignificant in low rainfall regions. Note that shrines in low rainfall regions are equally, if not more, powerful than shrines in high rainfall areas. The key difference in low rainfall areas is the fact that non-shrine elites are similarly incentivized and equally powerful to restrain literacy. By contrast, shrine elites in high rainfall areas may have greater ability to undermine education relative to non-shrine elites.

*Alternative shrine measures.*—To explore the robustness of our findings to using alternative measures of religious power, we consider the following two measures: the number of shrines per square mile and a high shrine dummy. The results, reported in Table 8, show that our baseline results remain fairly robust to using these alternative measures.

*Disaggregating by gender.*—We next estimate our baseline specification 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.

Reassuringly, the basic pattern of results continues to hold for both male and female literacy (see Online Appendix).

FIGURE 7: Heterogeneity: High vs Low Rainfall Areas



Coeffients on Year X shrines per thousand persons shown with 95% confidence intervals
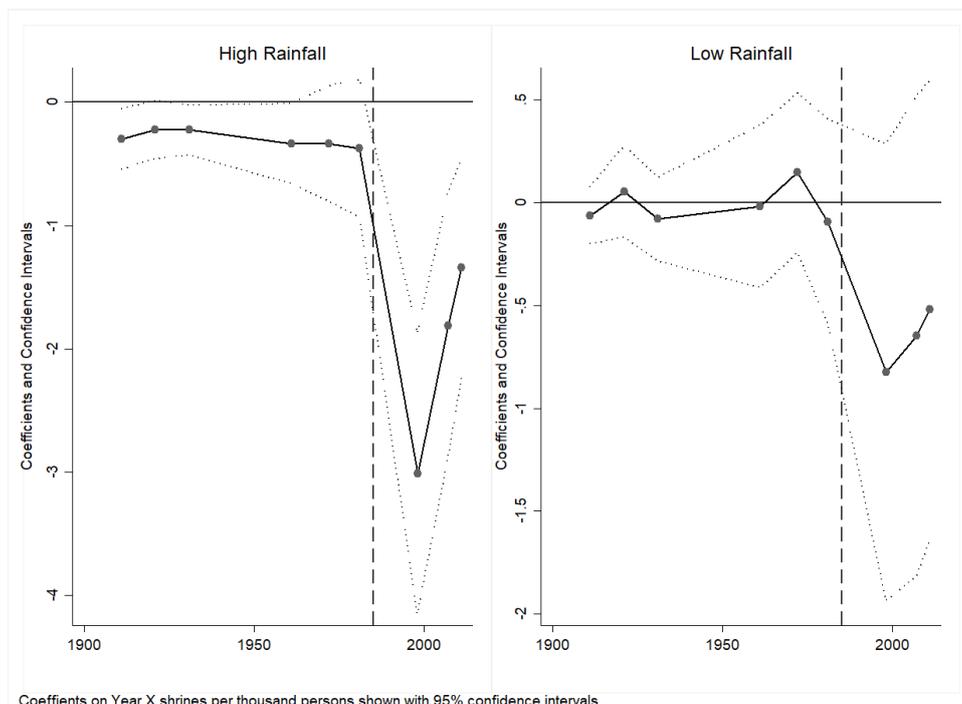
*Further robustness tests.*—We next consider a battery of robustness tests. To conserve space we only report a handful of these, relegating the remaining material to the Online Appendix. In each of our robustness exercises we preserve the basic set-up in Table 2 where controls are successively added to the baseline specification. In Table 9 we subject our results to a strict test, whereby tehsils at the top and bottom deciles 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 decile (Q1) of literacy or shrine per thousand persons (columns 1-7) preserves our findings. Next, we drop observations in the top decile of literacy and shrines per thousand persons (columns 8-14). This yields a broadly similar results as in the full sample. However, results get weaker in terms of significance for top decile in columns (12)-(14). It is possible that some tehsils are not necessarily outliers but could be essential to our story. Despite this our findings are fairly robust and consistent.

Recognizing the possibility that data quality might have changed after independence, we restrict the sample to the post-partition period and re-estimate the baseline specification.

The results continue to hold with the shrine elite effect remaining negative and statistically significant (see Table 10). Next, we perform a series of empirical tests and report their results in the Online Appendix. We start by replacing 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. Again, results remain unchanged. Our findings are similarly robust to clustering the standard errors by district rather than tehsil and to alternative functional forms that use the natural logarithm of the dependent and independent variables, respectively.[35]

## 7   Mechanisms

We next present evidence on the possible mechanisms behind the relationship between informal religious power and post-coup literacy. As argued earlier, shrine elites preside over a hierarchical social structure and are more averse to education. What remains to be shown, however, are the potential channels through which shrine elites undermine education. In this section we will firstly show 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 influencing the quality of schooling.

While shrine elites have been a permanent feature of traditional power structure, they established a stronger electoral foothold during the Zia-era and became key actors in patronage politics. Using the electoral database discussed in section 5, Figure 8 shows a noticeable increase in the number of shrine contestants per constituency. There was a three-fold increase in this ratio since 1977. A growing proportion of shrine contestants also got elected into the parliament (shrine electables). The Zia-era also saw a greater political instrumentalization of religious power. Even in areas where shrine elites did not directly participate in elections, they played an increasingly important role by indirectly influencing election outcomes through support for their favoured candidates.[36]   Such growing politicization of shrines is partly rooted in the weakening of party politics during the Zia-era when elections were held on a non-party basis. This gave electoral advantage

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[35]Results on functional forms available upon request.

[36]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 deemed critical for candidates in several neighbouring constituencies. For more examples and analysis, see Malik and Malik (2017).

to natural formations, thereby elevating the role of religious prestige, besides wealth and kinship (biraderi), as a crucial determinant of electoral success.

FIGURE 8: Growing shrine presence in electoral politics
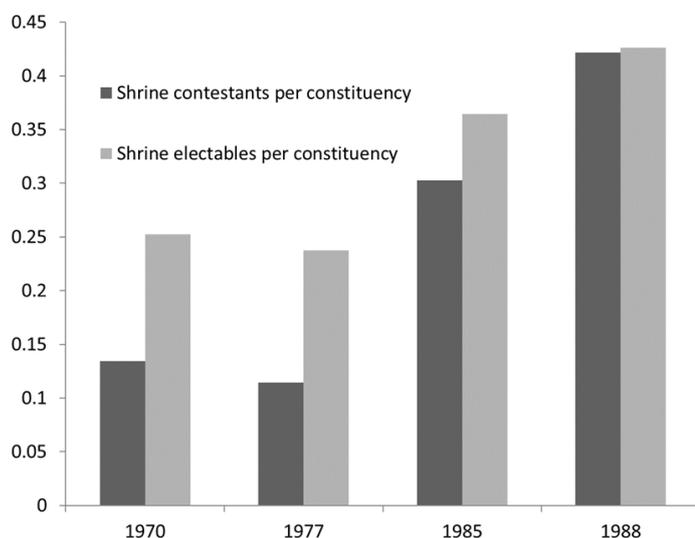


The 1977 military coup and the associated administrative restructuring thus ushered a period when shrine elites controlled both political power and access to public spending on development. This allowed shrine elites to systematically influence the ecosystem of schooling. In this regard, they could use two possible strategies. They could obstruct the construction of new schools or undermine school quality by influencing school size, the siting of schools, teacher appointments, and other such means. Although we are faced by data constraints we evaluate the strength of these mechanisms by first presenting regression evidence where quantitative data is readily available and, subsequently, offer qualitative evidence where such statistical data is unavailable.

To investigate the first mechanism, 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 15-19. These measures of schools and teachers per child are then regressed on our historic shrine variable, and the results are documented in Table 11. Noticeably, there is no evidence to suggest that tehsils with greater shrine concentration had either fewer schools constructed per child (top panel) or had fewer teachers per child (bottom panel). The results are robust to the inclusion of division-specific linear time-trends and average annual rainfall.

The weight of evidence, however, points towards a quality-based explanation. One possibility is that shrine elites might have impacted the growth of literacy by manipulating school size. A wealth of qualitative evidence suggests that, since the mid-1980s, political elites have used the construction of new schools as a source of rents. This has manifested in a growing preference for brick and mortar investments that afford opportunities for lucrative contracts for cronies and resources for political capture. The result is more schools per pupil, which indicates an inefficient dispersion of school capacity 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"

We examine this hypothesis by constructing a quantitative measure of school size, compiled using annual data on pupils per school for the post coup period (1982-1998), and regressing it on our shrine measure. Results are presented in Table 12, columns 1 to 3, for three school types: primary, middle and high. A negative and statistically significant coefficient on the historic shrine measure in column 1 suggests that, relative to non-shrine areas, tehsils with greater shrine concentration had fewer pupils per *primary* school in the post-coup period. There is no statistically significant effect for the size of middle or high schools.

Apart from reducing school size, shrine elites could also influence the siting of schools. 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). It is possible to investigate this channel using 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. In Table 13 we examine whether schools were more distant in shrine-dominated regions. 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). As the results in Table 13 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). Besides the main variables, each specification contains latitude, longitude, elevation and distance to the river as controls. Importantly, the magnitude of the shrine effect is noticeably higher for girls schools, indicating a gender dimension to the problem of school access.

Apart from school siting, plentiful evidence has emerged on the existence of 'ghost schools' that have no physical presence on the ground and exist only in government papers[37]. An estimated 1200 ghost schools exist across Pakistan. Unfortunately, given the sensitive nature of this information, a tehsil-level breakdown of these ghost schools is unavailable. Another important facet of political capture is teacher appointments, which given the large size of provincial education departments, offer plentiful opportunities for distributing employment to favoured constituents. This became a particularly important concern since the Zia-induced policy change. As Gazdar (2000, pp. 20) noted:

> "The appointment of primary teachers was, formerly, the responsibility of the DEO (District education officer). Over the years, however, these appointments have become 'politicised' in the sense that local members of National and Provincial Assemblies (MNAs and MPAs) exert a great deal of influence on teacher appointments. The DEOs discretionary power has been replaced in recent years by an appointment committee consisting of officials and 'notables' in a district, but in practice, the DEO and, above him or her, the political representatives remain in control"

Such non-merit appointments create negative externalities for the larger education system. Politically appointed teachers are difficult to monitor or hold accountable, and affect the morale of other teachers. They are also more likely to be absent from schools. In single-teacher schools in far-flung regions, such absenteeism results in school closure.[38]

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[37]Administrative overheads are, however, regularly paid for these schools, which leads to significant pilferage of public resources.

[38]Political patrons also use transfers of teaching staff to punish or reward their constituents.

In this milieu it is not surprising that politicization of teacher appointments has been identified as an "important cause of decline in standards."[39] Political interference also distorts the composition and quality of spending. More investments are made in constructing new facilities than in improving the quality of existing school infrastructure or in teacher training programmes. A recent assessment showed that around 60 percent of primary schools do not have electricity, 36 percent lack any drinking facility, 42 percent have no wash-rooms, and 30 percent have only a single teacher (GOP 2014).

An important part of our story is the persistence of this schooling crisis in shrine dominated areas even after the departure of General Zia and the restoration of democracy in late 1980s. This is best explained by the fact that none of the political governments after the Zia era reversed his administrative change. Politicians continued to control the allocation and disbursement of development expenditures in their respective constituencies. In fact, there are more resources available for capture thanks to increasing public spending on education since 1988. This spending boom can be traced back to the Social Action Programme (SAP), a multi-donor initiative aimed at rectifying Pakistan's historic deficit in social sector spending. The programme was subjected to such widespread political abuse that the World Bank admitted it as a 'failure'. An independent evaluation for the Bank 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).

Taken together, the evidence offered above points to a growing politicization and defective provision of schooling since the mid-1980s, the period after the coup-induced administrative policy change. Although we do not have finely disaggregated data on some of these dimensions, our evidence is consistent with the suggestion that shrine-dominated regions suffered from greater politicization after Zia's military coup.

## 8 CONCLUSION

Using a rich empirical setting from Pakistan, this paper examines the role of religious elites in suppressing literacy in the wake of the 1977 military coup that devolved public development spending to elected politicians. Shrine elites—with their substantial presence in politics and their greater aversion to literacy—suppressed its expansion in shrine

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[39]Gazdar (2000, pp. 30)

dense regions. Our empirical analysis shows that there were no systematic differences in literacy prior to the coup between areas with high and low shrine concentration, and that the impact of historic religious power only became salient after the coup-induced administrative change in public goods provision. We show that shrine dominated regions witnessed a noticeable deterioration in the quality of and access to schooling, indicating defective school provision as a plausible mechanism behind our results.

Our paper contributes to long-standing debates on the role of religion in development, especially the contested discourse on Islam, politics and development. Through a concrete empirical illustration, we show how historically-grounded Islamic religious authority shapes contemporary differences in literacy through its interaction with formal institutional arrangements. Our work, therefore, reinforces the case for considering the interface between Islam and the underlying distribution of economic and political power. Our analysis is therefore closer in spirit to recent studies that highlight the interface between Islam and political economy. For example, the work of Coşgel, Miceli, and Rubin (2012) that shows how questions of political legitimacy shape approaches towards technological change, and Platteau (2017) that demonstrates the instrumentalization of Islam to achieve political ends.

While our findings emanate from a specific historical and spatial context, they echo wider relevance for the political economy of religion in Muslim societies. An interesting comparative case is Morocco where powerful Sufi orders are reasserting their influence on the political stage and lending legitimacy to authoritarian rule (Werenfels, 2014). Our paper also complements anthropological analysis in Starrett (1998) that shows how Islam has been "put to work" in Egypt through the "changing intersections of power, interest, and circumstance" (Starrett, 1998, p. 235).

Finally, this paper has concrete implications for public policy on education. Pakistan is currently faced with a major education emergency. With its 23 million out-of-school children, it ranks as second (after Nigeria) in the list of top ten countries with the "highest out-of-school populations" (UNESCO 2014). Pakistan is also described as "severely lagging" in its goal of achieving universal education. In this milieu, educational expansion is not just about scaling up resource endowments. It also requires addressing structural inequalities—in this case defined by the powerful configuration of religion, land and politics.

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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 | 0.250 | 0.436 | 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) | 0.225 | 0.228 | 0.013 | 0.814 | 664 |
| Average Total Literacy Rate (1901 to 1972) | 0.064 | 0.051 | 0.013 | 0.324 | 392 |
| Average Total Literacy Rate (1981 to 2011) | 0.457 | 0.180 | 0.103 | 0.814 | 272 |
| Average Male Literacy Rate (1901 to 2011) | 0.198 | 0.195 | 0.024 | 0.841 | 460 |
| Average Male Literacy Rate (1901 to 1972) | 0.091 | 0.069 | 0.024 | 0.432 | 324 |
| Average Male Literacy Rate (1981 to 2011) | 0.452 | 0.161 | 0.155 | 0.841 | 136 |
| Average Female Literacy Rate (1901 to 2011) | 0.076 | 0.123 | 0.000 | 0.638 | 460 |
| Average Female Literacy Rate (1901 to 1972) | 0.016 | 0.025 | 0.000 | 0.191 | 324 |
| Average Female Literacy Rate (1981 to 2011) | 0.221 | 0.142 | 0.030 | 0.638 | 136 |
| *Controls* |  |  |  |  |  |
| Total Literacy Rate (1931) | 0.047 | 0.032 | 0.013 | 0.214 | 68 |
| Proportion Canal Area (1931) | 0.360 | 0.337 | 0 | 0.993 | 68 |
| Proportion Landlord (1931) | 0.087 | 0.136 | 0 | 0.687 | 68 |
| Proportion Minorities (1931) | 0.188 | 0.083 | 0.033 | 0.393 | 68 |
| Distance to the River (km) | 21 | 19 | 1 | 77 | 68 |
| Elevation (feet) | 751 | 787 | 249 | 6400 | 68 |
| Distance to Delhi (km) | 414 | 94 | 249 | 630 | 68 |
| High Rainfall Dummy | 0.426 | 0.498 | 0 | 1 | 68 |
| Average Annual Rainfall 1917-1923 (mm) | 14.762 | 10.205 | 3.34 | 56.9 | 68 |

Table 2. Historical Shrines and Total Literacy

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | | | | Total Literacy Rate | | | |
| Post Coup X Shrines per thousand persons | -1.618*** | -1.468*** | -1.474*** | -1.251*** | -1.175*** | -1.096*** | -0.788*** |
| | (0.337) | (0.408) | (0.391) | (0.405) | (0.382) | (0.370) | (0.251) |
| | | | | | | | |
| Controls X (Year Fixed Effects): | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes |
| | | | | | | | |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.943 | 0.945 | 0.947 | 0.953 | 0.954 | 0.962 | 0.969 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effcets and tehsil fixed effects. The unit of observation is tehsil-year.

Table 3. Historical Shrines and Total Literacy by Time Period

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | | | | Total Literacy Rate | | | |
| Shrines per thousand persons X 1911 | -0.0706 | -0.0895 | -0.111 | -0.0940 | -0.105 | -0.107* | -0.0952 |
| | (0.0648) | (0.0660) | (0.0684) | (0.0692) | (0.0659) | (0.0607) | (0.0658) |
| Shrines per thousand persons X 1921 | -0.107 | -0.0710 | -0.0280 | -0.0203 | -0.0200 | 0.00452 | 0.0660 |
| | (0.0807) | (0.0761) | (0.0726) | (0.0676) | (0.0649) | (0.0539) | (0.0693) |
| Shrines per thousand persons X 1931 | -0.304*** | -0.223** | -0.177* | -0.157* | -0.142* | -0.114 | -0.0330 |
| | (0.106) | (0.106) | (0.100) | (0.0899) | (0.0834) | (0.0704) | (0.0648) |
| Shrines per thousand persons X 1961 | -0.639*** | -0.446* | -0.417* | -0.284 | -0.228 | -0.167 | -0.0200 |
| | (0.196) | (0.228) | (0.223) | (0.196) | (0.178) | (0.204) | (0.117) |
| Shrines per thousand persons X 1972 | -0.794*** | -0.603** | -0.576** | -0.417 | -0.329 | -0.273 | -0.117 |
| | (0.249) | (0.285) | (0.286) | (0.257) | (0.228) | (0.254) | (0.206) |
| Shrines per thousand persons X 1981 | -0.835*** | -0.636** | -0.604** | -0.434 | -0.366 | -0.306 | -0.0869 |
| | (0.256) | (0.302) | (0.302) | (0.278) | (0.259) | (0.292) | (0.161) |
| Shrines per thousand persons X 1998 | -2.390*** | -2.115*** | -2.104*** | -1.795*** | -1.671*** | -1.551*** | -1.180*** |
| | (0.522) | (0.631) | (0.613) | (0.588) | (0.555) | (0.431) | (0.381) |
| Shrines per thousand persons X 2008 | -2.362*** | -2.140*** | -2.142*** | -1.827*** | -1.708*** | -1.582*** | -1.091*** |
| | (0.514) | (0.605) | (0.569) | (0.588) | (0.549) | (0.578) | (0.339) |
| Shrines per thousand persons X 2011 | -2.191*** | -1.956*** | -1.939*** | -1.607*** | -1.515*** | -1.388** | -0.927*** |
| | (0.462) | (0.550) | (0.533) | (0.543) | (0.513) | (0.543) | (0.328) |
| Controls X (Year Fixed Effects): | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.945 | 0.946 | 0.948 | 0.954 | 0.955 | 0.962 | 0.969 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effcets and tehsil fixed effects. The unit of observation is tehsil-year.

Table 4. 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 |
|---|---|---|---|---|---|---|
| Shrines per thousand persons | 1.408 | 1.141 | 0.114 | 0.153 | -1.636 | 0.121 |
| | (5.463) | (4.797) | (0.612) | (0.125) | (1.175) | (2.879) |
| High shrine dummy | 0.166 | 0.141 | 0.0169 | 0.00755 | -0.0907 | 0.0479 |
| | (0.221) | (0.191) | (0.0277) | (0.00762) | (0.0863) | (0.0979) |
| Shrines per area | -2.218 | -3.785 | -0.572 | 2.140 | -9.079 | -0.691 |
| | (32.32) | (27.83) | (3.784) | (1.469) | (7.685) | (16.64) |
| Mean Outcome | 1.208 | 1.064 | 0.101 | 0.043 | 0.519 | 0.685 |
| Observations | 64 | 64 | 64 | 64 | 64 | 64 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include district fixed effects, latitude, longitude and elevation. The unit of observation is tehsil.

Table 5. Historical Shrines and Post-Coup Enrolment

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | Total Enrolment Rate (0-19) | | | Primary Enrolment Rate (5-14) | | | Secondary Enrolment Rate (15-19) | | |
| Shrines per thousand persons | -62.70*** | -62.70*** | -41.40** | -45.65** | -45.65** | -31.19* | -153.5** | -153.5** | -91.77 |
| | (21.86) | (21.89) | (19.65) | (17.61) | (17.64) | (15.96) | (62.86) | (62.96) | (58.86) |
| Mean Outcome | 22.857 | 22.857 | 22.857 | 21.150 | 21.150 | 21.150 | 60.022 | 60.022 | 60.022 |
| Observations | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 |
| Adjusted R-squared | 0.430 | 0.434 | 0.541 | 0.393 | 0.396 | 0.473 | 0.364 | 0.369 | 0.471 |
| Controls: | | | | | | | | | |
| Division-specific linear time trends | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Annual rainfall (mm) | No | No | Yes | No | No | Yes | No | No | Yes |

Notes: The panel upon which the regressions in columns (1) to (9) are based encompass the years 1982, 1984, 1985, 1986, 1988, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997 and 1998. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effects and division fixed effects. The unit of observation is tehsil-year.

Table 6. Minor shrines and Total Literacy

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | | | | Total Literacy Rate | | | |
| Post Coup X Minor shrines per thousand persons | -2.065 | -2.509 | -2.219 | -0.818 | -0.849 | -0.185 | -0.189 |
| | (1.582) | (1.566) | (1.512) | (1.653) | (1.568) | (1.474) | (1.323) |
| | | | | | | | |
| Controls X (Year Fixed Effects): | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes |
| | | | | | | | |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.935 | 0.939 | 0.941 | 0.948 | 0.951 | 0.958 | 0.967 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effects and tehsil fixed effects. The unit of observation is tehsil-year.

Table 7. Main Results with additional controls

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total Literacy Rate | | | | | |
| Post Coup X Shrines per thousand persons | -1.618*** | -1.468*** | -1.474*** | -1.251*** | -1.175*** | -1.096*** | -0.788*** | -0.811*** | -0.637** | -0.645** |
| | (0.337) | (0.408) | (0.391) | (0.405) | (0.382) | (0.370) | (0.251) | (0.267) | (0.268) | (0.257) |
| | | | | | | | | | | |
| Controls X (Year Fixed Effects): | | | | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes | Yes | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes | Yes | Yes | No |
| | | | | | | | | | | |
| Additonal Controls X (Year Fixed Effects): | | | | | | | | | | |
| Proportion minorities (1931) | No | No | No | No | No | No | No | Yes | Yes | Yes |
| Proportion landlord (1931) | No | No | No | No | No | No | No | No | Yes | Yes |
| Average Annual Rainfall 1917-1923 (mm) | No | No | No | No | No | No | No | No | No | Yes |
| | | | | | | | | | | |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.943 | 0.945 | 0.947 | 0.953 | 0.954 | 0.962 | 0.969 | 0.969 | 0.972 | 0.976 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effcets and tehsil fixed effects. The unit of observation is tehsil-year.

Table 8. Main results with alternative proxies for historical shrines

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | | | | Total Literacy Rate | | | |
| Post Coup X High shrine dummy | -0.0922*** | -0.0832*** | -0.0876*** | -0.0719*** | -0.0674*** | -0.0588*** | -0.0263 |
| | (0.0178) | (0.0215) | (0.0219) | (0.0226) | (0.0220) | (0.0200) | (0.0193) |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.943 | 0.945 | 0.947 | 0.953 | 0.954 | 0.961 | 0.967 |
| | | | | Total Literacy Rate | | | |
| Post Coup X Shrines per area | -10.57*** | -9.663*** | -9.430*** | -7.982*** | -7.385*** | -6.613*** | -5.131** |
| | (2.059) | (2.412) | (2.338) | (2.453) | (2.400) | (2.446) | (1.938) |
| Mean Outcome | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 | 0.225 |
| Observations | 665 | 665 | 665 | 665 | 665 | 665 | 665 |
| Adjusted R-squared | 0.941 | 0.944 | 0.946 | 0.952 | 0.954 | 0.961 | 0.969 |
| Controls X (Year Fixed Effects): | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes |

Notes: For the High shrine dummy we distinguish between High and Low-Shrine tehsils as follows. We define a High (Low) Shrine tehsil as being the one where the shrines per capita is above (or below) its 75th percentile value in 1931.  ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effcets and tehsil fixed effects. The unit of observation is tehsil-year.

Table 9. Main Results with outliers removed

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | Total Literacy Rate | | | | | | | |
| Post Coup X Shrines per thousand persons | -1.516*** | -1.261*** | -1.317*** | -1.067*** | -1.017*** | -1.019*** | -0.689** | -0.847*** | -0.823** | -0.779** | -0.722* | -0.456 | -0.503 | -0.455 |
| | (0.337) | (0.353) | (0.339) | (0.357) | (0.341) | (0.333) | (0.269) | (0.286) | (0.320) | (0.337) | (0.369) | (0.322) | (0.348) | (0.308) |
| Mean Outcome | 0.248 | 0.248 | 0.248 | 0.248 | 0.248 | 0.248 | 0.248 | 0.173 | 0.173 | 0.173 | 0.173 | 0.173 | 0.173 | 0.173 |
| Observations | 598 | 598 | 598 | 598 | 598 | 598 | 598 | 599 | 599 | 599 | 599 | 599 | 599 | 599 |
| Adjusted R-squared | 0.943 | 0.952 | 0.955 | 0.959 | 0.961 | 0.965 | 0.971 | 0.938 | 0.940 | 0.940 | 0.943 | 0.951 | 0.954 | 0.956 |
| Removed | | | Total literacy Q1 | | | | | | | Total literacy Q10 | | | | |
| | | | | | | | Total Literacy Rate | | | | | | | |
| Post Coup X Shrines per thousand persons | -1.392*** | -1.346*** | -1.317*** | -1.263*** | -0.828*** | -0.881** | -0.760*** | -2.741*** | -2.670*** | -2.898*** | -1.854** | -1.786* | -1.559* | -0.229 |
| | (0.374) | (0.450) | (0.430) | (0.465) | (0.299) | (0.330) | (0.253) | (0.777) | (0.836) | (0.851) | (0.912) | (0.910) | (0.865) | (0.817) |
| Mean Outcome | 0.210 | 0.210 | 0.210 | 0.210 | 0.210 | 0.210 | 0.210 | 0.231 | 0.231 | 0.231 | 0.231 | 0.231 | 0.231 | 0.231 |
| Observations | 417 | 417 | 417 | 417 | 417 | 417 | 417 | 606 | 606 | 606 | 606 | 606 | 606 | 606 |
| Adjusted R-squared | 0.949 | 0.948 | 0.948 | 0.951 | 0.968 | 0.969 | 0.973 | 0.943 | 0.945 | 0.947 | 0.953 | 0.955 | 0.962 | 0.969 |
| Removed | | | Shrines per thousand persons (1931) Q1 | | | | | | | Shrines per thousand persons (1931) Q10 | | | | |
| Controls X (Year Fixed Effects): | | | | | | | | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes | No | No | No | No | No | No | Yes |

Notes: The top panel drops the first and tenth deciles of the total literacy rate and the bottom panel drops the first and tenth deciles of shrines per thousand persons in 1931. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effects and tehsil fixed effects. The unit of observation is tehsil-year.

Table 10. Historical Shrines and Total Literacy (sample restricted to post-partition)

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| | | | | Total Literacy Rate | | | |
| Post Coup X Shrines per thousand persons | -1.228*** | -1.187*** | -1.200*** | -1.066*** | -1.036*** | -0.987*** | -0.752*** |
| | (0.268) | (0.318) | (0.308) | (0.338) | (0.330) | (0.305) | (0.251) |
| | | | | | | | |
| Controls X (Year Fixed Effects): | | | | | | | |
| Total Literacy Rate (1931) | No | Yes | Yes | Yes | Yes | Yes | Yes |
| Proportion Canal Area (1931) | No | No | Yes | Yes | Yes | Yes | Yes |
| Distance to River (km) | No | No | No | Yes | Yes | Yes | Yes |
| Elevation (feet) | No | No | No | No | Yes | Yes | Yes |
| Distance to Delhi (km) | No | No | No | No | No | Yes | Yes |
| High Rainfall Dummy | No | No | No | No | No | No | Yes |
| | | | | | | | |
| Mean Outcome | | | | | | | |
| Observations | 408 | 408 | 408 | 408 | 408 | 408 | 408 |
| Adjusted R-squared | 0.955 | 0.955 | 0.956 | 0.959 | 0.959 | 0.964 | 0.970 |

Notes: The panel upon which the regressions in columns (1) to (5) are based comes from the post partition period and encompasses the years 1961, 1972, 1981, 1998, 2008 and 2011. ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effects and tehsil fixed effects. The unit of observation is tehsil-year.

Table 11. Historical Shrines and Post-Coup School or Teacher Supply

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
|---|---|---|---|---|---|---|---|---|---|
| | Total schools per child (0-19) | | | Primary schools per child (5-14) | | | Secondary schools per child (15-19) | | |
| Shrines per thousand persons | 2.523 | 2.523 | 3.387 | 5.146 | 5.146 | 6.183 | -0.534 | -0.534 | 1.023 |
| | (3.818) | (3.825) | (3.903) | (6.496) | (6.506) | (6.610) | (2.647) | (2.651) | (2.677) |
| Mean Outcome | 1.893 | 1.893 | 1.893 | 2.949 | 2.949 | 2.949 | 1.634 | 1.634 | 1.634 |
| Observations | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 |
| Adjusted R-squared | 0.196 | 0.194 | 0.229 | 0.182 | 0.180 | 0.197 | 0.299 | 0.297 | 0.413 |
| | Total teachers per child (0-19) | | | Primary teachers per child (5-14) | | | Secondary teachers per child (15-19) | | |
| Shrines per thousand persons | -0.809 | -0.810 | -0.0700 | -0.126 | -0.127 | 0.313 | -1.954 | -1.954 | 0.382 |
| | (0.922) | (0.924) | (0.889) | (1.042) | (1.044) | (1.060) | (2.484) | (2.488) | (2.216) |
| Mean Outcome | 0.849 | 0.849 | 0.849 | 0.778 | 0.778 | 0.778 | 2.274 | 2.274 | 2.274 |
| Observations | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 | 924 |
| Adjusted R-squared | 0.321 | 0.324 | 0.440 | 0.198 | 0.197 | 0.259 | 0.285 | 0.287 | 0.400 |
| Controls: | | | | | | | | | |
| Division-specific linear time trends | No | Yes | Yes | No | Yes | Yes | No | Yes | Yes |
| Annual average rainfall (mm) | No | No | Yes | No | No | Yes | No | No | Yes |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. All regressions include year fixed effcets and division fixed effects. The unit of observation is tehsil-year.

Table 12. Historical Shrines and Post-Coup School Size

| | (1) | (2) | (3) |
|---|---|---|---|
| | Primary | Middle | High |
| Shrines per thousand persons | -197.0*** | -93.20 | 33.39 |
| | (65.63) | (222.6) | (414.7) |
| Controls: | Yes | Yes | Yes |
| Mean Outcome | 77.227 | 232.834 | 565.877 |
| Observations | 896 | 896 | 896 |
| Adjusted R-squared | 0.399 | 0.345 | 0.345 |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 1931 tehsil in parentheses, unless otherwise indicated. The above models regress school size (i.e. pupils per school) on the no.of shrines per thousand persons in 1931 for the post coup period from 1982 to 1999. All regressions include year fixed effcets, laittude, longitude, elevation, distance to the river, distance to lahore and annual rainfall as controls. The unit of observation is tehsil-year.

Table 13. Historical Shrines and Physical Access to Schooling in 2007

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| | Proportion of Boys Public Schools | | | Proportion of Girls Public Schools | | |
| | < 2km | 2km to 5km | > 5km | < 2km | 2km to 5km | > 5km |
| Shrines per thousand persons | -0.177* | 0.218*** | -0.0400 | -0.325** | 0.386*** | -0.0611 |
| | (0.0990) | (0.0583) | (0.0790) | (0.160) | (0.116) | (0.104) |
| Mean Outcome | 0.928 | 0.051 | 0.021 | 0.910 | 0.056 | 0.034 |
| Observations | 123 | 123 | 123 | 123 | 123 | 123 |
| Adjusted R-squared | 0.369 | 0.310 | 0.211 | 0.320 | 0.308 | 0.202 |
| | Proportion of Boys Private Schools | | | Proportion of Girls Private Schools | | |
| | < 2km | 2km to 5km | > 5km | < 2km | 2km to 5km | > 5km |
| Shrines per thousand persons | -0.558** | 0.375** | 0.183 | -0.551** | 0.391** | 0.161 |
| | (0.223) | (0.167) | (0.247) | (0.233) | (0.159) | (0.253) |
| Mean Outcome | 0.779 | 0.079 | 0.143 | 0.778 | 0.078 | 0.145 |
| Observations | 123 | 123 | 123 | 123 | 123 | 123 |
| Adjusted R-squared | 0.377 | 0.324 | 0.288 | 0.369 | 0.329 | 0.279 |
| Controls | Yes | Yes | Yes | Yes | Yes | Yes |

Notes: ***Significant at 1%, **Significant at 5%, *Significant at 10%. Standard errors clustered by 2007 tehsil in parentheses, unless otherwise indicated. The controls are latitude, longitude, elevation and distance to the river. The unit of observation is tehsil-year.